Research assumptions, scope, limitations & delimitations

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Setting the **boundaries** of a research design are important for limiting the amplitude of an investigation and for guaranteeing its feasibility in a given amount of time, and within specific areas.

Boundaries of a research design

In order to set boundaries of a research design, the following elements should be considered and precisely defined:

- assumptions
- scope
- limitations
- delimitations

Assumptions: beliefs of the researcher necessary to conduct a research study.

They can be **provable** or **unprovable**: the former relate to evidence that supports the assumptions, while the latter relate to something that cannot be proved.

Example of assumptions of a research design

A **provable assumption** is some form of evidence that can be referred to with a source citation (a published article).

An **unprovable assumption** is, for instance, that participants in a study will answer questionnaires or interview questions honestly and factually.

It is not sufficient to **only assume** what cannot be proved!

Each assumption must be justified, by explaining that it will be reasonably met and is probably true.

Example: the unprovable assumption of the honesty of participants can be backed up by explaining how the identities of the participants of a study will be anonymised and confidentially preserved.

The **Scope** is strictly related to the domain of a research design, and the specific discipline and sub-discipline/s in which it is organised and will be performed.

Scope: the extent to which the research area will be explored in the study and the parameters[1] under which the study will be operating.

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[1] do not get confused about the parameters of a specific algorithm/technique

Defining the scope includes also defining which disciplines are not included and which factors are considered, and within which ranges.

Example: the **ACM Computing Classification System**[2] can help a researcher in computer science define the scope.

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[2]https://dl.acm.org/ccs

Limitations: specific constraints outside the control of a researcher but that can affect the outcome and findings of a research study.

They are usually derived and in line to the research design methodologies and methods, and they define the boundaries to which a study can go.

Regardless how well a research design is formed, it has limitations which in turn force the researcher to tradeoffs.

Examples: access to limited people in specific organisations; limited data; limited computational resources; limited equipment.

Delimitations: characteristics that arise from the constraints in the scope of the study, and the decisions taken by the researcher to include and exclude certain components/elements.

Unlike limitations, which follows from the implicit characteristics of a specific methodology and design, delimitations are made by the researcher.

Example of delimitations of a research design

The definition of the delimitations of a research design relates to each decision made in constructing it.

Example: research questions and objectives; variables of interests; research methods; implementation tools; evaluation strategies.

Clearly define and explicit the reasoning behind what it has been excluded and why (because of feasibility, relevancy, complexity, etc.)