

Surveys

SWAL

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Motivation

- To find out peoples opinions and interests asking each of them is oftentimes not possible
- Idea : Ask only some and try to generalize
→ Survey



Agenda

- Defining surveys
- Planning and designing surveys
- Analyzing surveys
- Surveys in IS
- Advantages and disadvantages



Defining surveys

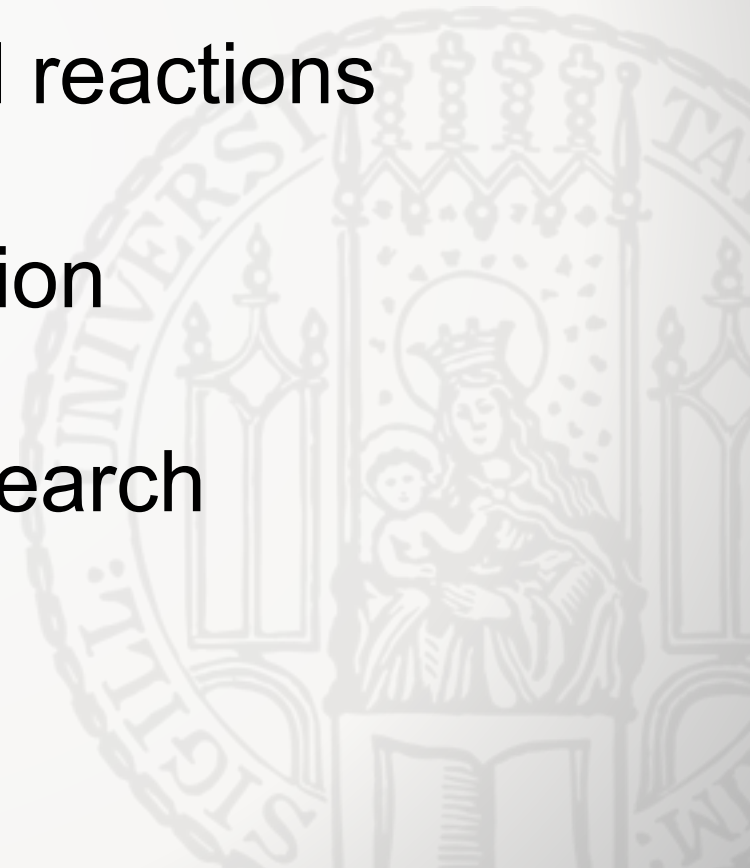
“The Idea of a survey is that you will obtain the same kinds of data from a large group of people (or events) in a **standardized** and **systematic** way.

You then look for patterns in the data that you can **generalize** to a larger population than the group you targeted.”

~ Researching information systems and computing,
Chapter 7

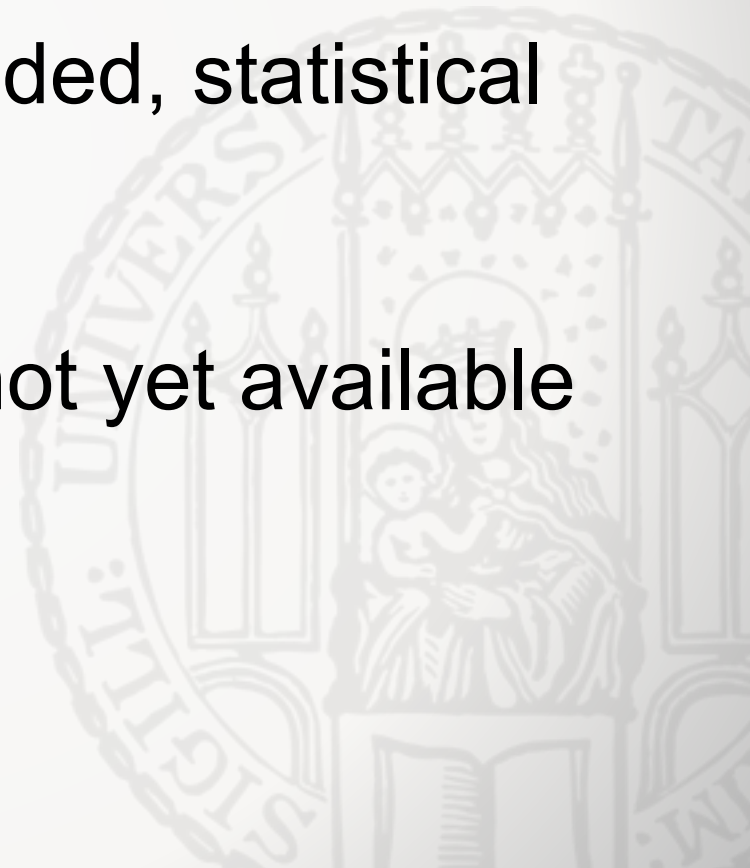
Why to conduct surveys

- Find out about needs, behaviours and opinions
- Learn about attitudes and reactions
- Determine client satisfaction
- Enhance credibility of research



When to conduct surveys

- When you need a quick and efficient source of information
- When you need well-founded, statistical information
- When the information is not yet available through other means



Approaches

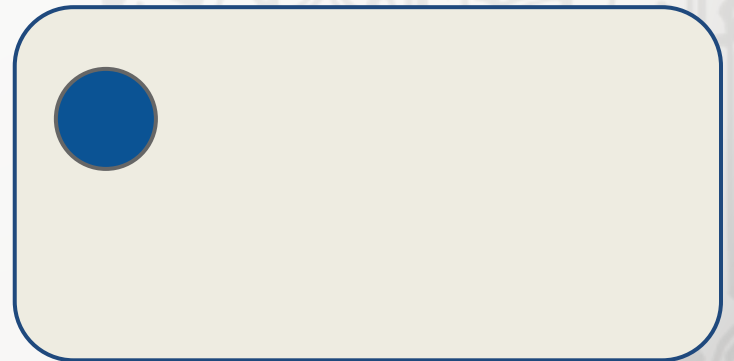
- Case study surveys
- Sampled surveys
- Census surveys



Case study surveys

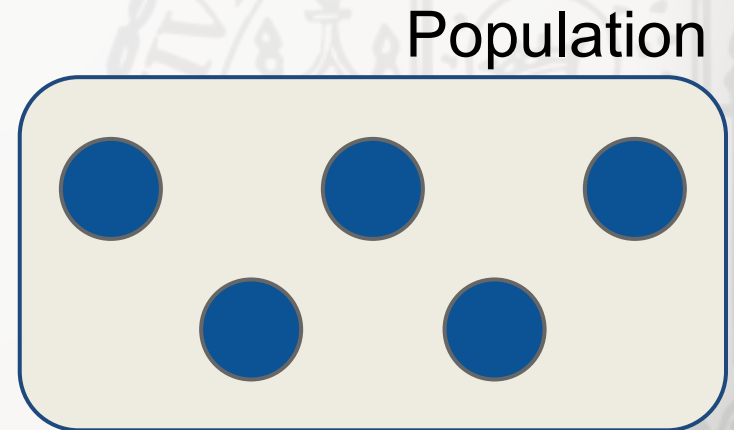
- Collect information from a small part of a group
- No aim to be generalizable

Population



Sampled surveys

- Sample a representative group of members of your target population
- Generalize to predict the overall opinion
- Challenge : choose the sample wisely



Census surveys

- Collect information from **all** members of your target group
- Best accuracy amongst the approaches, but oftentimes not practicable

Population



Planning and Designing surveys

Things to keep in mind:

- Data requirements
- Data generation method
- Distribution
- Sampling frame
- Sampling technique
- Response rate and Non-responses
- Sample size

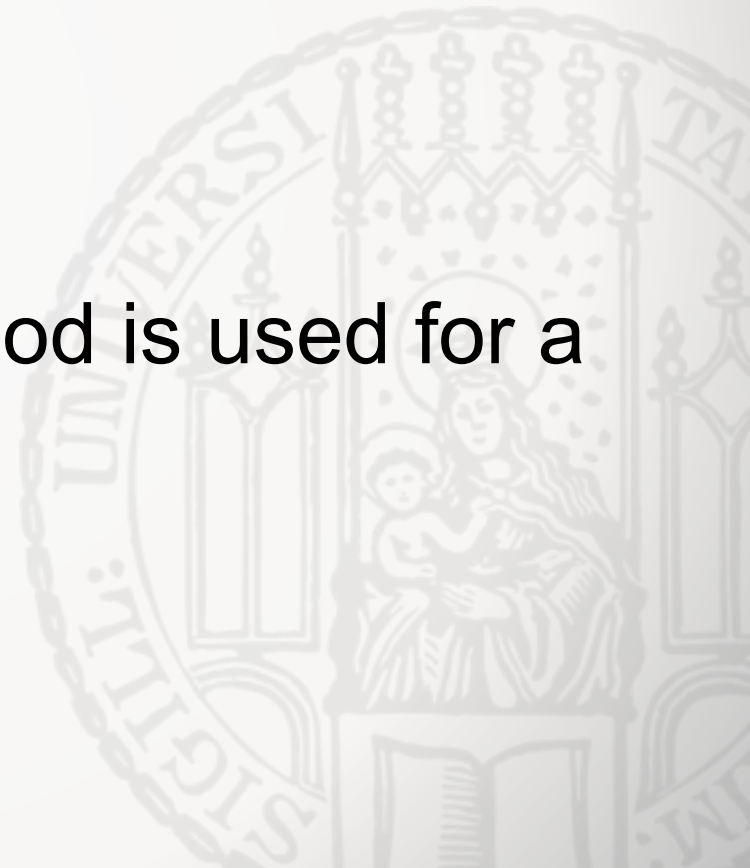


Data requirements

- Data can be
 - Directly topic related
 - Indirectly topic related
- In most cases you have only one chance to obtain data, so think of
 - what data you need for your research question
 - how to analyze the data
 - if some possible outcomes require additional data

Data generation method

- Possible methods:
 - Questionnaire (most common)
 - Interview
 - Observations
 - Documents
- In general, only one method is used for a survey



Distribution

- Possible modes:
 - Direct mail
 - Interviews and phone surveys
 - Group administration
 - Internet



Distribution

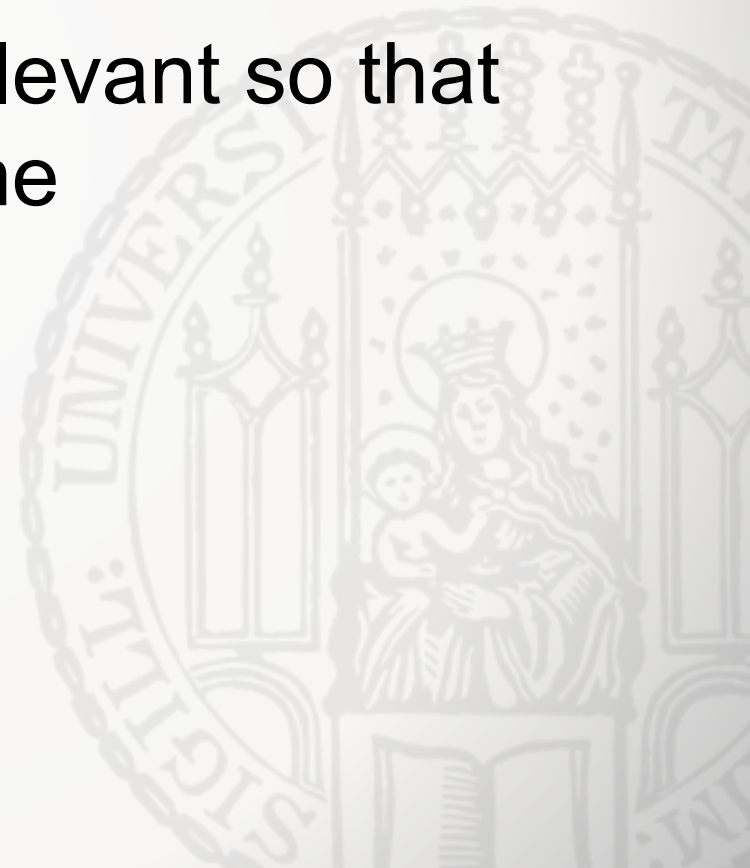
- Direct mail
 - Address participants directly (no window envelopes)
 - Include a cover letter to explain your goals
 - Include a prepaid envelope
 - See also 'Total Design Method'
- Interviews and phone surveys
 - Gives you the option to clarify ambiguity and ask for further details (not generalizable!)
 - Inapplicable for private matters

Distribution

- Group administration
 - Distribute during group or organization gatherings
 - Explain your agenda and thank for participation
- Internet
 - Cheap and quick to reach people all over the world
 - Collected data is already in digital form and can thus be easily processed
 - Distribute via email or website

Sampling frame

- Find out who has the answers to your questions
- Must include everyone relevant so that you don't bias the outcome
- Possible sources:
 - Telephone directories
 - Member lists
 - Mailing lists



Sampling technique

- Decide which members of the sampling frame you want to obtain data from
- Two main approaches :
 - **Probability sampling**

Samples are chosen because of their high probability to be representative
 - **Non-probability sampling**

Samples are likely to have unique features and outcomes can normally not be generalized

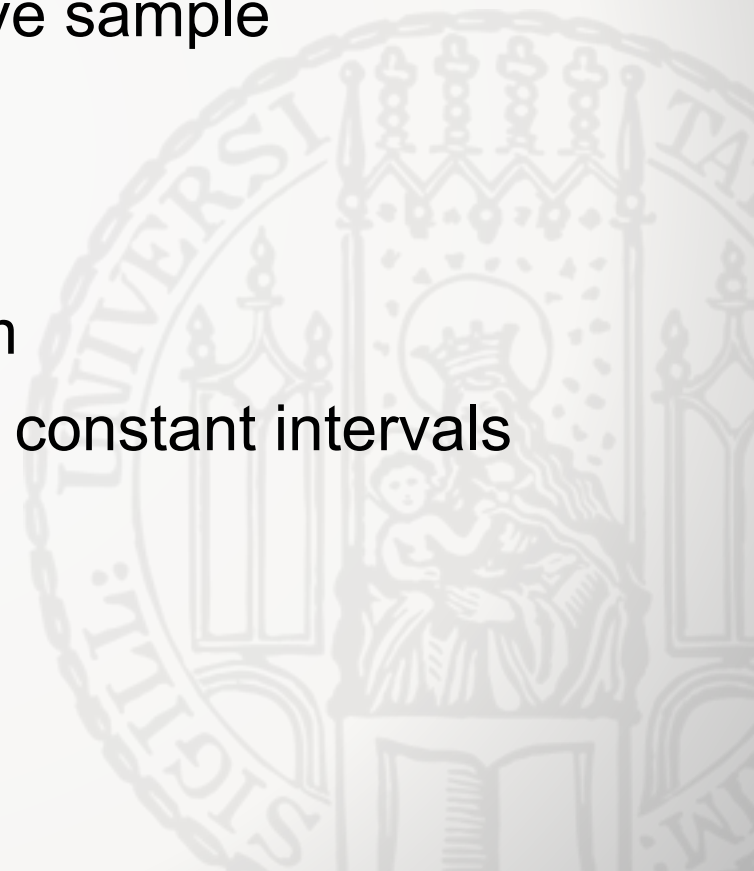
Sampling technique

Overview over some techniques

Probabilistic	Non-probabilistic
Random	Purposive
Systematic	Snowball
Stratified	Self-selection
Cluster	Convenience

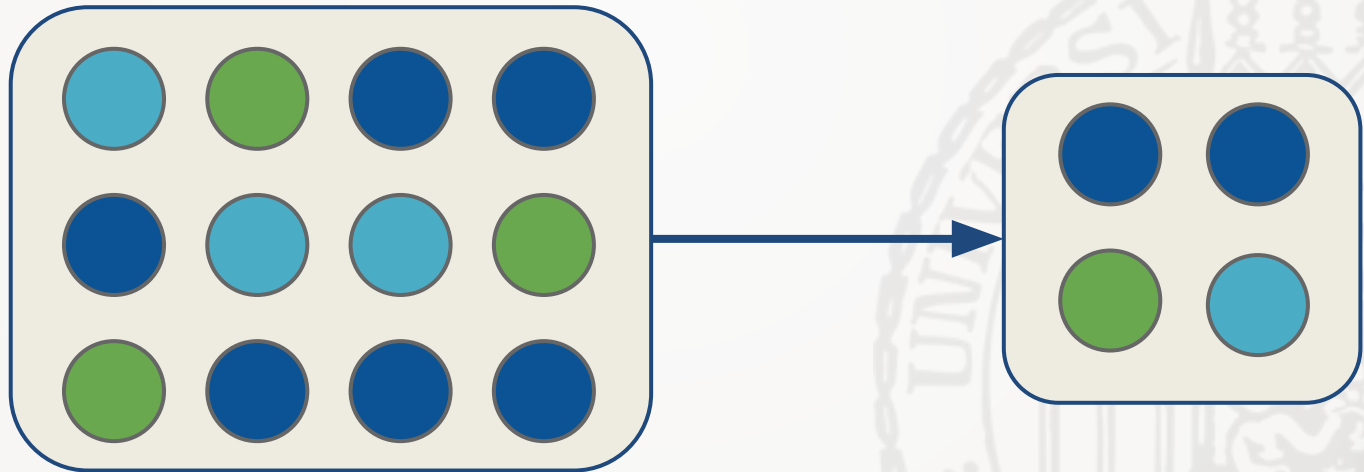
Probability sampling

- Random sampling
 - Pick the sample truly random
 - Risk to get a non-representative sample
- Systematic sampling
 - Pick the first sample at random
 - From there on pick samples in constant intervals



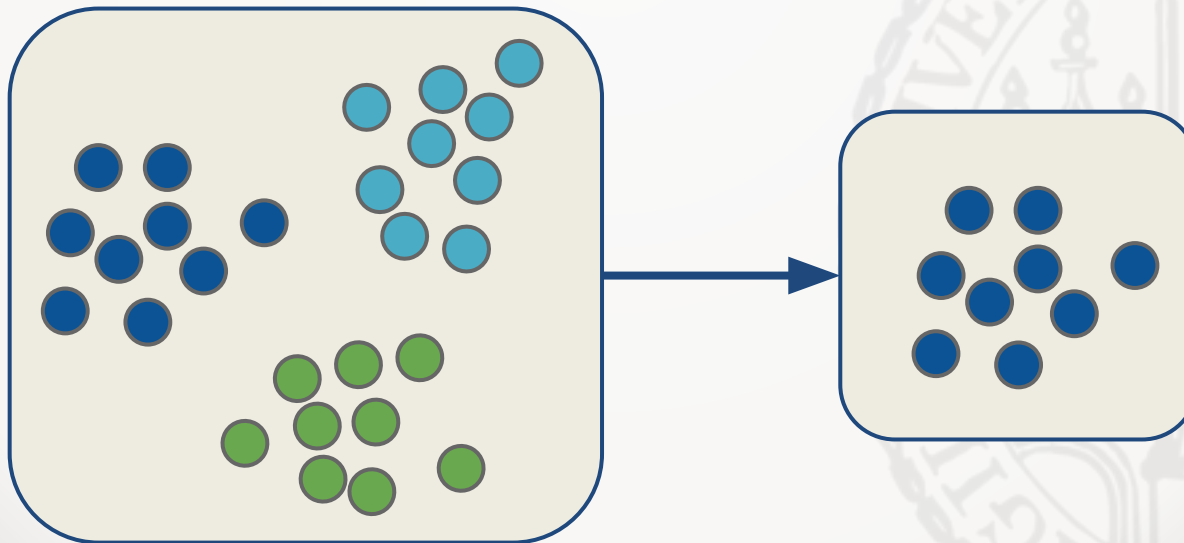
Probability sampling

- Stratified sampling
 - Divide the population in “natural” strata
 - Choose samples in accordance with those layers



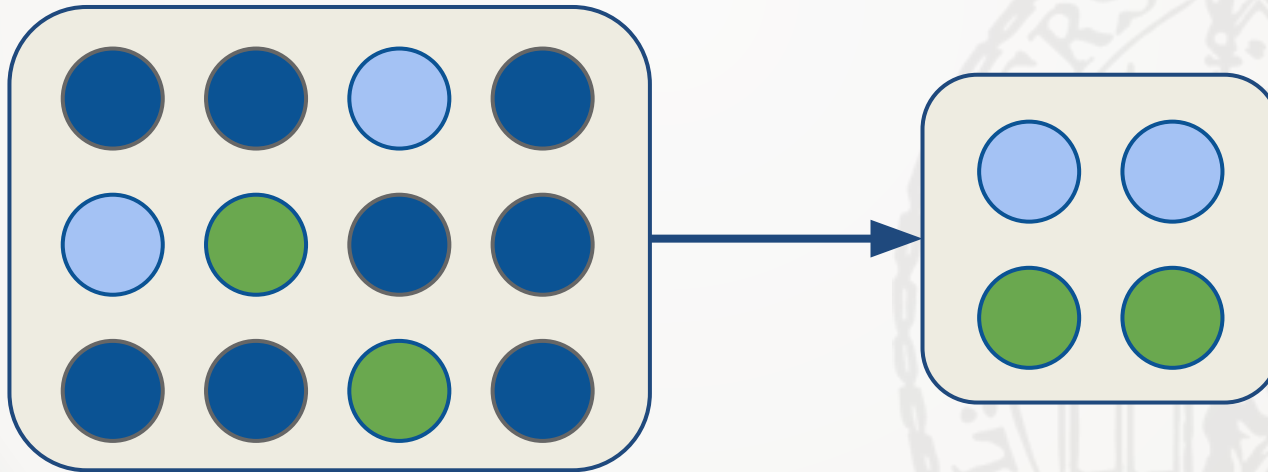
Probability sampling

- Clustered sampling
 - Interesting instances might occur together
 - Choose your sample from such clusters
i.e. towns, schools, companies, bars
 - Trade off cost against representativeness



Non-probability sampling

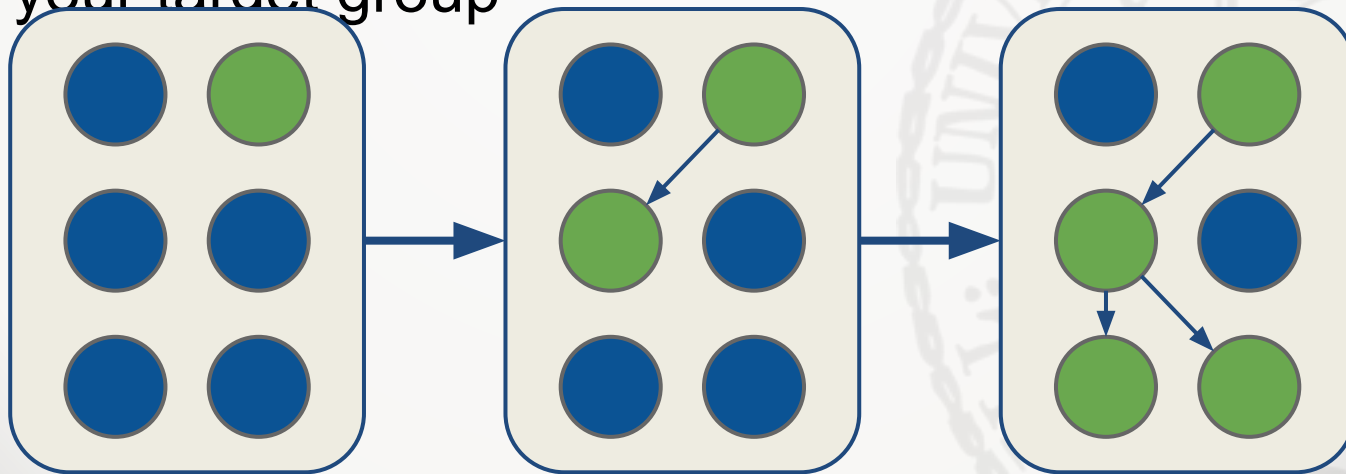
- Purposive sampling
 - Researcher hand-picks samples
 - Samples are chosen for offering the most possible variety (even extreme cases)



Non-probability sampling

- Snowball sampling

- Find a single person from your target group and obtain your data
- Ask for suggestions about other relevant people
- Especially valuable if you don't get easy access to your target group



Non-probability sampling

- Self-selection sampling
 - Advertise your interest in a particular topic and collect data from anyone who responds
 - Good approach if you don't have access to your target group but respondents might be biased
- Convenience Sampling
 - Simply pick the respondents most convenient
 - Basing your survey on convenience only is considered bad practice for research!

Response rate

- Response rates of 30% are quite good, rates of only 10% are not uncommon
- Try to get at least some data from non-responders
 - Find out if their non-responding is meaningful in it's own right



Image: Ross Catrow - Whacky Wednesday was very sad.
<https://www.flickr.com/photos/maxpower/4395656914/>

Response rate

- To maximize your return rate think of:
 - How to get the results back
 - What method your target group might be most comfortable with
 - Designing your survey as personal as possible
 - Try to persuade people face-to-face
 - Give good explanation of your purpose and hopes
 - Keep it short
 - Increase the number of people of a certain group if you suspect them not to respond
 - Try to monitor the returns to be able to send polite(!) reminders

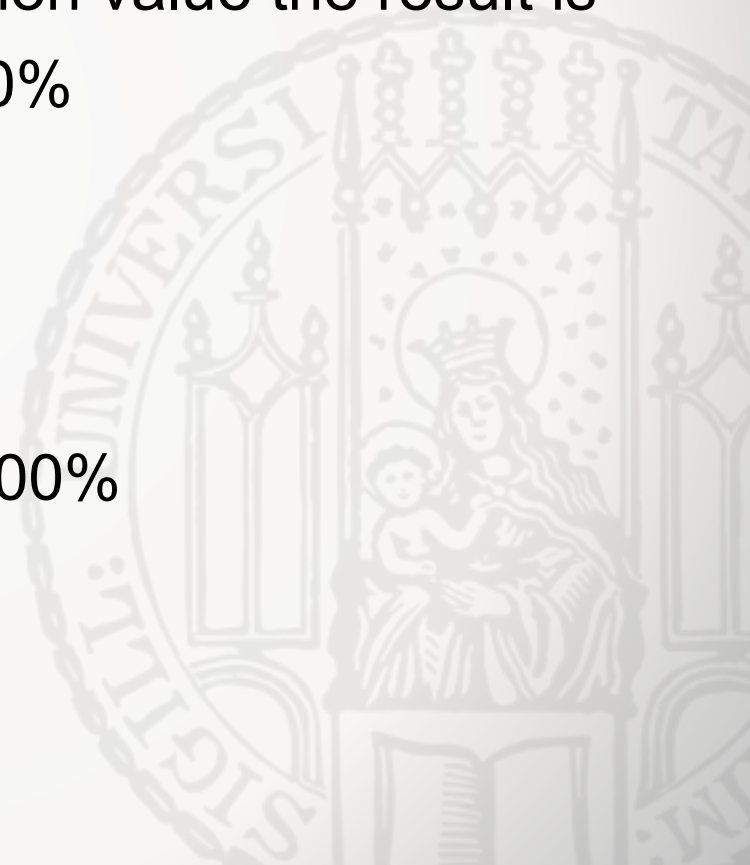
Sample size

- Decide about the size of your sample
- For small-scale research 30 responses are a good rule of thumb
- For larger projects the sample size depends on
 - Accuracy range
 - Confidence level
 - Size of the population



Sample size

- Accuracy range
 - Also called 'margin', 'error' or 'confidence interval'
 - Tells how close to real population value the result is
 - Perfect accuracy would be +/-0%
- Confidence level
 - Tells how reliable the result is
 - Perfect confidence would be 100%



Sample size

- Researchers normally work on
 - +/-3% accuracy range
 - 95% confidence level

Population	Sample size
50	48
5.000	880
100.000	1056
900.000	1066

www.surveysystem.com/sscalc.htm

Analysing surveys

- Transfer your findings in a structured form, i.e. a table
- Calculate statistic metrics and look for patterns
- Write a short report about your findings (no more than one page)
- Get feedback

Surveys in IS

- user evaluation of systems
- investigate practices or views concerning some aspect of IS



Surveys in IS - Example 1

“A Survey of User-Centered Design Practice”

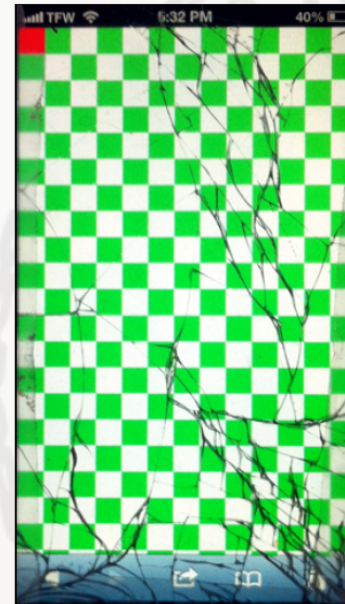
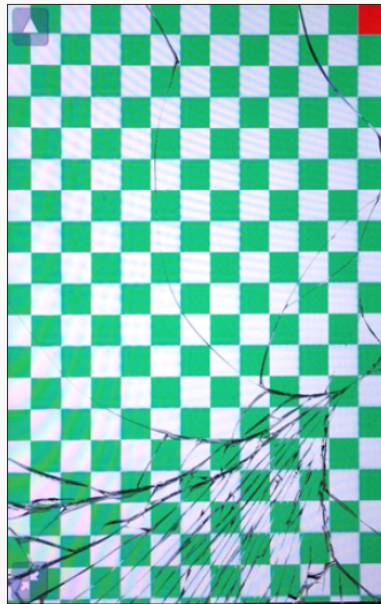
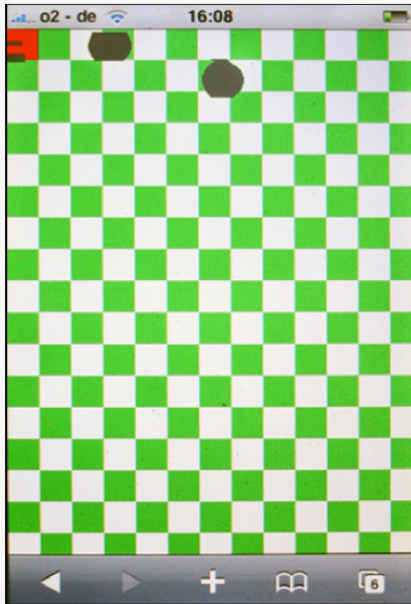
K. Vredenburg, J. Mao, P. W. Smith, T. Carey (CHI '02):

The survey targeted attendees of the CHI 2000, being highly familiar with UCD. They were asked about the impact of UCD methods in practice and had to assess 5 commonly used UCD methods on their own experience.

Surveys in IS - Example 2

“Broken Display = Broken Interface? The Impact of Display Damage on Smartphone Interaction”

F. Schaub, J. Seifert, F. Honold, M.I Müller, E. Rukzio, M. Weber. (CHI '14)



Advantages

- Generalized conclusions can be drawn
- Produce a lot of data for predictable and low cost and time
- Allows quantitative data analysis
- can be replicated and subjected to further testing
- suited to people who don't have interpersonal communication skills

Disadvantages

- Lack of Depth
- Some aspects can't be reduced to numbers and may be overlooked
- No ongoing processes and changes, only snapshot of that time
- Only show associations, no causalities
- Difficult to judge honesty and accuracies of people's responses on postal, telephone or internet surveys

Take Away Message

- Ask yourself what you want to investigate with your survey
- Pick a matching survey method
- Use an adequate sampling frame
- Use a fitting sampling techniques
- Think about sampling size, accuracy range and confidence level
- Be polite and thankful!

Reference

- <http://ctb.ku.edu/en/table-of-contents/assessment/assessing-community-needs-and-resources/conduct-surveys/main>
- Oates, Briony J. Researching information systems and computing, Chapter 7 - Surveys. Sage, 2005.
- Newsted, Peter R., Sid L. Huff, and Malcolm C. Munro. "Survey Instruments in Information Systems." MIS quarterly 22.4 (1998).