

Insights into the response process – screen recording as a fruitful evaluation method

Developments and Challenges in Business
Surveys Methodology 21.1.2014

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Presentation topics

- Framing the context - Internet data collection
- Testing and evaluation procedures in Stat Fin
- Insights into the response process – video clips
- Theoretical and organizational implications

Internet data collection in Statistics Finland

- In 2013 the share of the answers to the web surveys for enterprises have grown to over 80 per cent
- Overall, web surveys have been interpreted as a success in many ways
 - The average response time of surveys has been reduced and the quality of received has been better
 - Respondents have been mostly satisfied
 - But still is work to do in questionnaire design and development

Data collection applications in business surveys

- XCola (XML-based Data Collection Application)
 - developed in-house
 - all business register data collections
 - majority of other business surveys
- Outsourced web-questionnaires
 - e.g. some structural business statistics surveys
- BlaiseIS (uncommon in business surveys)
 - questionnaires with very complex routing
- Digium Enterprise
 - some ad-hoc surveys and/or commissions

Testing and evaluation procedures in business surveys

■ Project on usability testing 2009-2010

- The screen capture software brought the experience of respondents into the office in a new way
- Quality of web questionnaires and respondent friendliness in focus
- Impulse to the permanent testing and evaluation work
- First video example from 2008 (only in presentation) >>>>
Monthly inquiry for accommodation statistics

■ Every statistical unit is asked every autumn to name surveys they want to be evaluated or tested in a forthcoming year

- Steering group of statistics production will make a final decision which surveys will be tested and evaluated
- Criteria in deciding which will be tested: new survey, major response burden, respondent feed back etc.

Practical issues

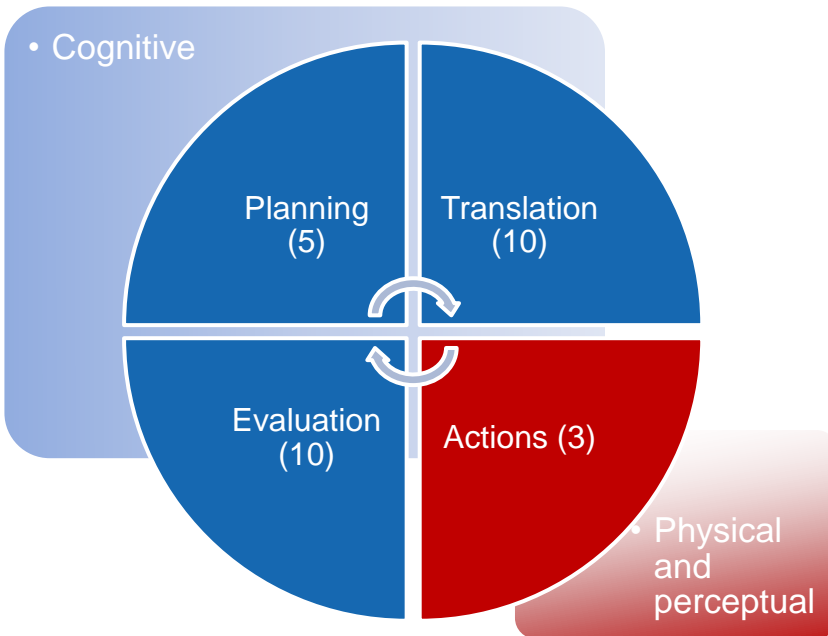
- **Businesses have been positive to testing**
 - we send a mail or an e-mail beforehand and then make a telephone contact and set the appointment (mostly in business site)
 - approx. every second agree
 - think aloud method (cognitive interview / usability)
- **When using recording software Dream Broker, video clips are in the server behind password and could be seen with internet just clicking the hyperlink of a recording**
- **With real response process observations, it is easier to make personnel aware of problems and also to make development work smoother**

Testing aspects

- The concept of usability consists of three dimensions: effectiveness, efficiency and satisfaction **in a specified context of use**
- Here **this context** is seen as a response situation in establishment internet surveys
- Designers of an application and questionnaires as well are blind to the aspects of novice user and respondent
- A survey application should support response process **in a specified context**
 - Business survey response process model (more in next slides)

Frameworks

Usability: A modified version of the user action framework¹

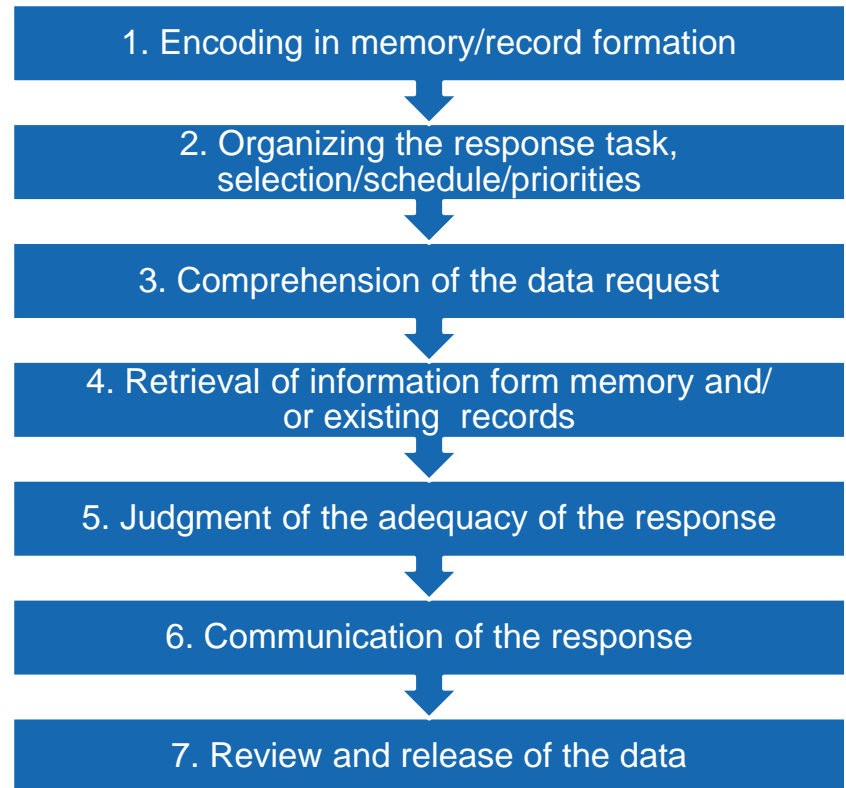


(x) = number of subcategories

¹ Terence, S. et. al. 2001

² Willimack, D. K. & Snijkers, G. (2013) in Snijkers et. al. 2013

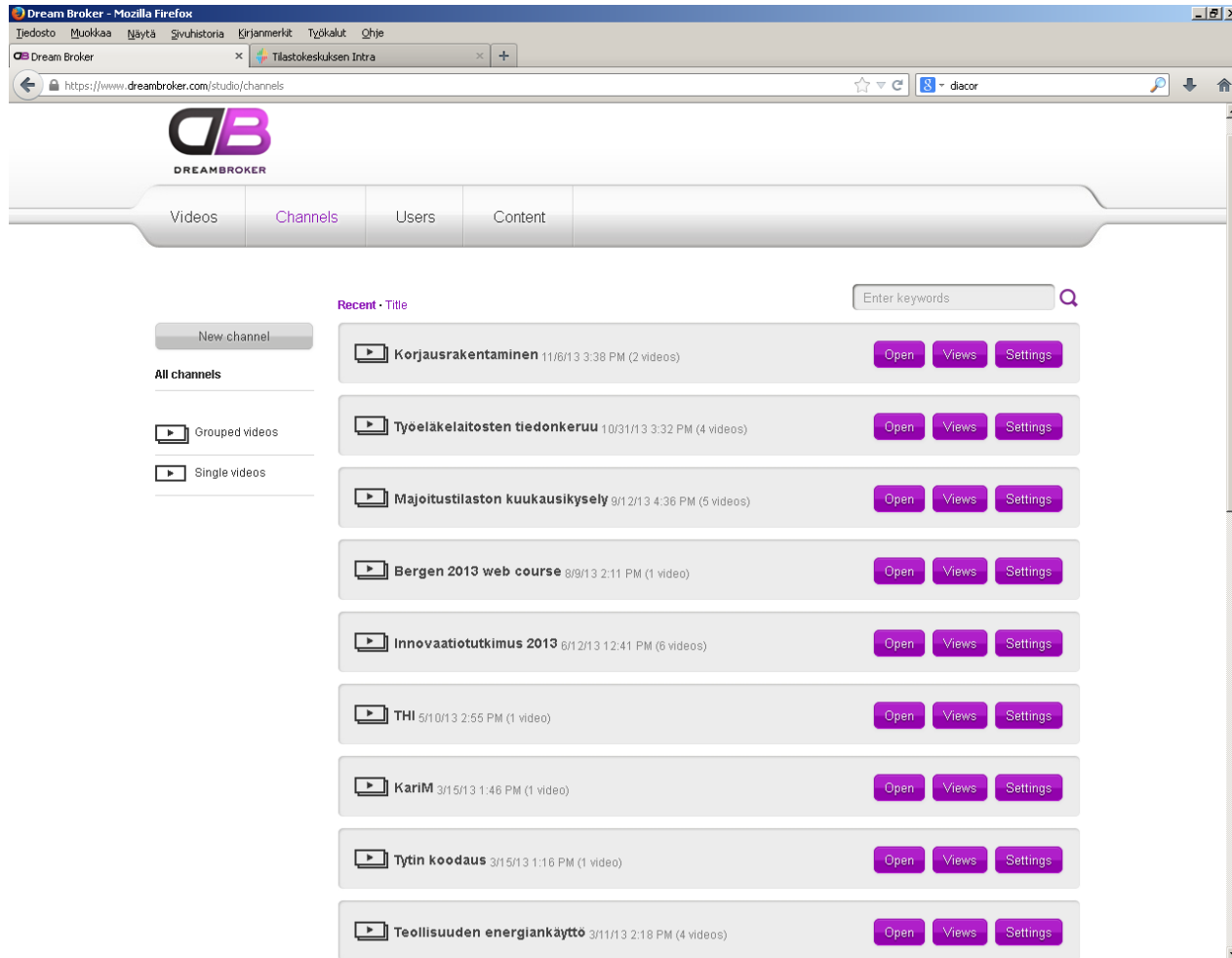
Response process: business surveys response model²



Contents of the Analysis of Tests – videos as a data

- The analysis is divided under two themes:
 - **Usability:** the interaction between the respondent and the web form
 - **Survey response process:** Conceptual, organizational and behavioural factors that affect the survey response of an establishment
 - Notice, videos below available only during the presentation!
 - Response phase 1 - Innovation survey
 - Response phase 2 - Innovation survey
 - Response phase 3 - Environmental goods and services
 - Response phase 4 - Innovation survey
 - Response phase 6 - Innovation survey
- Objective to exploit different frameworks to guide development activities and facilitate reporting

DreamBroker channel – videos of every project are in their own channels



The screenshot shows the DreamBroker website interface in a Mozilla Firefox browser. The page title is "Dream Broker - Mozilla Firefox" and the address bar shows "https://www.dreambroker.com/studio/channels". The website has a navigation menu with "Videos", "Channels", "Users", and "Content". The "Channels" section is active, displaying a list of video channels under the heading "Recent · Title". A search bar with the placeholder "Enter keywords" is located at the top right of the channel list. The list includes the following channels:

Channel Name	Date	Time	Video Count	Actions
Korjausrakentaminen	11/6/13	3:38 PM	2 videos	Open Views Settings
Työeläkelaitosten tiedonkeruu	10/31/13	3:32 PM	4 videos	Open Views Settings
Majoitustilaston kuukausikysely	9/12/13	4:36 PM	5 videos	Open Views Settings
Bergen 2013 web course	8/9/13	2:11 PM	1 video	Open Views Settings
Innovaatiotutkimus 2013	6/12/13	12:41 PM	6 videos	Open Views Settings
THI	5/10/13	2:55 PM	1 video	Open Views Settings
KariM	3/15/13	1:46 PM	1 video	Open Views Settings
Tytin koodaus	3/15/13	1:18 PM	1 video	Open Views Settings
Teollisuuden energiankäyttö	3/11/13	2:18 PM	4 videos	Open Views Settings

Usability

- Screenshot
- ID of respondent(s)
- Time tag
- Description of problem/other observation/quatable quotes
- Usability classification

Vastaus-ero	Aika	Merkintä	Luokka
1	2:00	Millä tavalla onnistuu valitsemalla jättämättä mitään...	2.1
2	13:00	Ennen valitsemista on tarkasteltava tiedot valittavista...	2.1
3	21:00	Valittavien valitsemisesta on vaikea saada selkoa...	2.1

Vastaus-ero	Aika	Merkintä	Luokka
4	2:00	Ennen valitsemista on tarkasteltava tiedot valittavista...	2.1

Response process

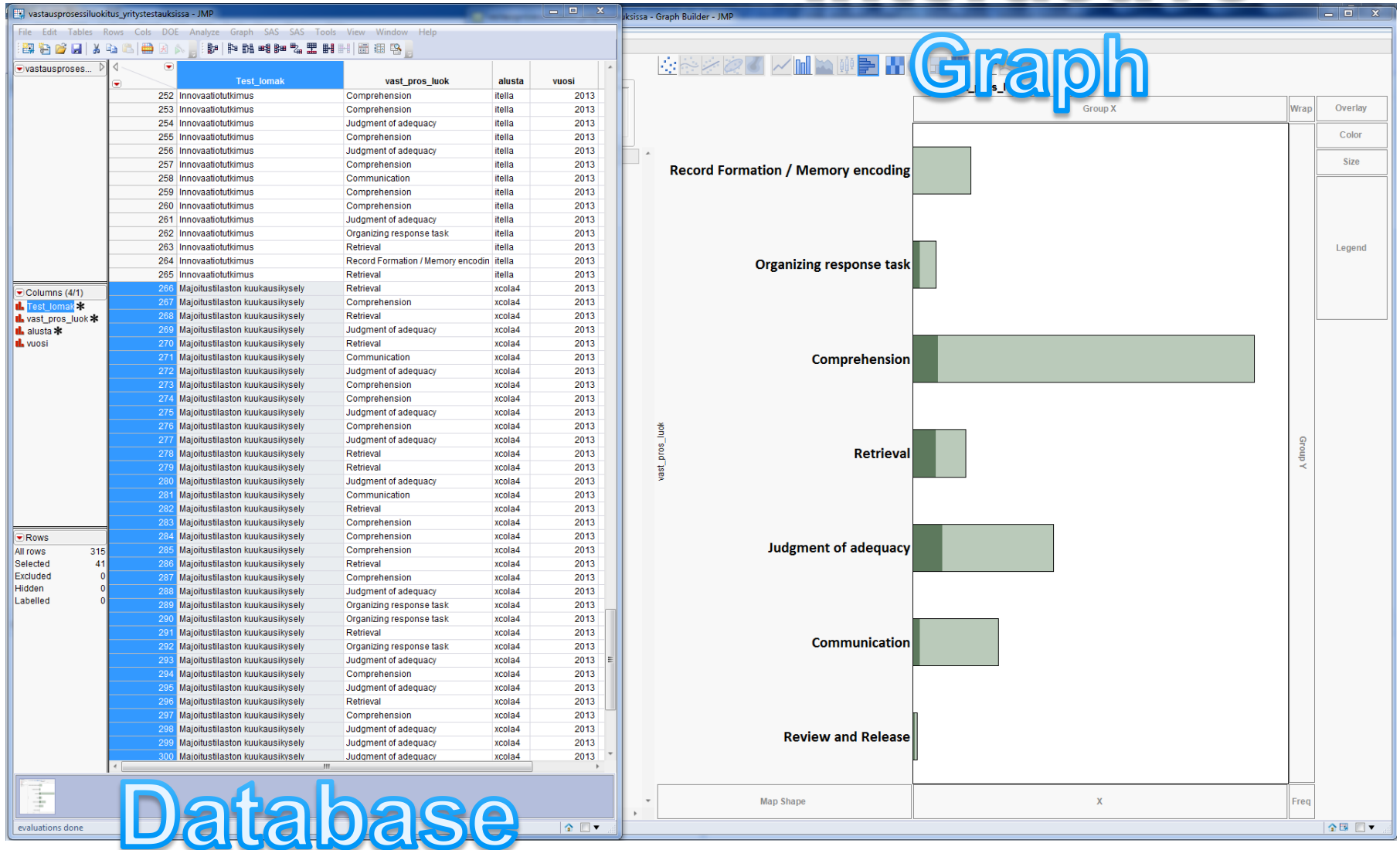
- ID of respondent(s)
- Time tag
- Description of problem/other observation/quatable quotes
- Response process classification

Vastaus-ero	Aika	Merkintä	Luokka
10	13:00	Käytännössä valitsemalla jättämättä mitään...	2.1
11	18:10	Ennen valitsemista on tarkasteltava tiedot valittavista...	2.1
12	21:10	Valittavien valitsemisesta on vaikea saada selkoa...	2.1
13	13:00	Käytännössä valitsemalla jättämättä mitään...	2.1
14	27:10	Käytännössä valitsemalla jättämättä mitään...	2.1
15	12:10	Ennen valitsemista on tarkasteltava tiedot valittavista...	2.1
16	18:10	Valittavien valitsemisesta on vaikea saada selkoa...	2.1
17	22:00	Käytännössä valitsemalla jättämättä mitään...	2.1
18	22:00	Käytännössä valitsemalla jättämättä mitään...	2.1
19	22:00	Käytännössä valitsemalla jättämättä mitään...	2.1
20	22:00	Käytännössä valitsemalla jättämättä mitään...	2.1

Utilization of Visual Analytics in Reporting

- JMP statistical software used due to its visualization features
 - JMP's focus on linking statistical data to graphics representing them
- The classifications from each test project are input to a database that enables,
 - To investigate the distribution of observation from a a single test
 - To compare observations between tests
- The aim is increased transparency in analysis
 - → Each data point in the database can be traced back to the original test recording

Interactive Graph

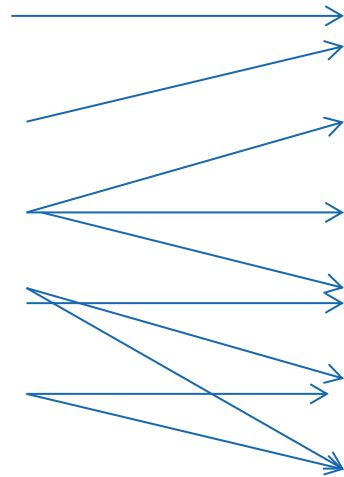


Database

Bavdaz taxonomy – fruitful tool to evaluate the degree of measurement error in reported data

Levels of answer availability

- Accessible
- Generable
- Estimable
- Inconceivable
- Nonexistent



Likely response outcome

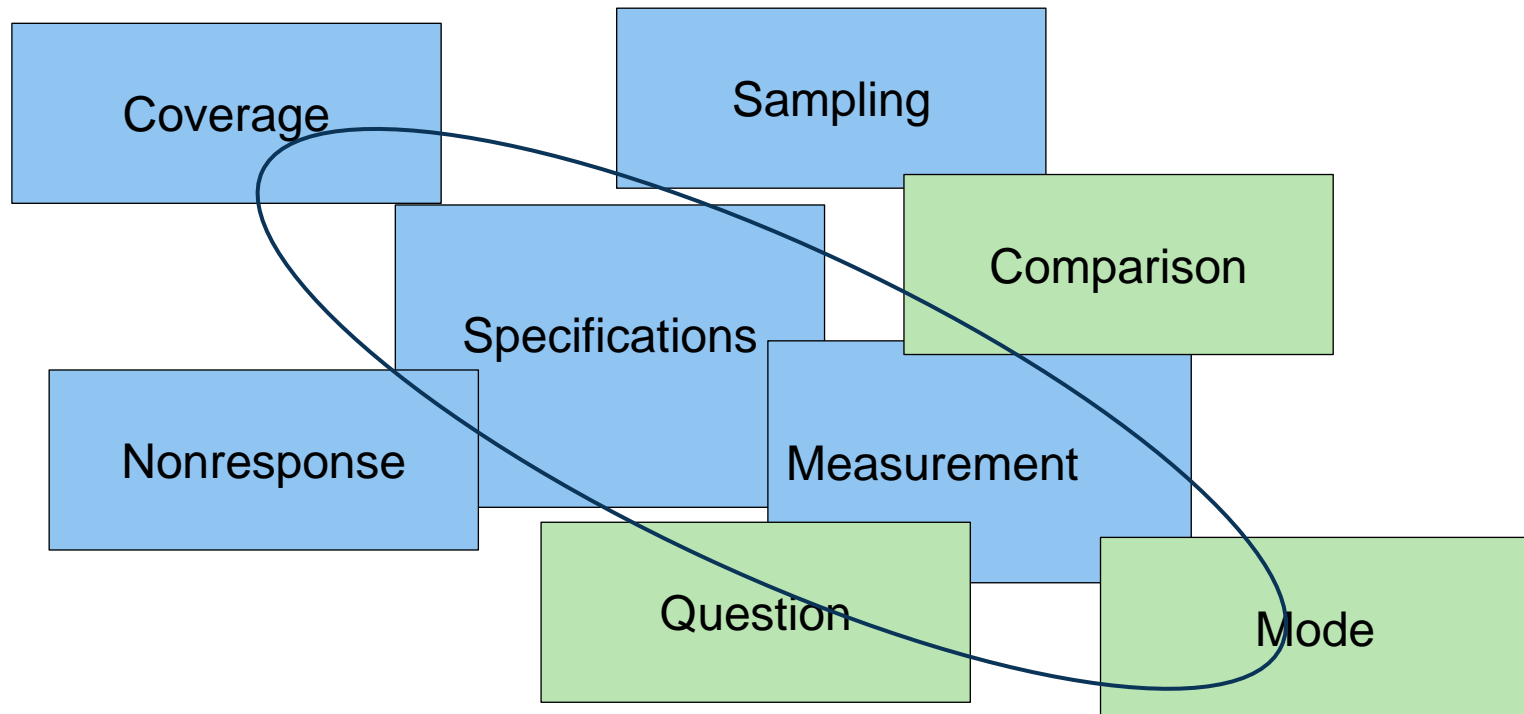
- Exact datum
- Approximation
- Solid estimate
- Rough estimate
- Blunder
- Item nonresponse

Bavdaz (2010); Willimack D. K. (2013) referring in Snijkers et. al. 2013

What information businesses need to report and for who?

Property	Financial Accounting	Management Accounting	Official Business Surveys
Purpose of report	Standardized information for all stakeholders of the business	Customized information for the management of the business	Standardized and customized information – needs for the national accounting are essential
Level of detail	Summarized depiction of the business's financial data	Depends on situations and managerial decision	Breakdown of the business' data to international classification
Regulation	Required by national law and international standards	No external regulation, only set by the managers of the business	Required by national and international law
Frequency	Financial statement released annually, public companies also quarterly	Both regular releases and ad-hoc assignments	Monthly, quarterly, biannually, annually.
Reporting period	Past –oriented but also guidance on expected performance	Both past results and forecasts on performance in the future	Majority past-oriented, also some sponsored surveys that request estimates about future
Reporting unit	Monetary	Both monetary and non-monetary	Both monetary and non-monetary
Quality of information	Special focus on reliability, usually audited by external entity	Tradeoff , rapid delivery and efficiency vs. quality.	Tradeoff, Response burden and data availability vs. quality

Survey errors and survey-related effects to tackle with screen recordings – quality aspects

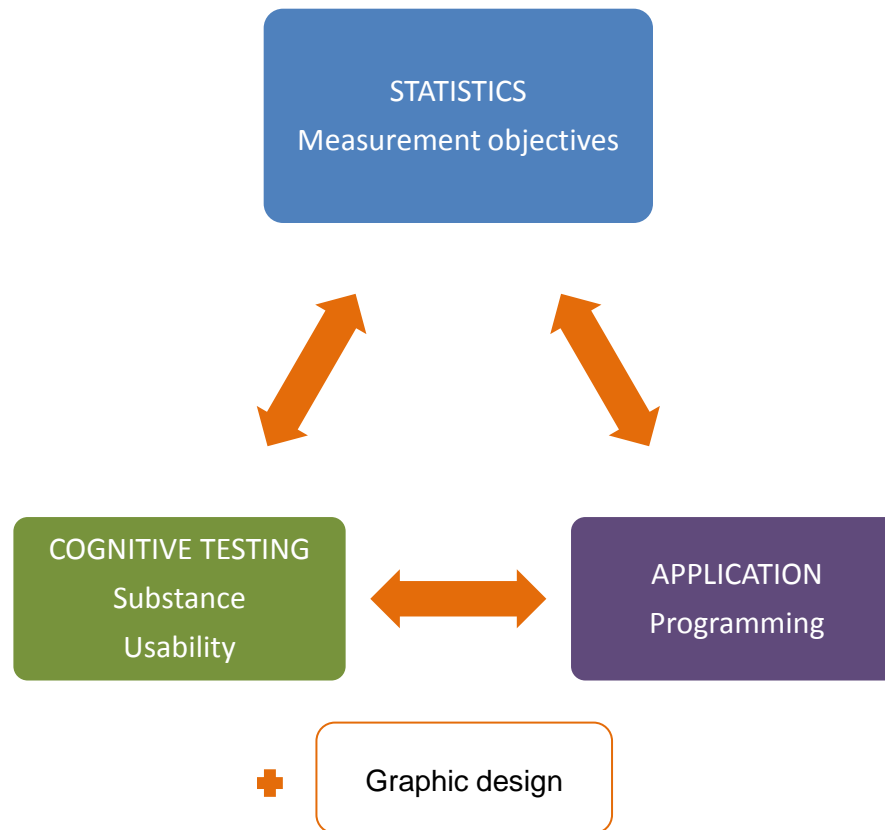


Haraldsen (2013) in Snijkers et. al. 2013

Good design and testing behind motivated respondents and preventing response burden

- The response burden could be lessened by quality design and testing of the web questionnaires
 - Screen recording is one way to apply the cognitive methods (see more methods in Snijkers et. al. 2013)
 - Eye tracking is a method which is more usability oriented. It consists of the following the trail of where a respondent is looking on the screen
- Good design raise the motivation to give good-quality answers and reduce measurement error and editing
 - The situation in the web environment and technology is in a constant change this has many implications to respondents and designers
 - Understanding response process thoroughly is important in this work

Web questionnaire design and testing – collaboration essential



Final word – e-mail feed back after testing

- ”... I’ll give you positive feedback, because I personally know that that statisticians don’t get it often. The testing session was regarded as a really useful and positive experience. Things should be always handled like this, whenever there are new reporting instructions”

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- Badvaz, M. (2010). The Multidimensional Integral Business Survey Response Model. *Survey Methodology* 36 (1): 81-93. In. G. Snijkers, G. Haraldsen, J. Jones, D. K. Willimack. *Designing and Conducting Business Surveys*. John Wiley & Sons. New Jersey
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Thank you for your attention

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