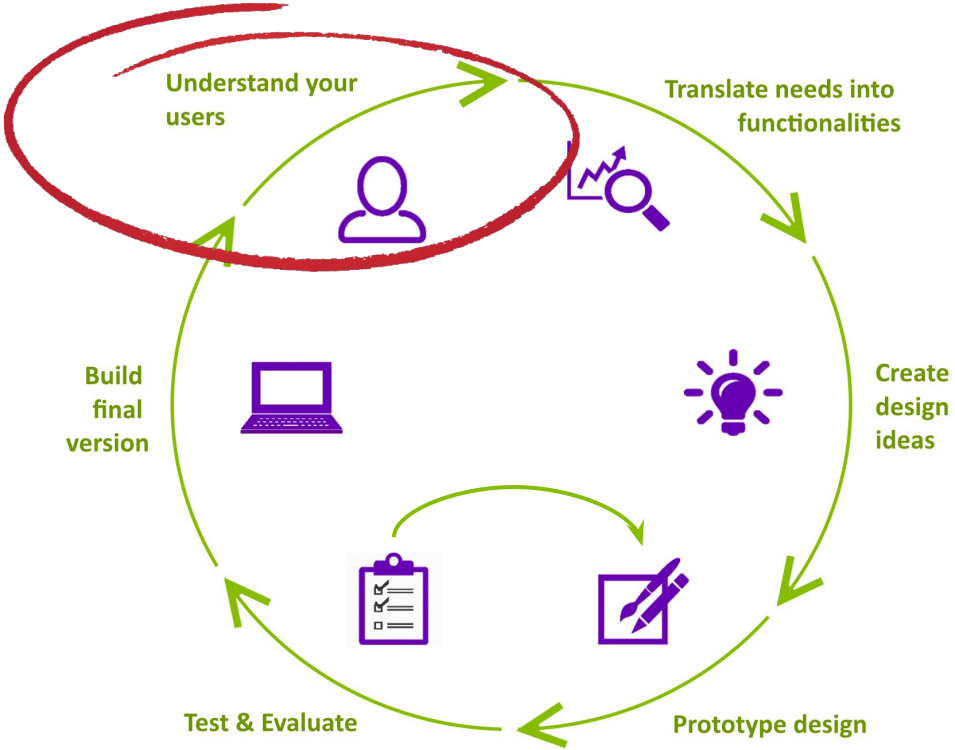
CS449/649:
Human-Computer Interaction

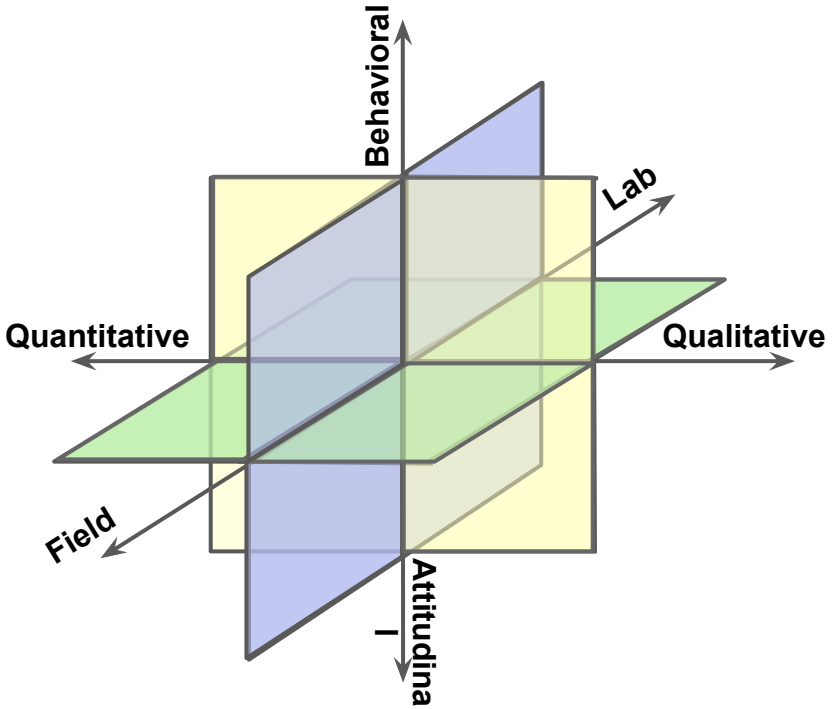
Spring 2017

Lecture III

Anastasia Kuzminykh


Understand your users
Translate needs into functionalities
Create design ideas
Prototype design
Test & Evaluate
Build final version

Understand Your Users



Quantitative

- Fixed & measurable reality
- Analyzed numerically and statistically

Qualitative

- Dynamic & descriptive reality
- Analyzed by themes

Field

- Natural Environment
- Uncontrolled

Lab

- Artificial Environment
- Well Controlled

Behavioural

- What people do

Attitudinal

- What people think / feel

Data Triangulation

- One question - several methods
- Cross verification

Quantitative

- Fixed & measurable reality
- Analyzed numerically and statistically

Qualitative

- Dynamic & descriptive reality
- Analyzed by themes

Field

- Natural Environment
- Uncontrolled

Lab

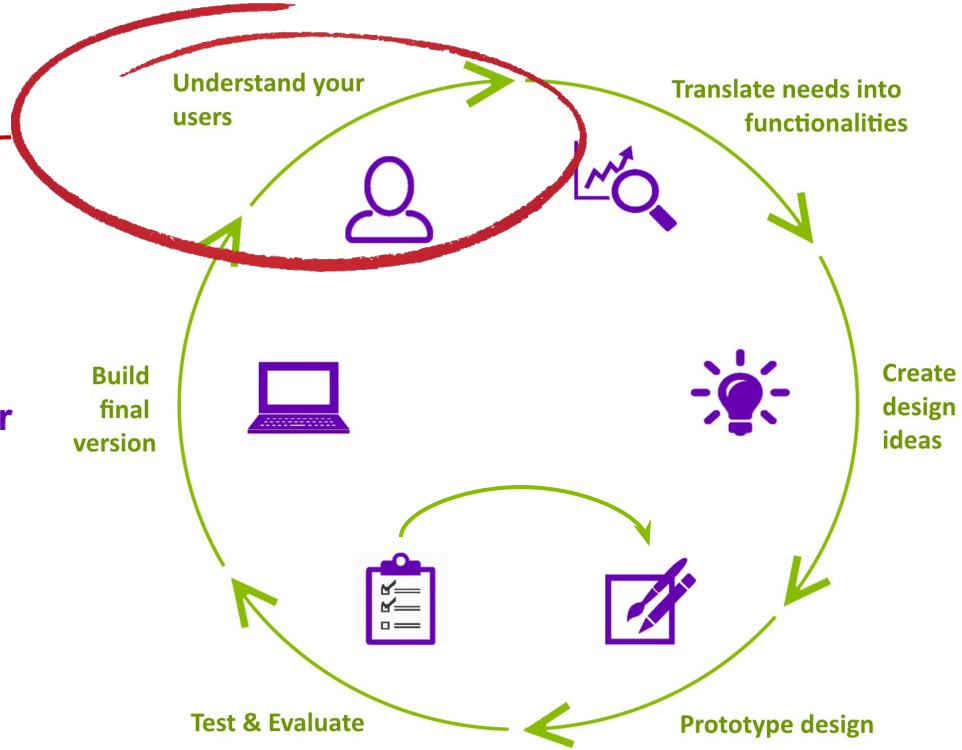
- Artificial Environment
- Well Controlled

Behavioural

- What people do

Attitudinal

- What people think / feel



Understanding:

Motivations
Typical Behaviour
Struggles
Environment
Social context
Language
...

Exploratory Study

Understand Your Users: Exploratory Studies

Exploratory Study

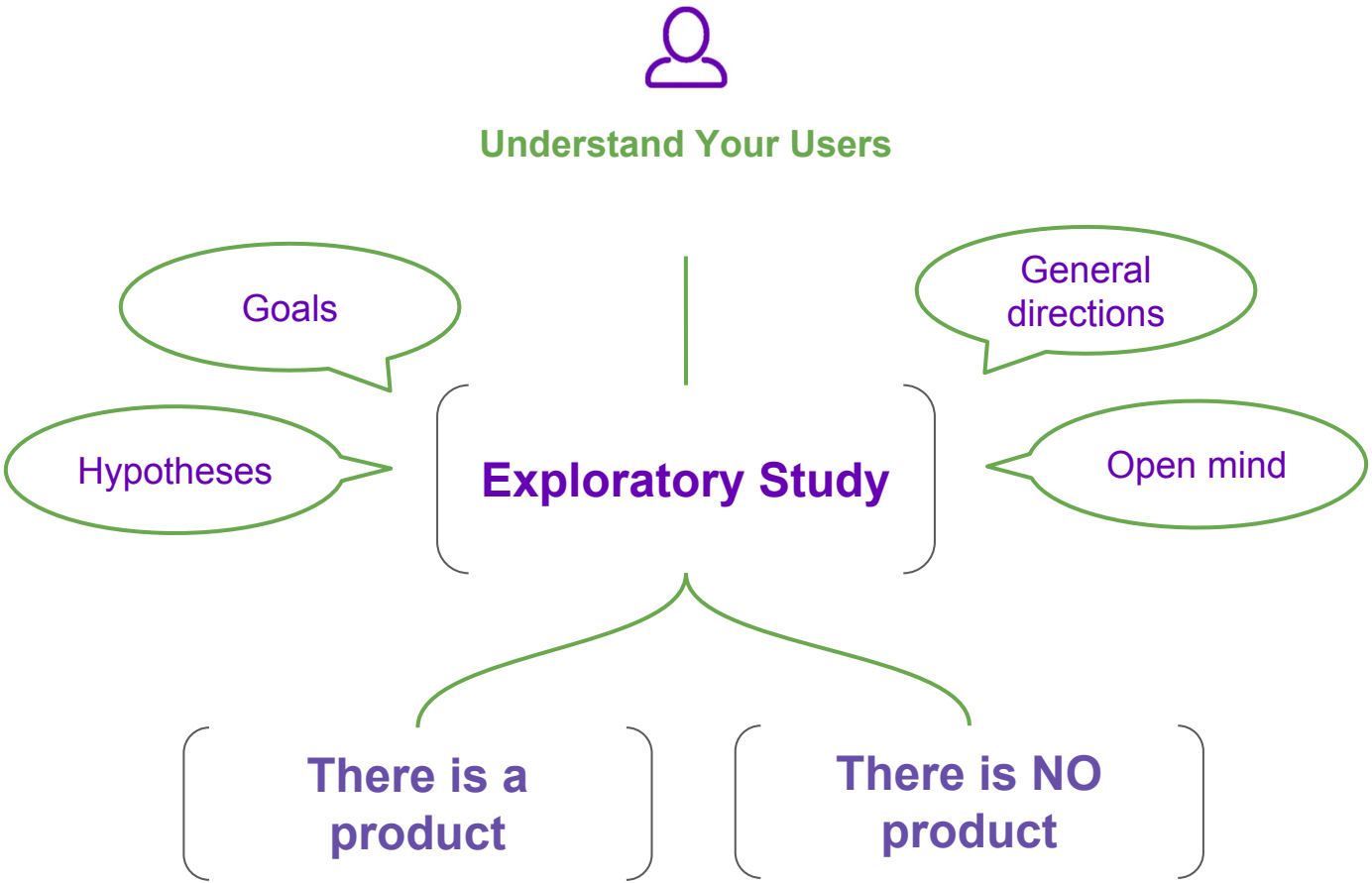
Motivational system

- Goals and tasks (“need”)
- Desirability (“want”)
- Emotional charge (“fears”, frustration, pleasure, etc.)

Contextual knowledge & beliefs

Cognitive (Mental) model

- A cognitive representation (understanding) of how something works / organised
- Based on previous experience & believes; defines reasoning


Understand Your Users
Goals
General directions
Hypotheses
Exploratory Study
Open mind
There is a product
There is NO product

Understand Your Users: Exploratory Studies

There is a product

- True-Intent Studies
- Remote Unmoderated Usability Studies
- Intercept Surveys
- Clickstream Analysis

There is NO product

- Diary/Camera Studies
- Participatory Design
- Questionnaires
- Observations
- Interviews
- Ethnographic Field Studies
- Contextual inquiry

Understand Your Users: Exploratory Studies

There is a product

- True-Intent Studies
- Remote Unmoderated Usability Studies
- Intercept Surveys
- Clickstream Analysis

- Ask about user's goals and/or intentions when they entering the service
- Track their subsequent behavior
- Ask if they were successful in achieving their goal

- Diary/Camera Studies
- Participatory Design
- Questionnaires
- Observations
- Interviews
- Ethnographic Field Studies
- Contextual inquiry

Understand Your Users: Exploratory Studies

There is a product

- True-Intent Studies
- **Remote Unmoderated Usability Studies**
- Intercept Surveys
- Clickstream Analysis

- Quantitative/qualitative automated method
- Captures **behaviors** (through software on participant device) and **attitudes** (through embedded survey questions)
- Usually includes goals/scenarios

- Diary/Camera Studies
- Participatory Design
- Questionnaires
- Observations
- Interviews
- Ethnographic Field Studies
- Contextual inquiry

Understand Your Users: Exploratory Studies

There is a product

- True-Intent Studies
- Remote Unmoderated Usability Studies
- **Intercept Surveys**
- Clickstream Analysis

- A survey triggered during the use of a product
- Usually very short

- Diary/Camera Studies
- Participatory Design

- Questionnaires
- Observations
- Interviews

- Ethnographic Field Studies
- Contextual inquiry

Understand Your Users: Exploratory Studies

There is a product

- True-Intent Studies
- Remote Unmoderated Usability Studies
- Intercept Surveys
- Clickstream Analysis

- Analyzing the record of elements that users clicks on/views, as they use a software product
- Requires proper software instruments / tools for telemetry data collection enabled

- Diary/Camera Studies
- Participatory Design

- Questionnaires
- Observations
- Interviews

- Ethnographic Field Studies
- Contextual inquiry

Understand Your Users: Exploratory Studies

- **Diary/Camera Studies**
- Participatory Design
- Questionnaires
- Observations
- Interviews
- Ethnographic Field Studies
- Contextual inquiry

- Includes a mechanism (diary or camera) to record / describe relevant activities in “every-day” settings
- Longitudal
- Data recorded by participants based on provided guidelines

Understand Your Users: Exploratory Studies

- Diary/Camera Studies
- **Participatory Design**

- Questionnaires
- Observations
- Interviews

- Ethnographic Field Studies
- Contextual inquiry

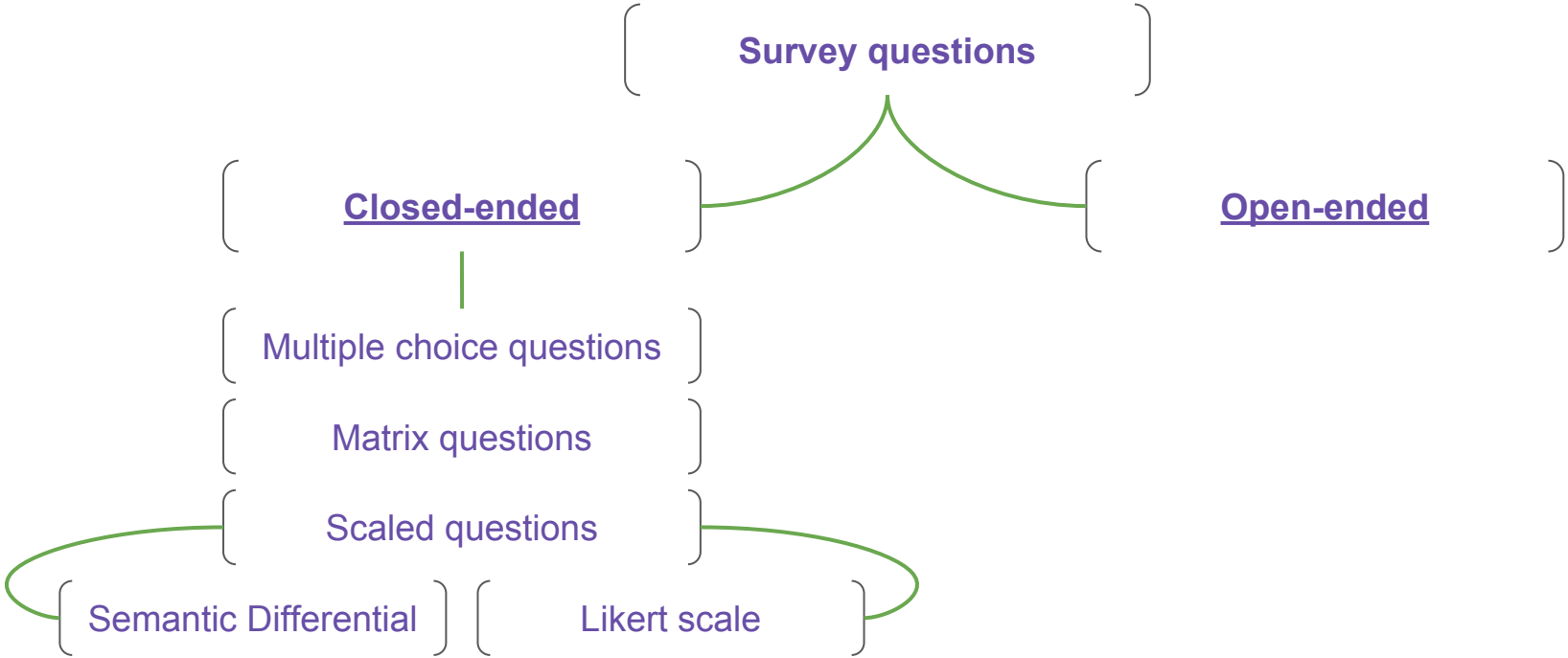
- Participants are given design elements
- Inclusive design process - constructing ideal experience real time with a researcher
- Helps to understand values and uncover mental models

Understand Your Users: Exploratory Studies

- Diary/Camera Studies
- Participatory Design
- **Questionnaires**
- Observations
- Interviews
- Ethnographic Field Studies
- Contextual inquiry

- Predefined series of written questions
- Usually relatively large samples - fast and cheap method
- Often used remotely
- Better to keep within 20-25 questions

Understand Your Users: Exploratory Studies



Understand Your Users: Exploratory Studies

Survey questions

Closed-ended

Multiple choice questions

Matrix questions

Scaled questions

Semantic Differential

Likert scale

Example:

What color is your favorite ice-cream?

- ○ **Red**
- ○ **Blue**
- ○ **White**
- ○ **Other: _____**

Understand Your Users: Exploratory Studies

Survey questions

Closed-ended

Multiple choice questions

Matrix questions

Scaled questions

Semantic Differential

Likert scale

Example:

Where do you usually eat the following food?

	Home	Work	School	N/A
Ice-cream				
Salad				
Fruits				

Understand Your Users: Exploratory Studies

Survey questions

Closed-ended

Multiple choice questions

Matrix questions

Scaled questions

Semantic Differential

Likert scale

Example:

Where would you describe this ice-cream?

Tasty …. …. …. …. …. …. …. Tasteless

Cheap …. …. …. …. …. …. …. Expensive

Satisfying …. …. …. …. …. …. …. Disappointing

Understand Your Users: Exploratory Studies

Survey questions

Closed-ended

Multiple choice questions

Matrix questions

Scaled questions

Semantic Differential

Likert scale

Example:

Ice-cream is my favorite food at this restaurant:

....	....	....	....	....	....	....
Strongly Agree			Neutral			Strongly Disagree

- *Typically 5, 7 or 9 point scale*

Understand Your Users: Exploratory Studies

Survey questions

Open-ended

Unstructured questions

Explanation questions

Completion questions

Association questions

Example:

Any of us can sometimes unexpectedly run out of ice-cream. What do you usually do in such situations?

_____

_____

_____

_____

Understand Your Users: Exploratory Studies

Survey questions

Open-ended

Unstructured questions

Explanation questions

Completion questions

Association questions

Example:

In previous question you said you prefer salads. Please, explain why:

_____
_____
_____
_____

Understand Your Users: Exploratory Studies

Survey questions

Open-ended

Unstructured questions

Explanation questions

Completion questions

Association questions

Example:

My favorite taste of ice-cream is _____.
I like it the most because it is _____. I usually eat it at (in)_____
when I am _____.

Understand Your Users: Exploratory Studies

Survey questions

Open-ended

Unstructured questions

Explanation questions

Completion questions

Association questions

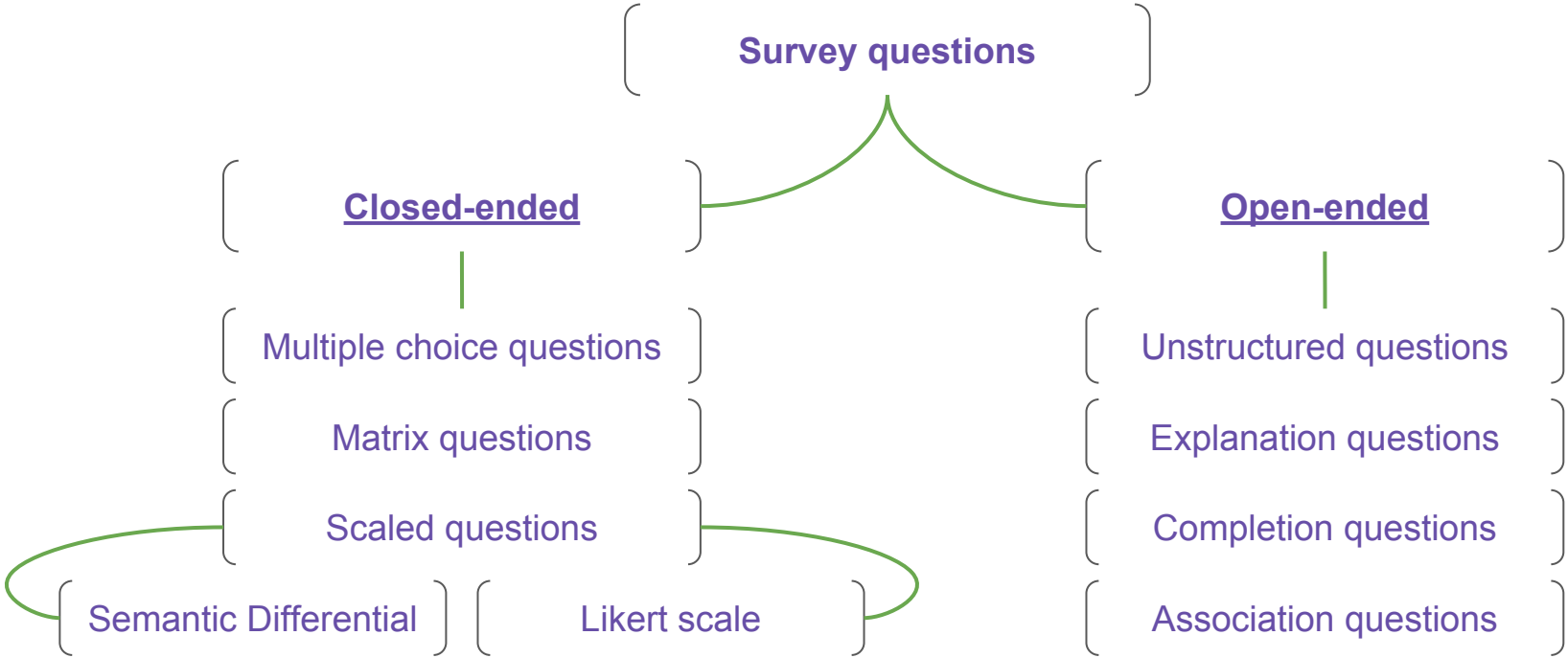
Example:

What is the first word that comes to mind when you see the following:

Summer, Tasty, Cold, Flavour

_____

Understand Your Users: Exploratory Studies



Understand Your Users: Exploratory Studies

- Diary/Camera Studies
- Participatory Design
- Questionnaires
- **Observations**
- Interviews
- Ethnographic Field Studies
- Contextual inquiry

- Observing participants performing some type of activity (ongoing behaviour)
- Can be controlled (lab) or naturalistic (field)
- Different possible levels of participation
- Written or video recording (requires consent!)

Understand Your Users: Exploratory Studies

- Diary/Camera Studies
- Participatory Design
- Questionnaires
- Observations
- **Interviews**
- Ethnographic Field Studies
- Contextual inquiry

- In depth discussion of the topic with a participant
- Usually one-on-one
- Written, audio, video recording options (requires consent!)

Understand Your Users: Exploratory Studies

- Diary/Camera Studies
- Participatory Design
- Questionnaires
- Observations
- Interviews
- **Ethnographic Field Studies**
- Contextual Inquiry

- Natural environment, every-day life
- First-hand participation in users'' activities
- Description of the scene, key events, key actors, key artifacts and actions
- Combination of observations and interviews
- Focus on objective behaviours

Understand Your Users: Exploratory Studies

- Diary/Camera Studies
- Participatory Design
- Questionnaires
- Observations
- Interviews
- Ethnographic Field Studies
- **Contextual inquiry**

- Natural environment, every-day life
- First-hand participation in participants' activities
- Relatively short (several hours)
- Researcher heavily involved in the process and constantly asks questions
- Mostly rely on self-report data

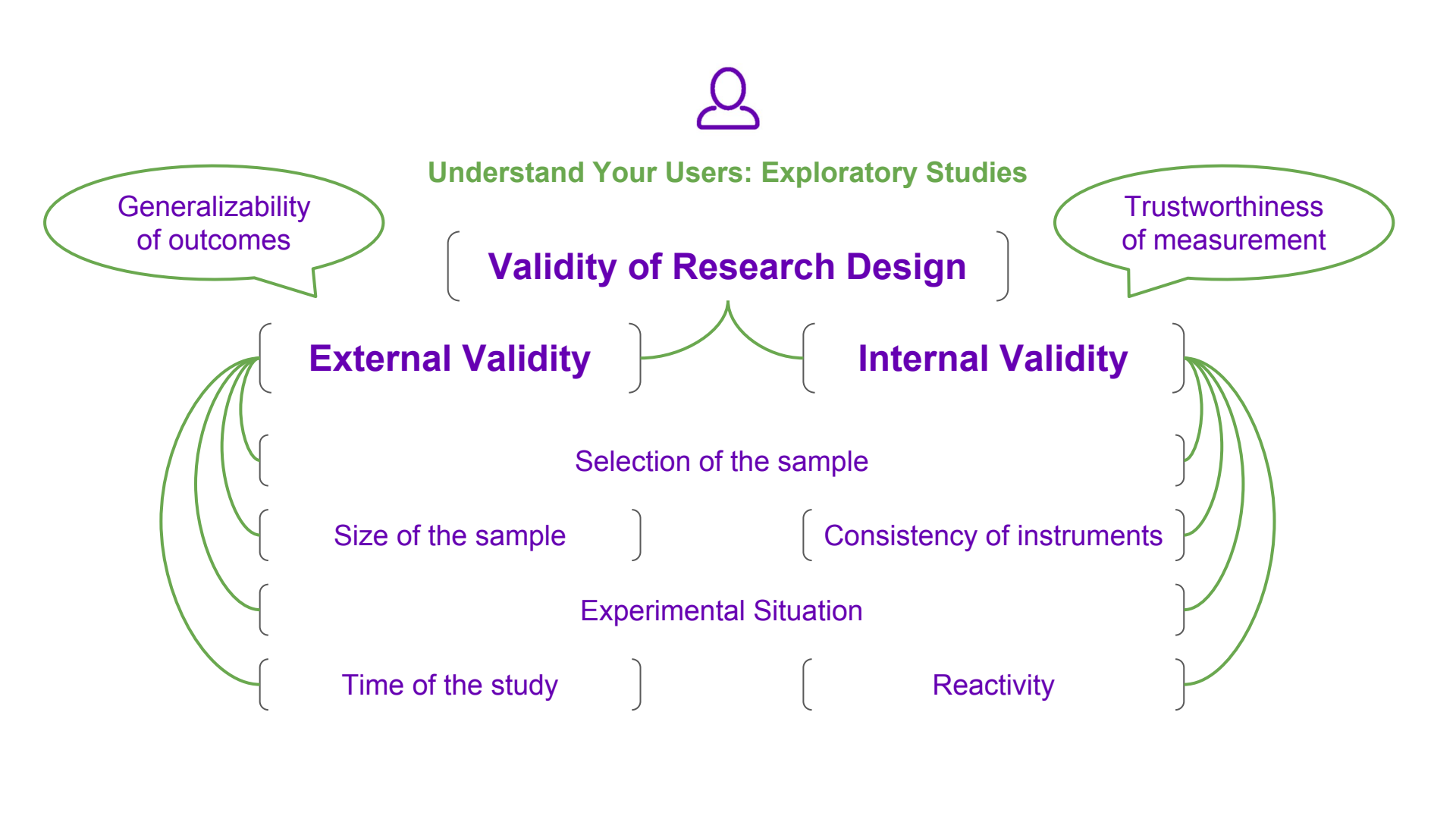
Understand Your Users: Exploratory Studies

There is a product

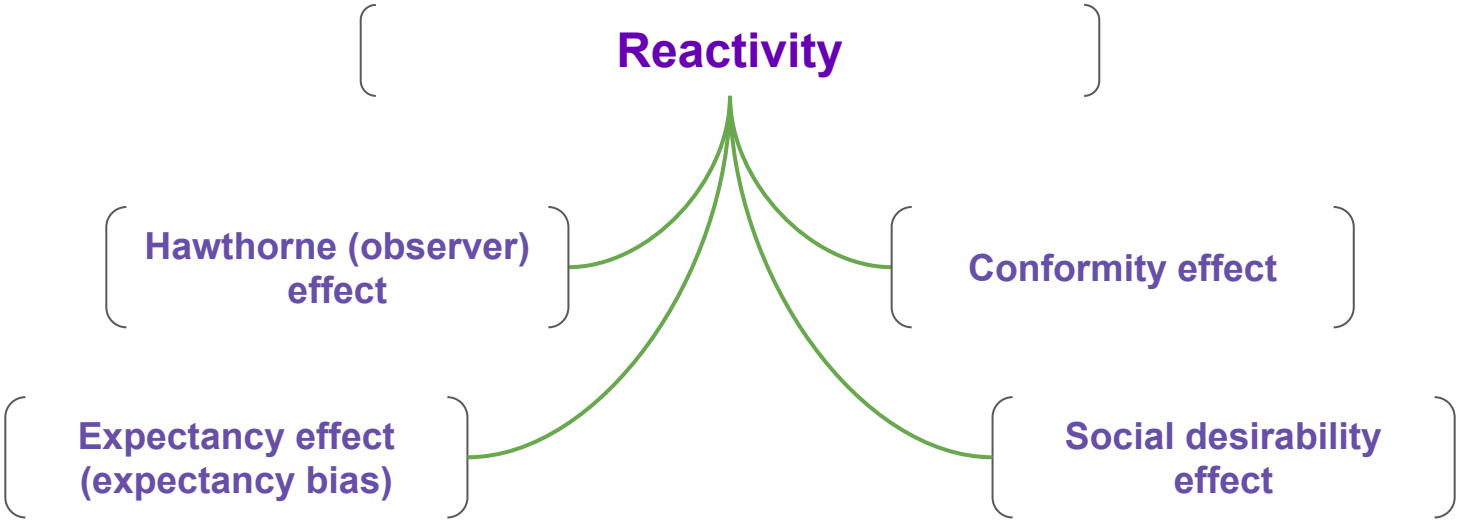
- True-Intent Studies
- Remote Unmoderated Usability Studies
- Intercept Surveys
- Clickstream Analysis

There is NO product

- Diary/Camera Studies
- Participatory Design
- Questionnaires
- Observations
- Interviews
- Ethnographic Field Studies
- Contextual inquiry


Understand Your Users: Exploratory Studies
Generalizability of outcomes
Trustworthiness of measurement
Validity of Research Design
External Validity
Internal Validity
Selection of the sample
Size of the sample
Consistency of instruments
Experimental Situation
Time of the study
Reactivity

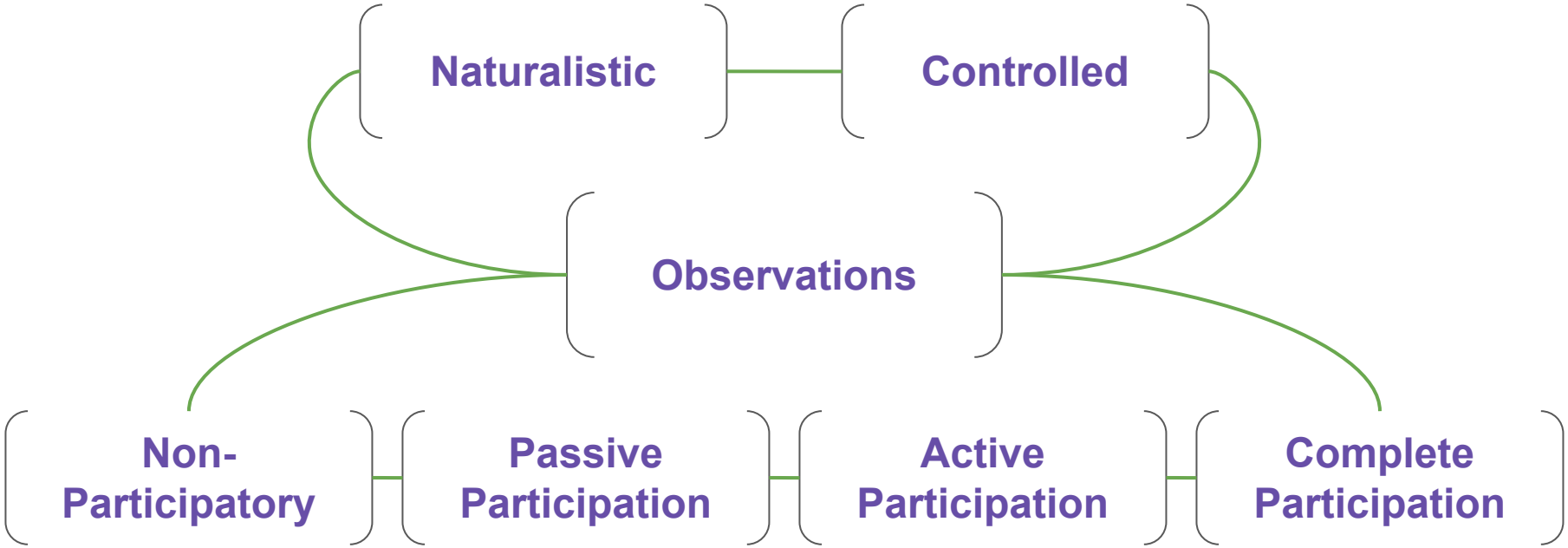
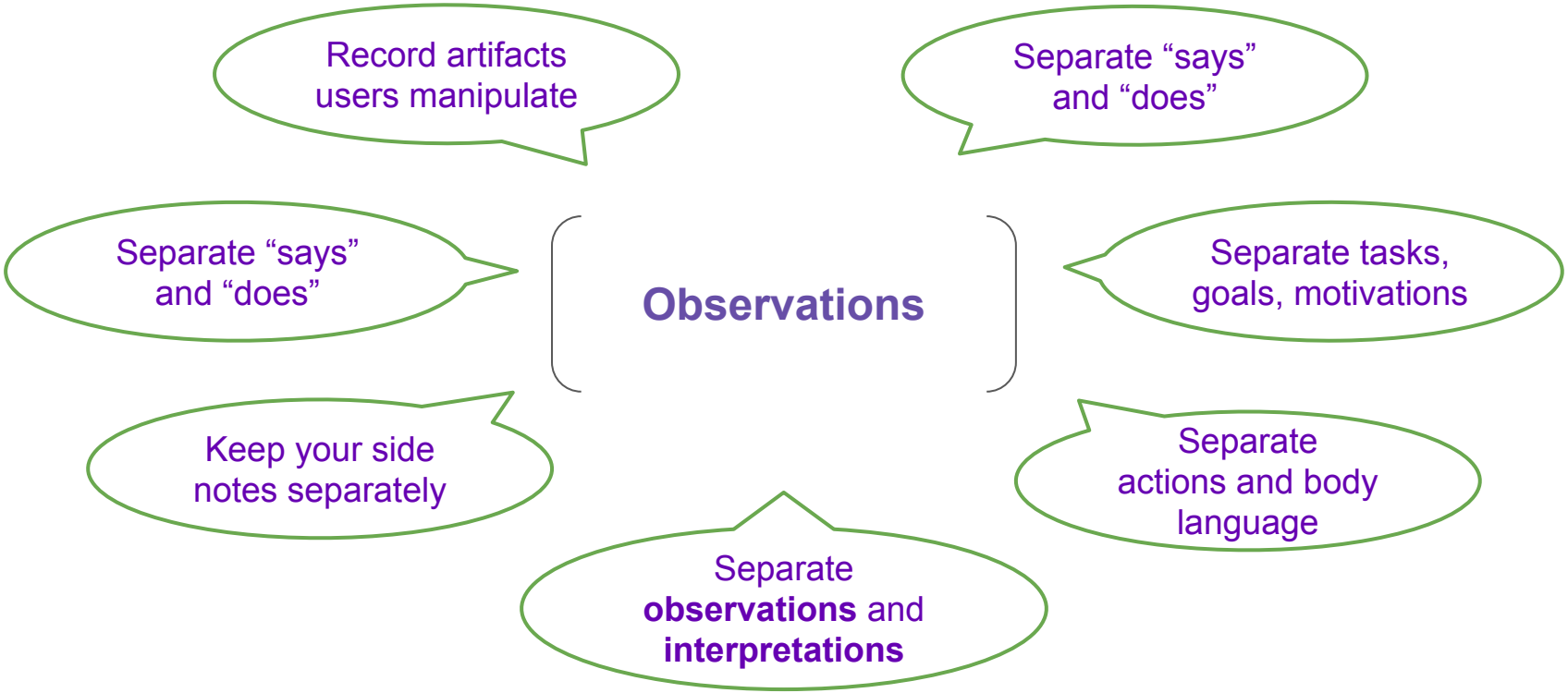
Understand Your Users: Exploratory Studies



Understand Your Users: Exploratory Studies

Observations

Understand Your Users: Exploratory Studies



Understand Your Users: Exploratory Studies