

Lecture

Empirical Model Building and Methods (Empirische Modellbildung und Methoden)

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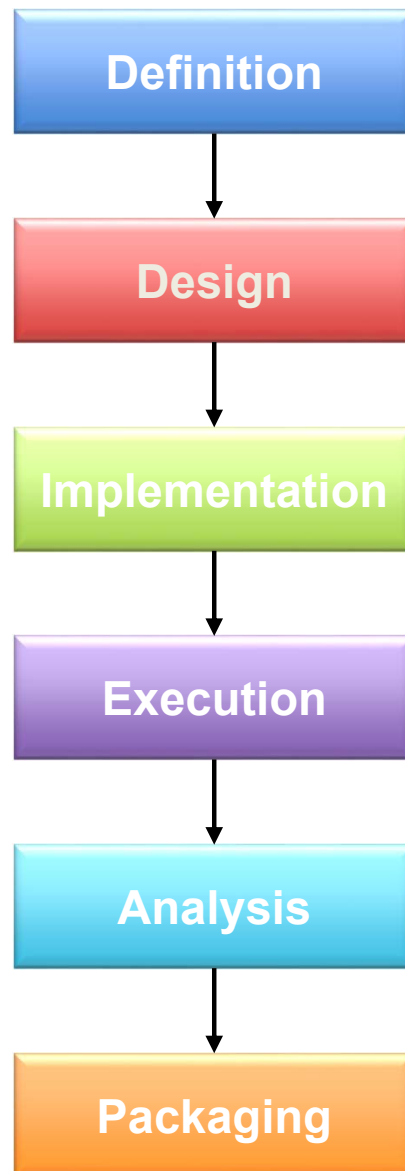
Chapter 3.5 – Execution

Chapter objectives

At the end of this chapter, you should

- know the steps for executing empirical studies.
- understand practical issues concerning the execution of empirical studies.

Empirical process - Execution



- Run study according to plan and collect required data.

Execution

3.5.1 Overview

3.5.2 Reactivity effect

3.5.3 Recommendations

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Definition

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3.6 Data analysis

3.7 Packaging

An accurate and detailed design should support the un-biased execution of the empirical study with limited number of threats. But confounding variables may interfere with un-biased execution and influence results.

Examples

- During the introduction to the study, a researcher may comment that he or she has developed one of the evaluated methods.
- During the training of the control group, a researcher asserts that the notation is trivial and doesn't explain it.
- The study is performed by students of a certain lecture. During the execution, the lecturer mentions to a researcher that the subjects in the experimental group are the best in class.
- Subjects should design and program algorithms with increasing complexity levels across 6 weekly laboratory sessions. In the 3rd session of the control group, an power failure occurs.
- The time for a study is capped!

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Rosenthal effect

- Refers to the phenomenon in which **the greater the expectation** placed upon people - often students and employees - **the better they perform.**

Also named **Experimenter effect**

- Refers to the phenomenon in which participants **adjust their behavior to conform the expectation** of the researcher(s).
- In this case, researchers have indirectly communicated their expectations – e.g. regarding results and hypotheses - to participants.

Hawthorne effect

- Refers to the phenomenon in which participants **improve or adjust their behavior** simply in response to the fact that **they know they are being studied.**

Third party is advisable!!!

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(Perform a pre-evaluation)

Double blind, i.e., a different researcher is trained for performing the empirical study. He or she does not know the research hypotheses.

Provide all subjects identical standardized instructions.

If a treatment consist of several tasks to be solved in different sessions, apply them in the same order.

Keep identical laboratory conditions, e.g., room, light, noise, work material and temperature

Keep identical appearance and attitude

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Protocol/record

- All questions, events and circumstances. In particular, unexpected questions, events or situations.
- Subjects' behavior and attitudes.
- Researchers' behavior, attitudes and interventions.

Keep the protocol up-to-date.

In the case of interviews and observations,

- Transcribe field notes as soon as possible.
- Analyze intermediate results and use them for improving next field contacts.

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After the study,

- ask subjects for feedback regarding their motivation, impressions, state of mind, difficulties, personal interest and opinion w.r.t the study and the researcher.
- ask for insights, not for the results
 - Good study design and performance matter!

Previous recommendations are not appropriate for all study types and settings.

References

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