Mode-differences and questionnaire design

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QDET2 Session CS21   **11 November 2016**

Statistics Netherlands

Outline

- Response proces and mode

- Mode effects and questionnaire design

- Internal and external factors

- Example of mode effects due to extern factors

- Example of mode effects due to intern factors

- Guidelines for questionnaire design to prevent mode effects

Mode differences

Selection effects: specific people respond in specific modes

Measurement effects: respondents understand and answer the same questions in a different way in different modes

Respons proces

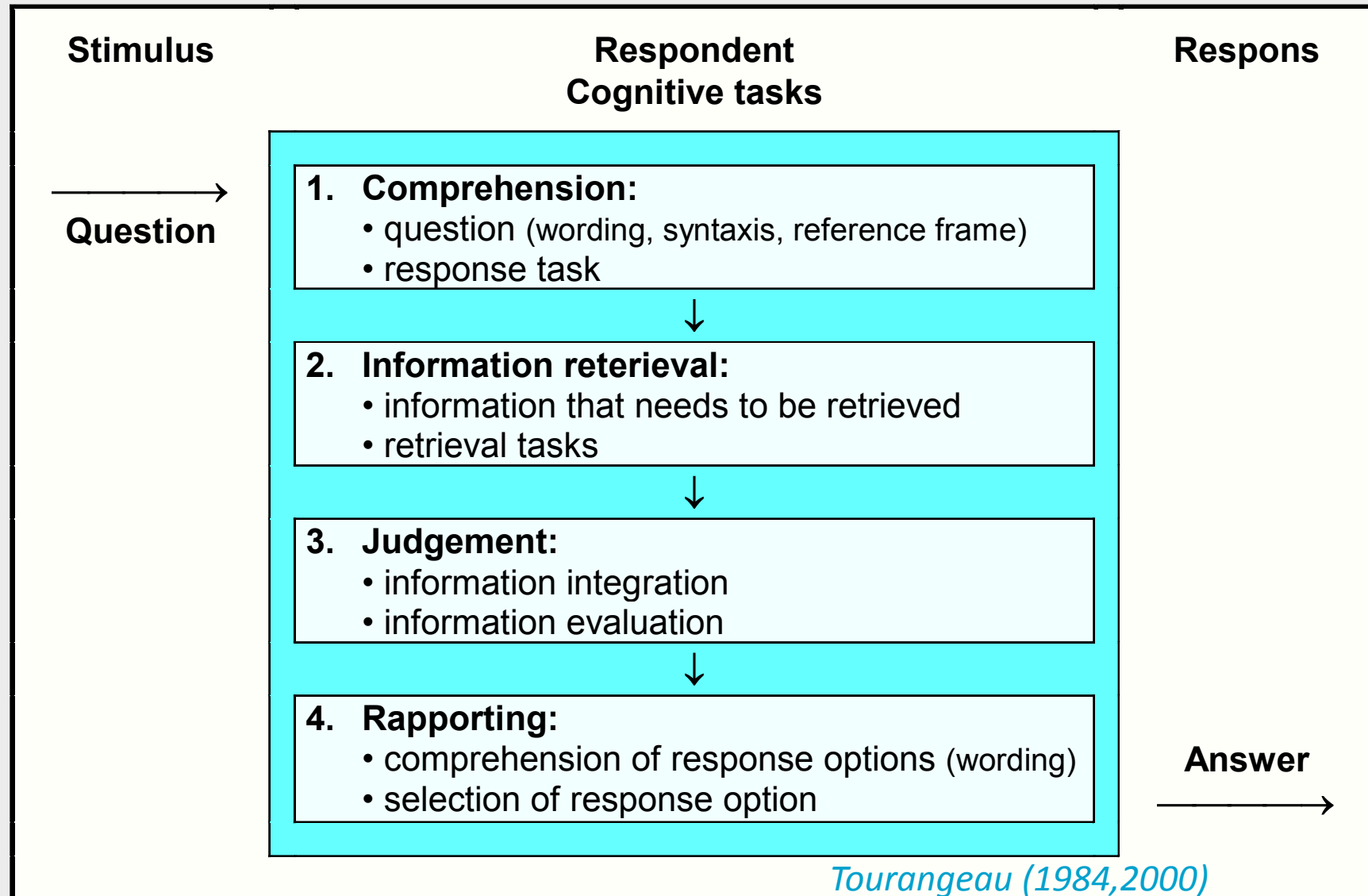**Stimulus**

→

Question

Respondent

Respons

Answer

→

Respons proces

Stimulus	**Respondent** **Cognitive tasks**	**Respons**

Question →

1. **Comprehension:**
   - question (wording, syntaxis, reference frame)
   - response task

↓

2. **Information reterieval:**
   - information that needs to be retrieved
   - retrieval tasks

↓

3. **Judgement:**
   - information integration
   - information evaluation

↓

4. **Rapporting:**
   - comprehension of response options (wording)
   - selection of response option

Answer →

Tourangeau (1984,2000)

Effect of mode?

Stimulus

Respons

Visual or aural

Respondent

Visual or aural

Question

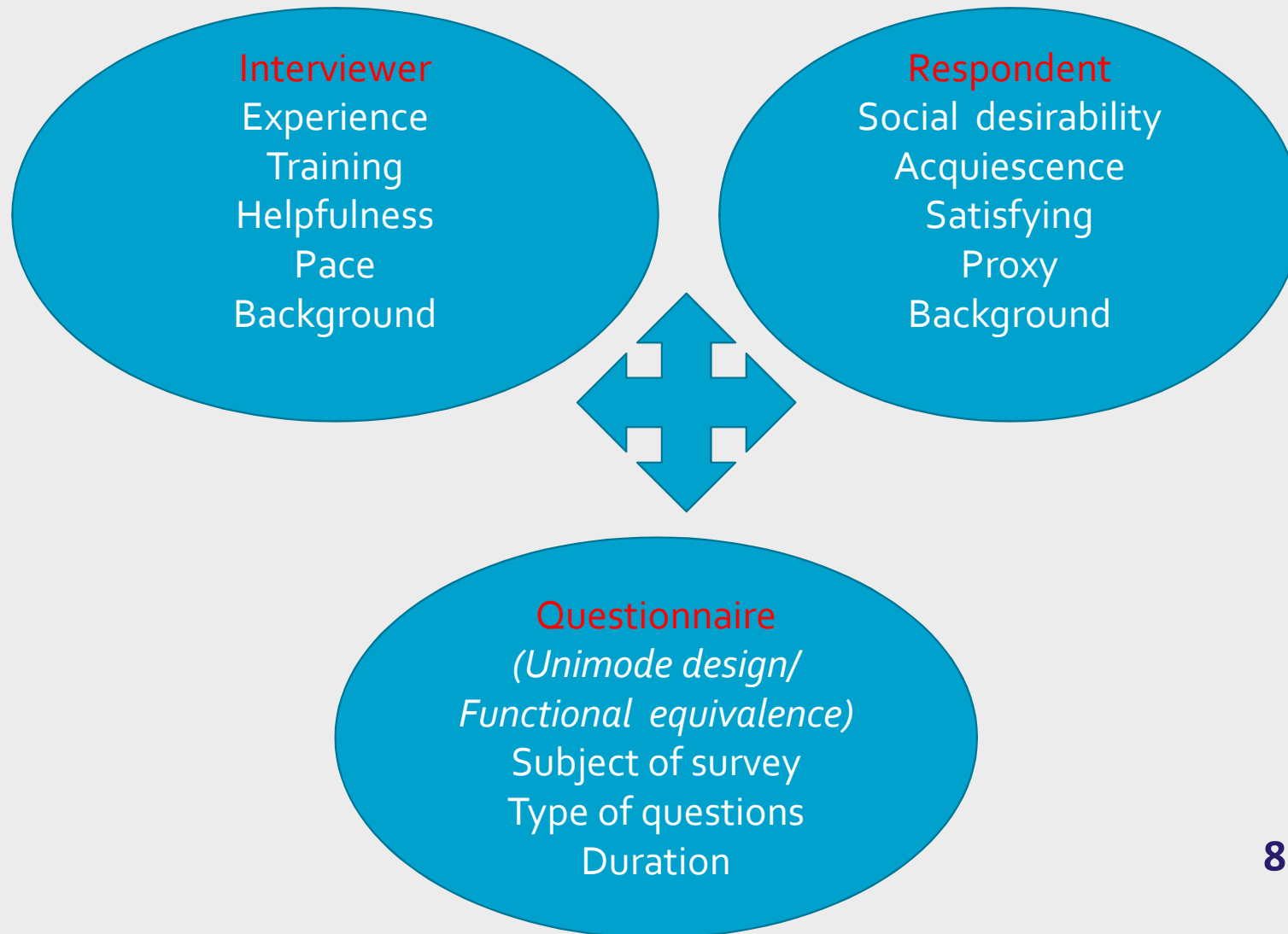| Compre-hension	Retrieval	Judgment	Response
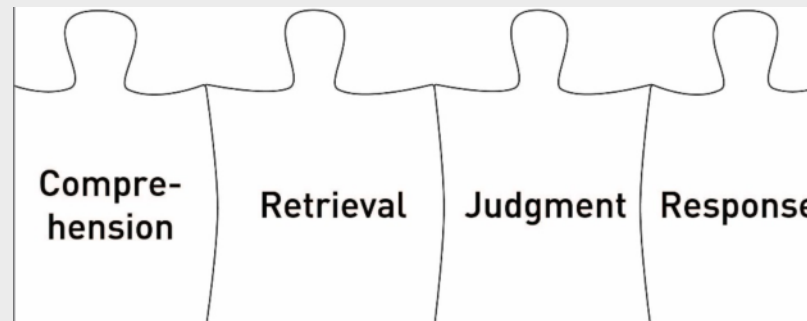
Answer

Tourangeau (1984, 2000)

Review of literature on mode effects

Unimode design: questions, answer categories and explanations should be designed equally across all modes so that respondents get the same stimuli and provide the same answers, independent of the mode in which the questions are asked.

Functional/cognitive equivalent/mode-specific-design: questionnaires contain different but functional equivalent stimuli across different modes with the aim of achieving similar answer distributions (mode-specific design).
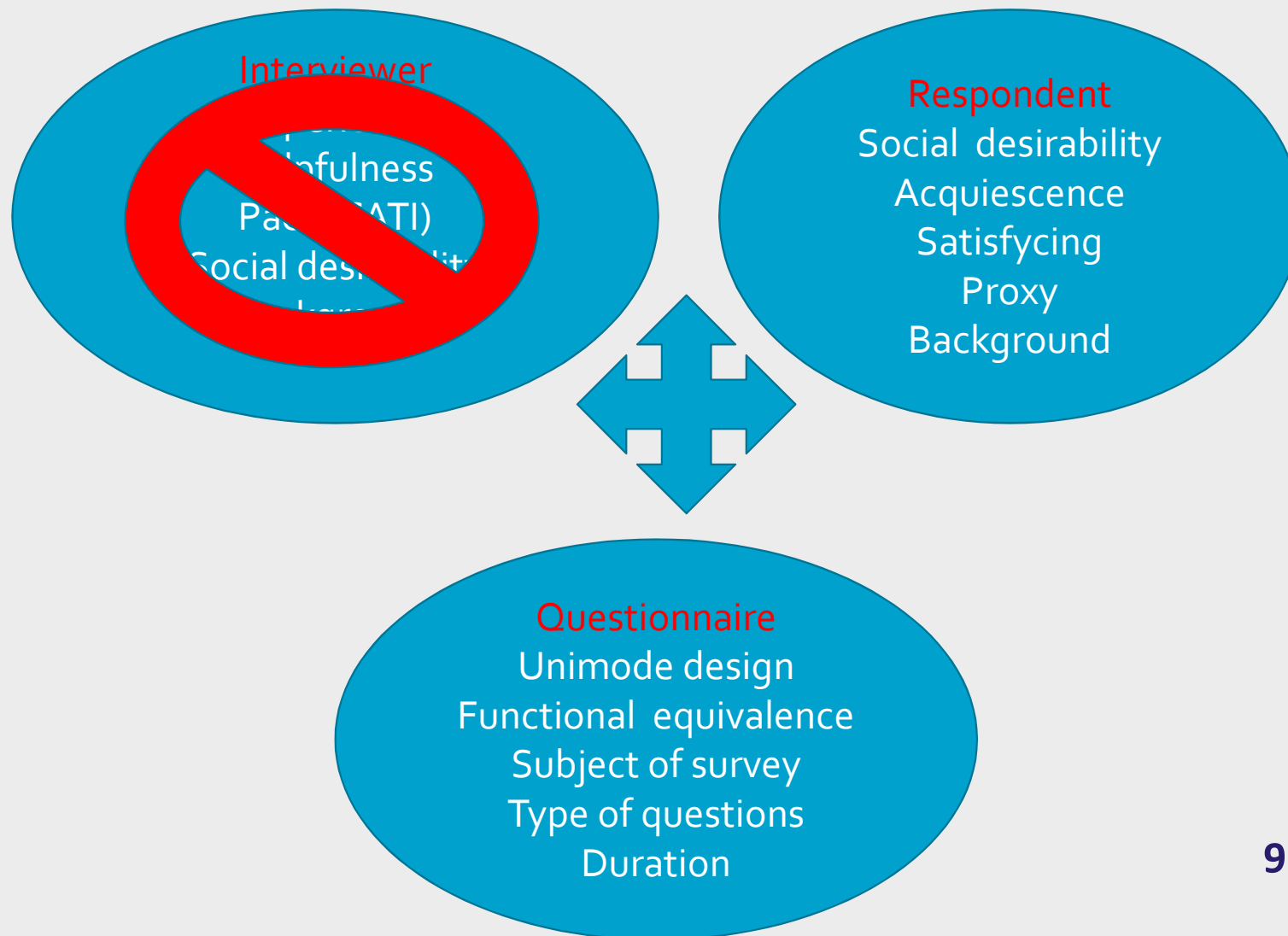
(Dillman 2014, chapter 11; De Leeuw 2005; De Leeuw & Hox 2011).

Internal and external factors

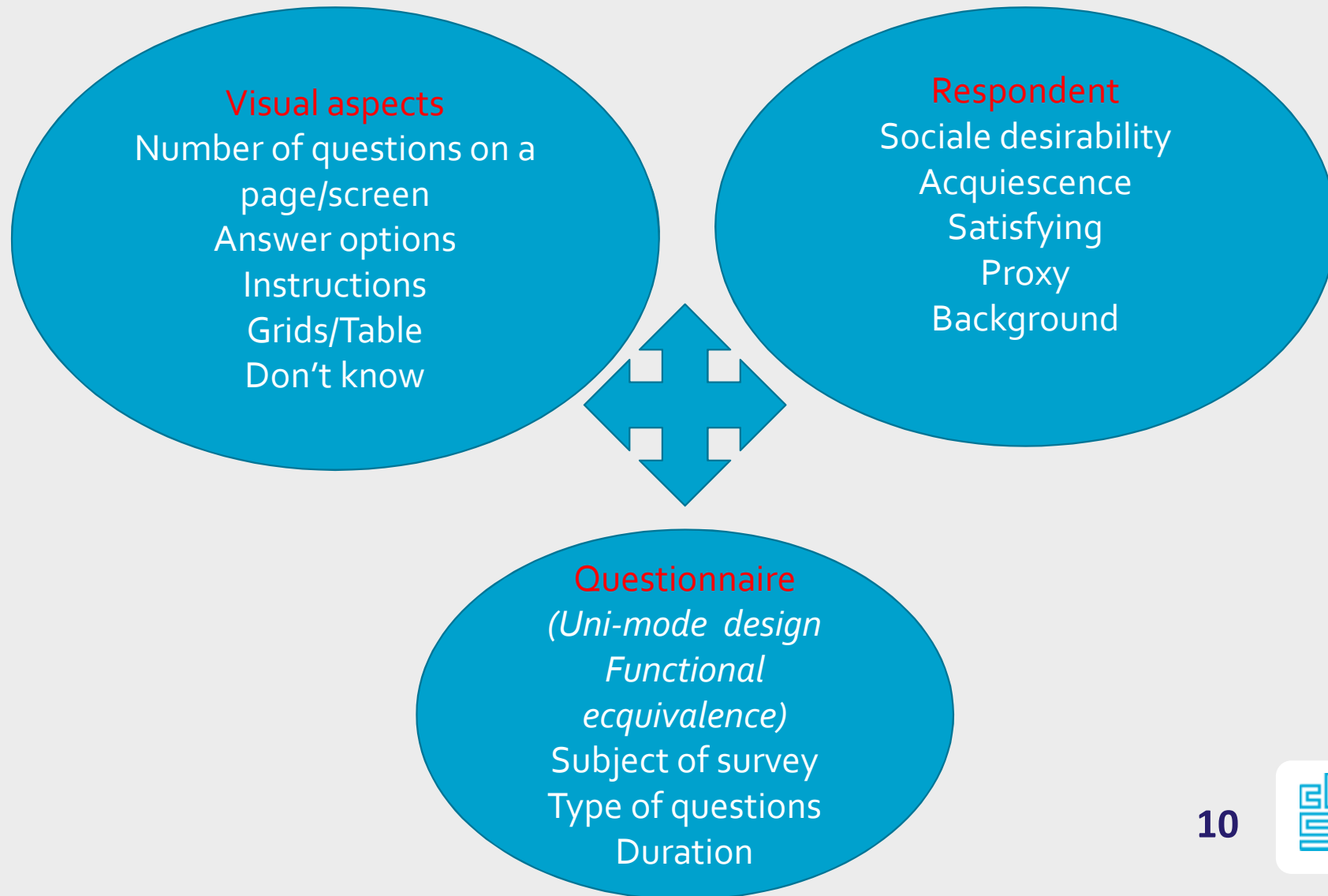**Interviewer**
Experience
Training
Helpfulness
Pace
Background

Respondent
Social desirability
Acquiescence
Satisfying
Proxy
Background

Questionnaire
(Unimode design/
Functional equivalence)
Subject of survey
Type of questions
Duration

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Internal and external factors in web

Interviewer
~~...~~
~~...pfulness~~
~~Pace (CATI)~~
~~Social desirability~~

Respondent
Social desirability
Acquiescence
Satisfycing
Proxy
Background

Questionnaire
Unimode design
Functional equivalence
Subject of survey
Type of questions
Duration

Visual design in web

Visual aspects
Number of questions on a
page/screen
Answer options
Instructions
Grids/Table
Don't know

Respondent
Sociale desirability
Acquiescence
Satisfying
Proxy
Background

Questionnaire
(Uni-mode design
Functional
ecquivalence)
Subject of survey
Type of questions
Duration

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Review of mode effects at Statistics Netherlands

Questionnaire design issues that explain mode differences in person and household surveys. Sensitive for mode effects (external factors):

- Problematic questions in interviewer mode appeared to be sensitive for mode effects in mixed mode design without interviewer (comprehension versus (lack of) additional explanation).

- A sequence of interrelated questions on two pages/screens.

- Filter questions and follow up question on separate screen/page (not visible for the respondent).

- Complex order effects and wording (content of questions).

- (Too long) introduction texts and visible distance towards questions.

Mode difference: BMI (external)

Q Length: How tall are you? It is your height in centimeters without shoes Q Weight: What is your weight? It is your weight in kilograms, without clothes.	CAWI	CAPI	Sign
Body Mass Index >30 10.9	12.2		*
(From: Health Survey 2015, Stat Neth)	(n=4933)	(n=4583)	

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Mode differences: marital status (internal)

Q: What is your current marital status?	Web	CAPI	Sign **
Married\cohabiting (officially registered)	47.8	38.7	
Divorced	5.1	6.9	
Never married	43.6	48.5	
Widowed	3.4	6.0	
(From: Health Survey 2015, Stat Neth)	100 (n=4933)	100 (n=4583)	

(See also Dillman Chapter 11)

Mode differences: question on marital status

Comprehension and interpretation of term marital status.

Web: visual stimulus: reading the answer options (respons proces).

CAPI: coding the answers of the respondents by the interviewers: "I am cohabiting"; "I am living together with my boyfriend"; "I registrered my partnership officially".

(Mis) interpretation of respondents in Web; the official registration in the municipal administration or whether respondent lives together with a partner or not. In CAPI answer 'never married' is not the same as living alone.

With and without instruction texts

Version A: with instruction text:

A majority of internet service are asking you to confirm your identity. Some services require strong authentication procedures, such as a token, card, procedure involving your mobile phone (a code received via a message) or other eID. A simple login and password for an online service is not considered as a strong authentication.

Version B: without instruction text

Results:

Q11 Have you used any of the following electronic identification procedure (eID) for online services for private purposes in the last 12 months?	A	B	Sign
a security token	37	33	ns
electronic identification card	67	66	ns
procedure involving your mobile phone (a code received via a message)	37	39	ns
other electronic identification procedure	2	3	ns
no, I have not used any electronic identification procedure	25	26	ns

(from: ICT questionnaire: experiment Dutch LISS panel Center Data & CBS, August 2016)

Example: grid questions & visual effects

MQ	How concerned are you about the following possible problems related to Internet usage for private purposes?	Strong	Mildly	Not at all
	Loosing information or time due to a virus or other computer infection e.g. worm or Trojan horse	0	0	0
	Misuse of your personal information put on the Internet resulting in e.g. discrimination, harassment, bullying or other harmful consequences	0	0	0
	Misuse of personal data by others, identity theft, somebody stealing your personal data and impersonating you, e.g. shopping under your name	0	0	0

(from: ICT questionnaire, Stat Neth)

Example grid questions: unimode design

How concerned are you about loosing information or time due to a virus or other computer infection e.g. worm or Trojan horse? Would you say:

> Strongly concerned
> Mildly concerned
> Not concerned at all

How concerned are you for misuse of your personal information put on the Internet resulting in e.g. discrimination, harassment, bullying or other harmful consequences? Would you say:

> Strongly concerned
> Mildly concerned
> Not concerned at all

How concerned are your for misuse of personal data by others, identity theft (somebody stealing your personal data and impersonating you, e.g. shopping under your name)? Would you say:

> Strongly concerned
> Mildly concerned
> Not concerned at all

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Example questions on two pages/screen

Q33. The next questions are about the economic situation of our country. Do you think that in the previous 12 months the general economic situation of our country has become better, has become worse or has stayed the same?

1. Better   -> Go to Q34
2. Worse   -> Go to Q35
3. Same   -> Go to Else
4. Don't know -> Go to Else

If better: **If worse:**   **Else:**

Q34. A bit better or clearly better?
1. A bit better
2. Clearly better
3. Don't know

Q35. A bit worse or clearly worse?
1. A bit worse
2. Clearly worse
3. Don't know

Q33. The next questions are about the economic situation of our country. Do you think that in the previous 12 months the general economic situation of our country has become better, has become worse or has stayed the same?

1. Clearly better
2. A bit better
3. Same
4. A bit worse
5. Clearly worse
6. Don't know

Mean Consumer Confidence Indices (ANOVA)

Mode	Telephone -29,4	Web -35,4 **
Q-format	2-step -33,3	5-point -32,3

Interaction		Telephone	Web
	2-step	-31,7	-34,5
	5-point	-27,1 **	-36,3 **

*Sign p<0,05 **Sign p<0,01

(from: Consumer Confidence Index questionnaire, Stat Neth)

Mode effects and questionnaire design

- Questionnaire design is crucial in mixed mode surveys to minimize measurement effects, although they can not be prevent (external factors).

- Reducing the risk for mode effects in the survey with questionnaire design is possible (internal factors).

- Uni/omni mode approach is preferable for most type of questions and most reliable to achieve measurement equivalence.

- Best practices and guidelines helpfull, attention for visual aspects, sometimes redesign necessary.
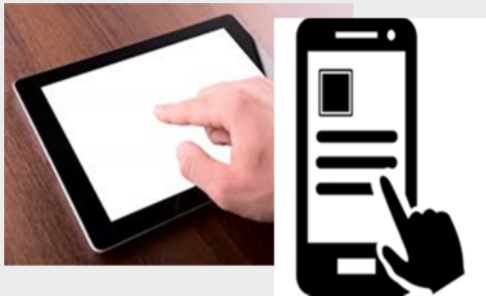
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Guidelines questionnaire design in mixed mode

– Omnimode design.
– In general, one single question on a screen.
– Combine filter questions and follow up questions on one screen.
– Repeat question texts on a next page.
– If dont'know is a relevant answer option, make visually distinguished.
– Avoid grids.
– Minimize instruction texts and explanatory notes and include in question an answer texts in all modes.
– Consider redesign (if possible).

(Based on best practices at StatNeth and guidelines from literature (Dillman e.a. 2014; de Leeuw 2011)

Thanks for your attention!

Via: QDET2 app......

F2F at the end
of this session....

KEEP
CALM
AND
ASK ME A
QUESTION

?

Not in
all
modes!

Not by phone...☺

With an e-mail.....
v.meertens@cbs.nl