

RESEARCH DESIGN

Research methodology

– Quantitative vs. Qualitative vs. Participatory/action research

- Research methods

– Methods of sampling, data collection and data analysis

- Research design

– Experimental, descriptive, exploratory

Research design is the overall plan for connecting the conceptual research problems to the pertinent (and achievable) empirical research.

- In other words, the research design articulates what data is

required, what methods are going to be used to collect and

analyse this data, and how all of this is going to answer your research question.

- Both data and methods, and the way in which these will be

configured in the research project, need to be the most effective in producing the answers to the research question

(taking into account practical and other constraints of the study).

- Different design logics are used for different types of study.

Research design Research methodology

Focuses on the end-product: What kind of study is being planned and what kind of results are aimed at.

E.g. Historical - comparative study, interpretive approach OR exploratory study, inductive and deductive etc.

Focuses on the research process and the kind of tools and procedures to be used.

E.g. Document analysis, survey methods, analysis of existing (secondary) data/statistics etc)

Point of departure (driven by) = Research problem or question.

Point of departure (driven by) = Specific tasks (data collection or sampling) at hand.

Focuses on the logic of research: What

evidence is required to address the question adequately?

Focuses on the individual (not linear) steps in the research process and the most 'objective' (unbiased) procedures to be

Employed

In some cases, it is more appropriate to begin with the inductive approach

(i.e. observing patterns, outcomes and behaviours and drawing

conclusions from the empirical data).

- In other cases, the contextual framework within which the research will be

conducted is much clearer and can therefore be the point of departure for

the research.

- Often, the lines between inductive and deductive processes are blurred in

the research process (i.e. both occur); while the main thrust of the study

might be inductive, the interaction between the conceptual and empirical

aspects of the subject matter might well imply a deductive element

inherent in the research.

- In general (but not always), quantitative research methods are usually

associated with deductive approaches (based on logic), while qualitative

research methods are usually associated with inductive approaches

(based on empirical evidence). Similarly, deductive-quantitative designs

are usually more structured than inductive-qualitative designs.

RESEARCH

QUESTIONS

EXAMPLE

In a clinical trial of a new drug, the null hypothesis might be that the new drug

is no better, on average, than the current drug.

We would write H_0 : there is no difference between the two drugs on average.

The alternative hypothesis might be that:

the new drug has a different effect, on average, compared to that of the current drug.

We would write H1: the two drugs have different effects, on average.

the new drug is better, on average, than the current drug.

We would write H1: the new drug is better than the current drug, on average.

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QUESTIONS

We give special consideration to the null hypothesis...

f This is due to the fact that the null hypothesis relates to the statement being tested,

whereas the alternative hypothesis relates to the statement to be accepted if /

when the null is rejected.

f The final conclusion, once the test has been carried out, is always given in terms of

the null hypothesis. We either 'reject H0 in favor of H1' or 'do not reject H0'; we never

conclude 'reject H1', or even 'accept H1'.

f If we conclude 'do not reject H0', this does not necessarily mean that the null

hypothesis is true, it only suggests that there is not sufficient evidence against H0 in

favor of H1; rejecting the null hypothesis then, suggests that the alternative hypothesis

may be true. DEVELOPING

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QUESTIONS

Formulating a hypothesis

...is important to narrow a question down to one that can reasonably be studied in

a research project.

The formulation of the hypothesis basically varies with the kind of research project

conducted:

QUALITATIVE QUANTITATIVE DEVELOPING

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Can also be divided into:

Observation

Pattern

Tentative hypothesis

Theory

Deductive

Inductive Theory

Hypothesis

Observation

Confirmation DEVELOPING

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QUESTIONS

Qualitative Approach

The use of Research Questions as opposed to objectives or hypothesis, is more frequent.

Characteristics

f Use of words- what or how.

Specify whether the study: discovers, seeks to understand, explores or describes the experiences.

f Use of non-directional wording in the question.

These questions describe, rather than relate variables or compare groups.

f The questions are under continual review and reformulation-will evolve and change during study.

f The questions are usually open-ended, without reference to the literature or theory.

f Use of a single focus.DEVELOPING

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The rules of Qualitative research

Kleining offers four rules for a scientific and qualitative process of approaching understanding to reality.

Rule 1 (refers to subject / researcher)

"Prior understandings of the phenomenon to be researched should be seen as provisional and should be transcended with [the discovery of] new information with which they are not consistent." (1982: 231)

Rule 2 (refers to the object of study)

"The object is provisional; it is only fully known after the successful completion of the process of discovery." (1982: 233)

Rule 3 (refers to action in relation to the subject of research, hence to data collection)

"The object should be approached from "all" sides; rule of the maximum variation of perspectives." (1982: 234)

Rule 4 (refers to the evaluation of information gathered, hence to data analysis)

"Analysis of the data for common elements." (1982: 237)DEVELOPING

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Quantitative Approach

In survey projects the use of research questions and objectives is more

frequent

In experiments the use of hypotheses are more frequent

Represent comparison between variables

relationship between variables

Characteristics

f The testable proposition to be deduced from theory.

f Independent and dependent variables to be separated and measured separately.

f To be either writing-questions, or objectives or hypotheses, but not a combination.

f Consider the alternative forms for writing and make a choice based on the

audience for the research DEVELOPING

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QUESTIONS

Generation of Research

Hypothesis

Problem statements become
research hypotheses when
constructs are operationalized

Initial Ideas

(often vague and general)

Initial

observations

Search of existing

research literature

Operational definitions

of constructs

Statement of the problem

Research hypothesis

(a specific deductive prediction) DEVELOPING

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Example:

Consider the example of a simple association between two variables, Y and X.

1. Y and X are associated (or, there is an association between Y and X).
2. Y is related to X (or, Y is dependent on X).
3. As X increases, Y decreases (or, increases in values of X appear to effect reduction