A standard procedure for the optimization of surveys questionnaires design

Session 2: Modernization of data collection

Stefania Macchia
macchia@istat.it
Italy
Istat - Directorate for Data Collection

Workshop on Statistical Data Collection
Ottawa, Canada, 10 – 12 October 2017
New organization in Istat

Background
The need of transformation and modernization of official statistics has guided Istat towards a re-organization of production process.

Until 2015 data collection of official statistics was managed according to a “silo” approach where each "silo" identified a specific field of statistics (census, social statistics, business statistics) and its corresponding production system.

Since April 2016 a new organization has been set up.

Now the production process relies on integrated organization and management of specialized corporate-level service units for methodology, data collection, information technology and dissemination.
Directorate for Data Collection - DCRD

The new organization centralized in a new directory (DCRD) all the functions pertaining to data collection, from the design of the data collection phase up to its management, for households and business statistics – concerning both surveys, administrative data, new and non-traditional sources.

DCRD works in close cooperation with other Istat directorates/sectors, collaborating in specific activities, providing and receiving services from them.
FOCUS: Questionnaire design

Survey experts (thematic sectors) are responsible for the informative content to be collected. They:

• Provide requirements for surveys
• Design the drafts of questionnaires, interviewers manuals, etc.

DCRD

• Identifies data collection techniques to be used and designs infrastructures for data collection
• Make suggestions for the optimization of the design of survey questionnaire
• Implements data collection tools
• Designs training methods and tools

Survey experts and DCRD cooperate

• Identifying and assessing statistical (alternative) sources
• Optimizing questionnaire design
• Jointly managing the execution and monitoring of data collection
This activity is aimed at:

• reducing redundancy of information and response burden
• harmonizing concepts, definition and classifications
• guaranteeing uniformity in questions wording and their structuring among surveys
• improving the interview fluency
• optimizing the design according to the data collection technique

In order to reach these aims, DCRD also designs and conducts test (pilots surveys, cognitive test, etc.).
In this context, the questionnaire design activity has been structured in a set of tasks carried on by the two different functional areas which work in cooperation: the production functional area (survey experts) and the data collection functional area.

<table>
<thead>
<tr>
<th>Step</th>
<th>Task</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Survey experts</td>
<td>Design the draft questionnaire</td>
</tr>
<tr>
<td>2</td>
<td>Data collection experts</td>
<td>Point out possible problematic aspects (new questions or problems encountered in previous surveys)</td>
</tr>
<tr>
<td>2</td>
<td>Survey experts</td>
<td>Experts Review&lt;br&gt;Analyse the draft questionnaire according to a checklist of aspects to be considered</td>
</tr>
<tr>
<td>3</td>
<td>Data collection experts</td>
<td>Identify aspects to be further investigated through ad hoc tests</td>
</tr>
<tr>
<td>3</td>
<td>Survey experts</td>
<td>Formulate suggestions and proposals</td>
</tr>
<tr>
<td>3</td>
<td>Data collection and Survey experts</td>
<td>Discuss and agree the strategy to be followed</td>
</tr>
<tr>
<td>4</td>
<td>Data collection experts</td>
<td>Design and conduct tests</td>
</tr>
<tr>
<td>4</td>
<td>Survey experts</td>
<td>Formulate final suggestions</td>
</tr>
<tr>
<td>5</td>
<td>Survey experts</td>
<td>Design the final questionnaire</td>
</tr>
<tr>
<td>6</td>
<td>Data collection experts and survey experts</td>
<td>Structured interviewers debriefing</td>
</tr>
</tbody>
</table>
Procedure for the optimization of surveys questionnaires design

Phase 1: design the draft questionnaire

\[ \rightarrow \text{Phase completely managed by survey experts.} \]

Output to be given to data collection experts

- Draft questionnaire, including routing rules, checking plan, concepts definitions, etc.
- Focusing on problematic aspects to be discussed with data collection experts and/or to be further investigated through ad hoc tests
Phase 2: experts review
→ Phase managed by data collection experts.

Output of this phase:
• a set of suggestions and proposals aimed at improving the questionnaire design
• identification of aspects to be further investigated through ad hoc tests.

Two needs have to be met:

• Avoid the subjectivity of the analysis

• Consider all the requirements of questionnaire design necessary to guarantee the quality of data to be collected

The analysis is made by at least two experts. Their results are compared and discussed.

The analysis is made in a structured way according to a predefined checklist of aspects to be considered.
Procedure for the optimization of surveys questionnaires design

Phase 2: experts review – the checklist

The checklist is structured in modules which groups different sets of aspects to be analyzed:

1. General aspects of the questionnaire design
2. General aspects concerning questionnaire layout
3. Questionnaire structure
4. Questions wording
5. Questions structure
6. Management of closed questions
7. Definitions and instructions
Procedure for the optimization of surveys questionnaires design

Phase 2: experts review – the checklist

1. General aspects of the questionnaire design

- **Redundancies**: have alternative sources been considered? Is what requested strictly only what will be measured?
- **Interview presentation**: Is the information given sufficiently clear and detailed on the purpose of the survey?
- **Title of the questionnaire**: is it clear and endearing?
- **Make it easy to respond**: is information requested in a way that it is easy to give the answer or to find it?
- **Uniformity of elements inside the questionnaire**: are units of measurement and/or scale factors used evenly in the questionnaire?
- **Calculations**: is it avoided to ask the respondent to make calculations?
Procedure for the optimization of surveys questionnaires design

Phase 2: experts review – the checklist

2. General aspects concerning the layout

- Functionality of the layout: has each symbol used the same function and has it been explained?
- Graphic coherence: have symbols, spaces, characters format and colors always the same meaning in the questionnaire?
- Use of colors: in deciding colors, has it been considered the opportunity of using contrasting colors and of facilitating the reading for those who have visual problems?
- Correct use of graphics
  - to make it easy to answer: is the association between the question and answer field always unequivocal? Is the dimension of the answer field sufficient? …..
  - for the different users: is it always clear what it is addressed to respondent and what to interviewer?
Phase 2: experts review – the checklist

3. Questionnaire structure

- **Content of questionnaire sections**: does each section group questions concerning a single topic? Are all the questions concerning the same topic grouped in a single section? Is the sequence among sections clear and logic, considering that people reason in a sequential way?

- **Definition of questionnaire sections**: has data collection technique to be used been considered in defining the length of each section? (in CAWI a section usually corresponds to a web page, so it can not be too long and it could be necessary to split a section in two)

- **Sections/questions flow**: is the flow clear and logic? Are the first questions easy, clear and directly connected to the purpose of the survey? Are sensitive or difficult questions asked not at the beginning of the interview?

- **Correctness of the flow**: Has the absence of logic errors in the flow been guaranteed? Have the flow rules corresponding to ‘don’t know/refusal’ answers been considered?

- **Transition texts**: Have transition texts been added to lead the respondent/interviewer from an item to another and to contain the segmentation effect?
Procedure for the optimization of surveys questionnaires design

Phase 2: experts review – the checklist

4. Questions wording

• Simplicity: Are questions simple? Are they expressed according to the common language used by respondents? Have abstract terms been avoided? Are questions asked in active form?
• Clarity of terms: Are words clear and not ambiguous? Have generic words been avoided?
• Clarity of concepts: have double negations been avoided? Does each question contain a single concept?...
• Succinctness: Are questions expressed shortly, with no redundancies and without using complex phrases?
• Technic terms: has it been avoided to use technic terms, unless respondent is a technician?
• Neutrality: are questions formulated in a neutral way, so as not to influence the response? Have presuppositions been avoided?
• Colloquial style: Have sentences been formulated in a colloquial style?
• Acronyms: Have acronyms been avoided or is their meaning been explicated?
• Memory errors management: is the referring period suitable with the studied event?
• Examples management: is the set of elements listed in the examples neutral, so as not to distort the response?
Procedure for the optimization of surveys questionnaires design

Phase 2: experts review – the checklist

5. Questions structure
- **Question type:** Have matrix or grid been avoided as far as it is possible?
- **Open-close questions:** In case of open questions, has the coding strategy been defined? (for close questions see later).

6. Close questions management
- **Clarity of terms:** Are words clear and not ambiguous?
- **Congruity and exhaustiveness:** Are question items congruent with what requested and do they consider all the possibilities?
- **Mutually exclusivity:** Are question items mutually exclusive?
- **Order of items:** Is the order of items suitable (e.g. most probable items as the first, residual class as the last)?
- **Number of items:** Does the number of items take in consideration the data collection technique?
- **Uniformity of items:** Are items uniform inside the questionnaire and among surveys which study similar phenomena?
- **Scales management:** Are scales balanced? Are they uniform inside the questionnaire?
Procedure for the optimization of surveys questionnaires design

Phase 2: experts review – the checklist

7. Definitions and instructions

• Structure of definition: Are definitions structured in a standard way, so as to highlight what has to be included or excluded? Is it easy to distinguish among concept definitions, calculation instructions, etc.?

• Not redundancy: are definitions/instructions synthetic and not redundant?

• Settlement: have definitions/instructions been settled close to question text?

• Definitions/instructions layout: Have all definitions/instructions a uniform layout (color, characters format)?

• Clarity of meaning: Are definitions/instructions written with clear and simple texts? Are sentences short and synthetic?
Procedure for the optimization of surveys questionnaires design

Phase 3: discussion and agreement between surveys experts and data collection experts

Output of this phase
- The new questionnaire release
- Decision on aspects to be further investigated through ad hoc tests.

In this phase suggestions/proposals given by data collection experts are discussed and analysed with surveys experts. All the decisions taken are reported (proposals accepted, not accepted and reasons why they are not accepted), so as to enrich a documentation to be consulted for similar problems that could be faced in other questionnaires to be reviewed.
Procedure for the optimization of surveys questionnaires design

Phase 4: design and conduction of tests
➔ Phase mainly managed by data collection experts.

Output of this phase
• A set of proposals on questionnaire design deriving from tests results

Testing methods are identified.
• Cognitive interviews ➔ qualitative laboratory tests on a small number of respondents
• When a small number of respondents is not sufficient to investigate the phenomenon, a new solution for test has been identified: self-administrated (CAWI) cognitive interviews. This solution turned out to be efficient to produce precise indications to optimize questionnaires design.

Tests are designed and conducted by data collection experts.
Procedure for the optimization of surveys questionnaires design

Phase 4: design and conduction of tests

→ Up to now 3 cognitive tests have been run

1: Survey on Phd Graduates’ Vocational Integration
   - run on a small set of respondents, representing the 14 fields of study
   - 3 questions have been tested (two grids and one open question) which presented problems in previous survey, regarding: works produced after graduation, involvement in projects and profession

2: EU-SILC survey - European Union Statistics on Income and Living Conditions
   - run a small set of respondents
   - 3 questions related to financial burden of expenses due to healthcare, new for the survey
   - two different formulations of each question were tested

3. AVQ survey - Aspects of everyday life
   - run a big sample (respondents of the previous survey who provided email address and/or cell phone number)
   - Self administrated (CAWI)
   - 2 set of questions related to reading habits and environmental issues
   - two different formulations of each question were tested
Procedure for the optimization of surveys questionnaires design

Phase 5: Final questionnaire set up
→ Phase managed by survey experts.

Output of this phase
- Final questionnaire to be used in the survey

Decision following the experts review and results of the tests are used to produce the final release of the survey questionnaire.
Procedure for the optimization of surveys questionnaires design

Phase 6: Structured interviewers debriefing
→ Phase managed by data collection experts and survey experts.

This phase has been added for surveys which
• are periodically repeated
• use a data collection technique with interviewer

Output of this phase
• Identification of questionnaire problems emerging during the data collection phase to be solved with a new questionnaire release

➢ A structured questionnaire to be filled in by interviewers has been designed, so as to highlight the most relevant and frequent problems/difficulties faced during the interview.
➢ Responses of interviewers are analysed and the most significant problems reported are discussed during the debriefing.
Dear interviewer, with a view to improve the questionnaire for next year survey, we ask you to indicate questions which caused the main difficulties during the interview. For each of them, please report the type of difficulty encountered and, if it is not one of those listed, please describe it.

We ask you to report no more than 8 questions, so please select the most difficult and frequent problems encountered.

<table>
<thead>
<tr>
<th>Question id</th>
<th>Problem encountered</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Difficulty in understanding</td>
</tr>
<tr>
<td></td>
<td>2. Difficulty in classifying (selecting the response item)</td>
</tr>
<tr>
<td></td>
<td>3. Repetition of the required information</td>
</tr>
<tr>
<td></td>
<td>4. Difficulty in finding the information</td>
</tr>
<tr>
<td></td>
<td>5. Difficulty in remembering the information</td>
</tr>
<tr>
<td></td>
<td>6. Other difficulty, please describe it:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
References


StatCan (2010) *Survey methods and practice*


Istat (2011) *Linee guida per la qualità dei processi statistici*