

Survey Research

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Agenda

1. Survey research
2. Research questions
3. Survey design
4. Survey execution
5. Survey evaluation

1. Definitions

Definition

Survey a.k.a. **questionnaire**

- A structured **quantitative** research methodology aimed at gathering information about (one or more) properties of a (large) population

Qualitative survey

- A **qualitative** research methodology based on analysis primary qualitative materials like interviews

Purpose of Survey

The **purpose** of a survey is to

- Gather relevant and representative information
- For theory evaluation and validation

Relevant and Representative Information

Information becomes **relevant / useful** if it

- Captures properties of interest correctly
- You need to define properties and how to measure them

Information becomes **representative** if

- The matching population responds properly
- You need to define population and how to reach it

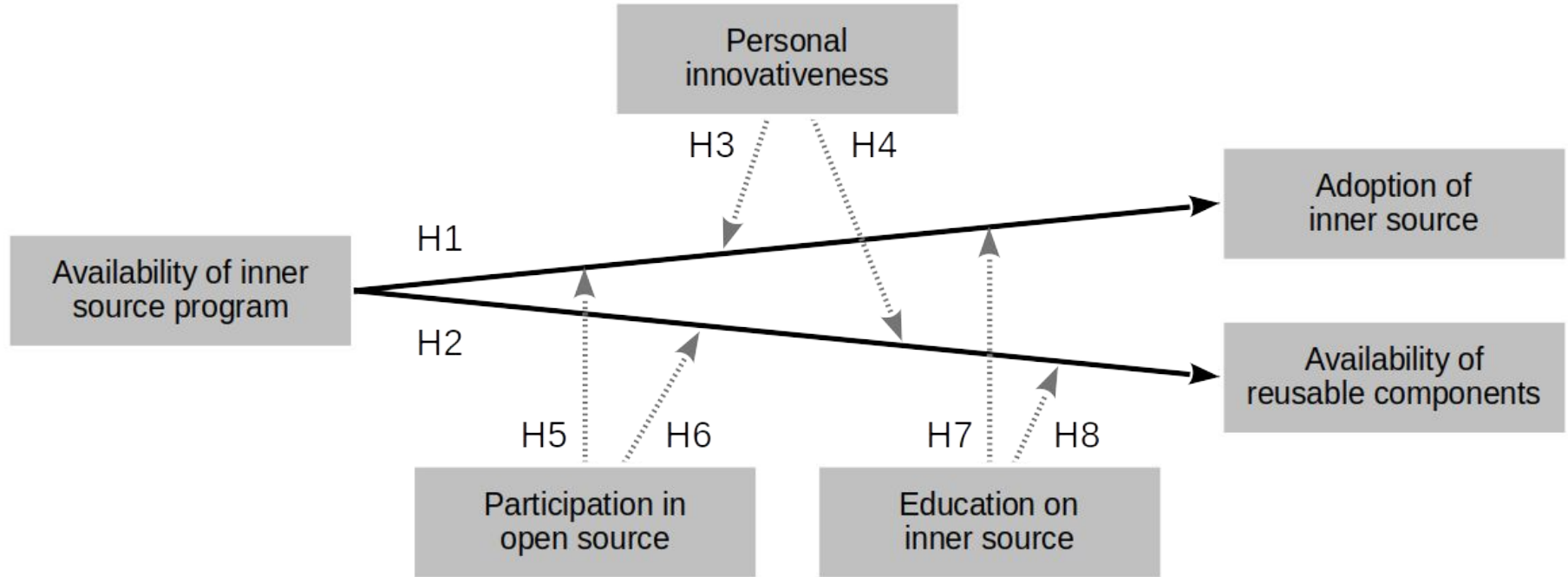
Overall Survey Process

1. Define goals
2. Design survey
3. Test survey
4. Execute survey
5. Evaluate results

When to Use Survey Research

1. Research question is well-defined
2. Clear hypotheses can be expressed
3. Target population can be defined
4. Sample population can be reached
5. Generalization is principally possible
6. The survey context is well-defined

The Hypothesis-Testing Survey



Forms of Survey

Presentation

- Online questionnaire
- Paper-based questionnaire
- Shopping street in-person survey

Content structure

- ~~Unstructured~~
- Semi-structured
- Structured questionnaire

2. Survey Questions

Types of Questions

A **question** is a

- Measurement instrument for an underlying (theoretical) construct

A **construct** (recap) is a

- Human-made phenomenon

A **theoretical construct** (recap) is an

- Intangible construct

Descriptive Questions

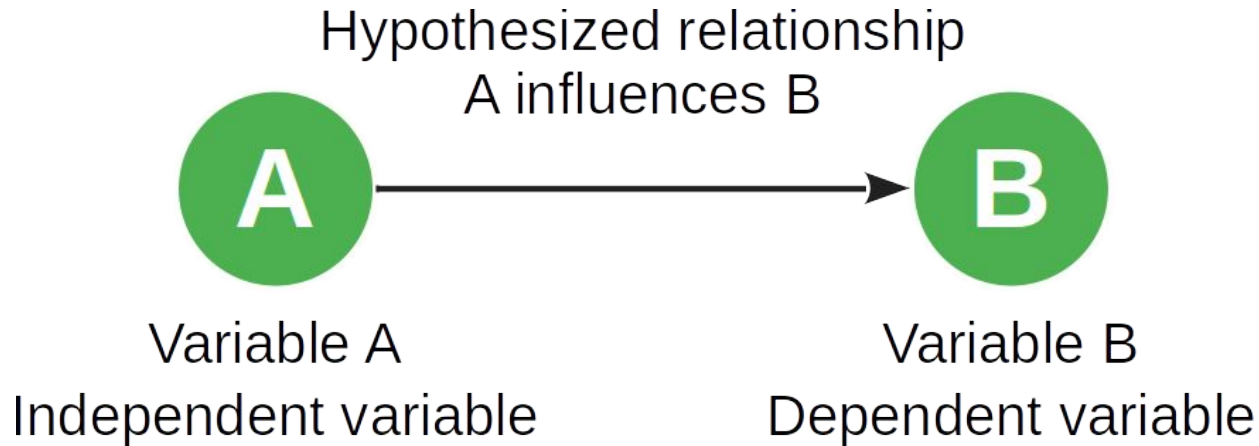
A **descriptive question** is a question that

- Asks about straightforward information
- Accepts potential subjectivity in the answer
- Used primarily for theory evaluation

Example descriptive questions

- Which year were you born?
- What is your preferred color?
- Do you like to dance?

Hypothesis Testing (Recap)



Item Blocks

An **item block** is a measurement instrument consisting of

- A set of questions triangulating the measure of an underlying construct
- Tries to get to the essence and avoid participant bias or subjectivity
- Used primarily for theory validation

Example item block for “personal innovativeness” [AP98]

- If I heard about a new technology, I would look for ways to experiment with it
- Among my peers, I’m usually the first to try out new technologies
- In general, I am hesitant to try out new technologies
- I like to experiment with new technologies

The Creation of Item Blocks

Measurement instruments like item blocks need to be

- Developed and calibrated

This is a significant specialized undertaking

1. A large number of questions are generated
2. Their expressiveness is tested against a ground truth
3. The number of questions is reduced to a manageable size

The Use of Item Blocks

Survey creators draw on a large library of item blocks in the literature

- They first pick an item block close to their variable
 - They either use the item block as is (existing variable) or
 - They vary (within safe limits) the item block to match their need

Example adaptation of innovativeness in IT [AP98] to open-source software

- Original instrument for information technology
 - If I heard about a new information technology, I would look for ways to experiment with it
 - Among my peers, I'm usually the first to try out new information technologies
 - In general, I am hesitant to try out new information technologies
 - I like to experiment with new information technologies
- Adjusted instrument for open source software
 - If I heard about a new technology, I would look for ways to experiment with it
 - Among my peers, I'm usually the first to try out new technologies
 - In general, I am hesitant to try out new technologies

Answers to Questions

Qualitative answers are

- Plan text

Quantitative answers are

- Numerical answers using a scale

Types of Scales

Name	Definition	Examples
Nominal	Provides classes only	{ bike, car, ship, ... }
Ordinal	Adds rank ordering of values	1st prize, 2nd prize, 3rd prize
Interval	Adds distance to values	Temperature
Ratio	Adds ratios to values	Prices for goods

Quiz: What Type of Scale is the Likert Scale?

A five-point Likert scale looks like this

1. Disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Agree



What type of scale is this?

Types of Surveys

A **descriptive survey** is a questionnaire with

- Questions gathering descriptive information about the population

A **hypothesis-testing survey** is a questionnaire

- Testing at least one hypothesis

3. Survey Design

Sections of a Survey

1. Preamble
2. Demographics
3. Main body
4. Closing

Preamble

The survey preamble creates informed consent

- What is the survey about?
 - Introduction and purpose
- What to expect when taking it?
 - Duration, experiences
- Who is responsible?
 - Where to ask questions?
 - Where to complain?

And may offer a non-confounding incentive to take the survey

Dilbert on Survey Ethics [1]



Demographics

The demographics section profiles the respondent

- In an anonymous way
- To create context

Typical demographics questions are descriptive

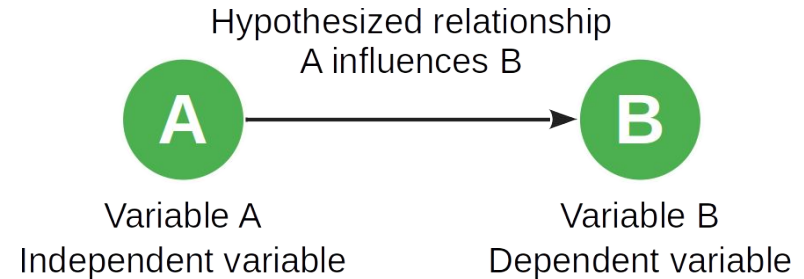
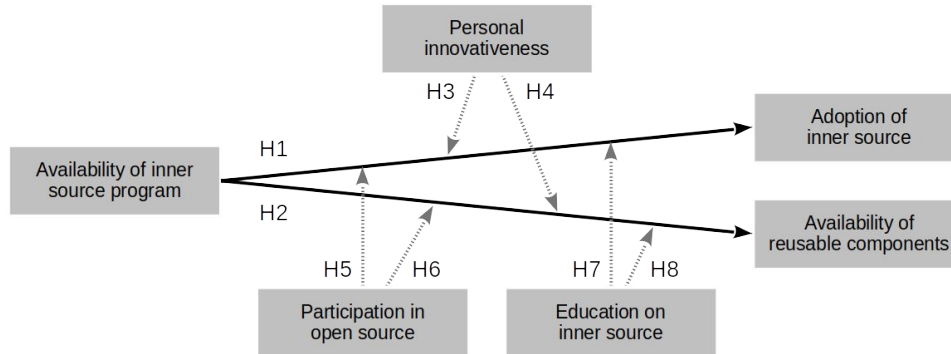
- Which year were you born?
- What is your primary job function?
- What is your highest level of education?

Main Body of Survey

The main body consists of one or more sections

- Measuring variables using
 - Descriptive questions
 - Item blocks

The variables are derived from a research model and its hypotheses



Closing

The closing section marks the end of the survey

- It may offer self-disclosure (e.g. email address) of respondent
 - To receive information about the survey result
 - To receive the incentive

Survey Logic

You often can add if-then-else paths through the questionnaire

What Can Possibly Go Wrong?

Respondents misunderstand your questions

Questions are ambiguous, allowing for several valid interpretations

Test Your Survey!

Test your survey with friends and colleagues or selected samples from your population

4. Survey Execution

Survey Execution

The strategic approach

1. Define sampling model
2. Sample population
3. Reach out

The convenience approach

- Blast on all channels

What Can Possibly Go Wrong?

Respondents don't finish because

- The survey has too many questions

5. Survey Evaluation

Survey Evaluation

Test your hypotheses

Summary

1. Definitions
2. Survey questions
3. Survey design
4. Survey execution
5. Survey evaluation

Thank you! Any questions?

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