Chapter 3.4 - Implementation
3.4 Implementation

After this chapter, you should:

– Know the steps for preparing the execution of an empirical study.
3.4 Implementation

- Prepare material required to conduct the study.
- Review research design
3.4 Implementation

3.4.1 Overview

3.4.2 Peer review

3.4.3 Pre-evaluation

3.4.4 Ethical issues

3.4.5 References
3.4.1 Overview

- Purpose
  - Instantiate the experimental design, so it can be executed

- Tasks
  - Design all required instruments
    → Questionnaires, protocols and tools
  - Prepare all necessary material
    → Guidelines, document templates, specifications, codes and tools
  - Peer review of instrument and material
  - Perform pre-evaluation for testing the quality of the design, instrument and materials
    → Collect data and feedback
    → Analyze data and feedback
  - Improve design, instruments and material
  - (If applicable) Train researchers
3.4.2 Peer review

- Presenting research design, instruments and materials to other experts
  - Scope
    → Research design and instruments (by other researchers)
    → Material (by domain experts)
  - Perspectives
    → Researcher responsible for performing the study, e.g. interviewer and observer.
    → Participants
  - Focuses, e.g.
    → Language and terminology
    → Ambiguity and understandability
    → Completeness w.r.t research questions
    → Principles of good design
    → Ethical issues
### 3.4.2 Peer review

**Before the peer review**
- Schedule the review and communicate its purpose
- Make the research design, instruments or material available to participants
- Assign a moderator
- Prepare the presentation

**During the peer review**
- Present research design, instruments or material
- Discuss possible problems and needs for improvements

**After the peer review**
- Document and analyze feedback
- Define solutions
- Improve research design, instruments or material
3.4.3 Pre-evaluation

- Perform the empirical study as planned with a small sample
  - Pre-evaluation sample ≠ Study sample!

- Perspectives
  -> Researcher responsible for performing the study, e.g. interviewer and observer.
  -> Participants

- Focuses, e.g.
  -> Consistent administration of treatments
  -> Consistent use of instruments
  -> Identification of deviations and problems
  -> Identification of confounding variables
  -> Ambiguity, understandability and completeness of material and instruments
  -> Identification of missing data
3.4.3 Pre-evaluation

- **Before the pre-evaluation**
  - Define and contact sample for pre-evaluation
  - Prepare location, data collection instruments and material
  - Train researchers responsible for performing the study

- **During the pre-evaluation**
  - Perform the empirical study as planned with a small sample

- **After the pre-evaluation**
  - Document and analyze data
  - Document and analyze feedback
  - Define solutions
  - Improve research design, instruments or material
3.4.4 Ethical issues (before execution)

- Problem definition
  - Relevance
    → Is the research problem well justified?
    → Have relevant and related previous researches properly being identified/documentated/referenced?
    → Does current research contribute to the state of the art and practice?

  - Precision
    → Is it clear what data should be collected for answering the research question?
    → Does the research question is clear enough to avoid unnecessary intrusion in the participant’s life?

  - Impact
    → Which consequences may the study have for participants?
3.4.4 Ethical issues (before execution)

• Research design (1/3)
  – Participants
    → Selection
      – Is it justifiable to expose them to some study?
      – Which consequences may have the selection of participants (within the organization)?

    → Informed consent
      – Are all participants informed about the research purpose and how the collected data will be used and by whom?
      – Do they have the chance to refuse participating in the study?

    → No harm
      – Is it possible to collect and keep data anonymous?
      – How will the researcher and the research methodology avoid that participants suffer any disadvantages, harm or risk by taking part in the research?
3.4.4 Ethical issues (before execution)

- Research design (2/3)
  - Data collection
    - Disturbance
      - Is the presence of the researcher justified in the field?
    - Being ignorant
      - Do the researchers understand the purpose and scope of the study?
      - Are they prepared to work in the field (practice) with the selected methodology?
    - Being pushy
      - How much should the researcher insist to get answers?
  - Being pushy
    - Does data collection break data protection laws?
3.4.4 Ethical issues (before execution)

- Research design (3/3)
  - Data analysis
    → Avoid cemeteries of data
    - Will all collected data be stored?
    - Is all stored data necessary for the analysis?
    - How long will the data be stored?
    - Who will have access to the raw data and results?
    - Will the results be published – and how?
3.4.4 References


