CS449/649:
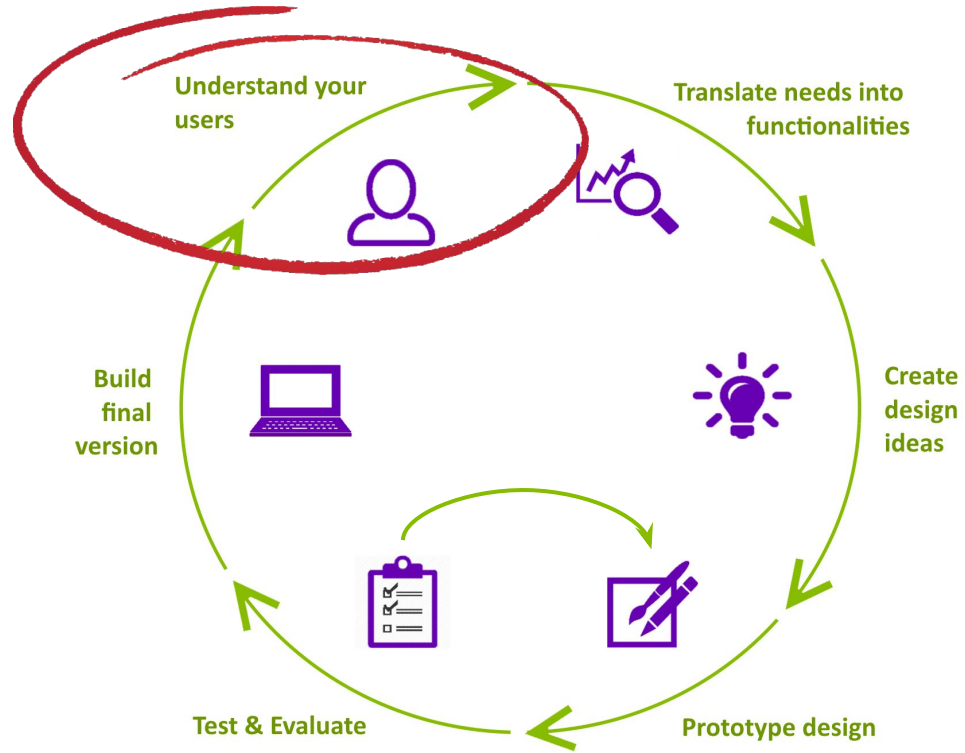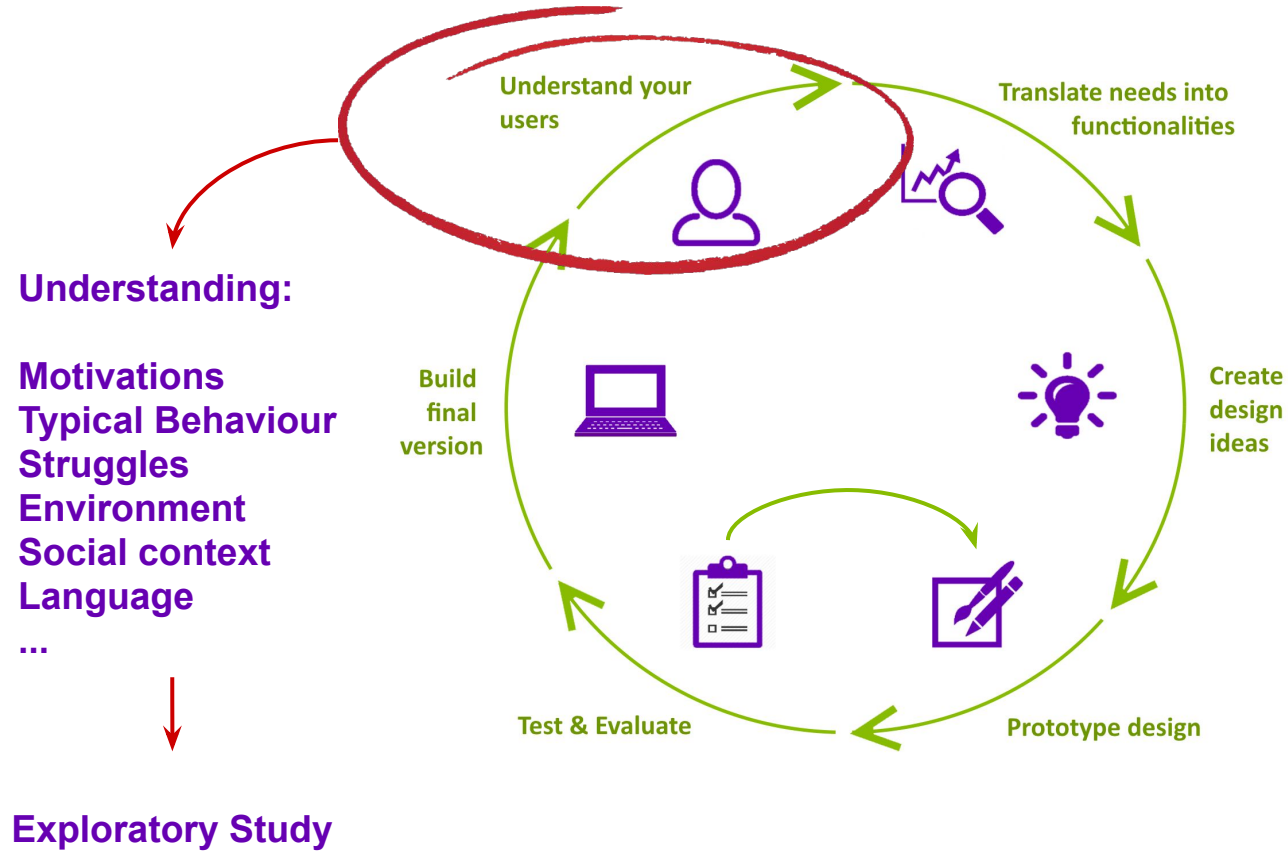# Human-Computer Interaction

Spring 2019

Lecture IV

Anastasia Kuzminykh and Edward Lank
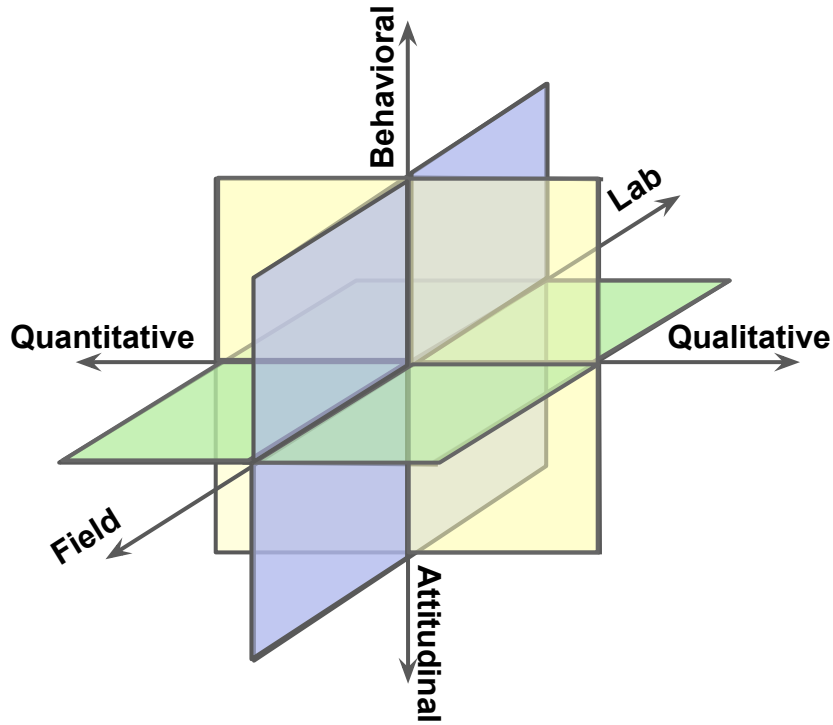
Understand your users

Translate needs into functionalities

Create design ideas

Prototype design

Test & Evaluate

Build final version

Understand your users

Translate needs into functionalities

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Understanding:

Motivations
Typical Behaviour
Struggles
Environment
Social context
Language

...

Exploratory Study

Understand Your Users

User study:
ways to capture
information

Observe

Register Features

Ask Questions

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
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Behavioural

- What people do

Attitudinal

- What people think / feel

Understand Your Users: Exploratory Studies

Generalizability of outcomes

Validity of Research Design

Trustworthiness of measurement

External Validity

Internal Validity

Understand Your Users: Exploratory Studies

Validity of Research Design

Generalizability of outcomes

Trustworthiness of measurement

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

Generalizability of outcomes

Trustworthiness of measurement

Validity of Research Design

External Validity

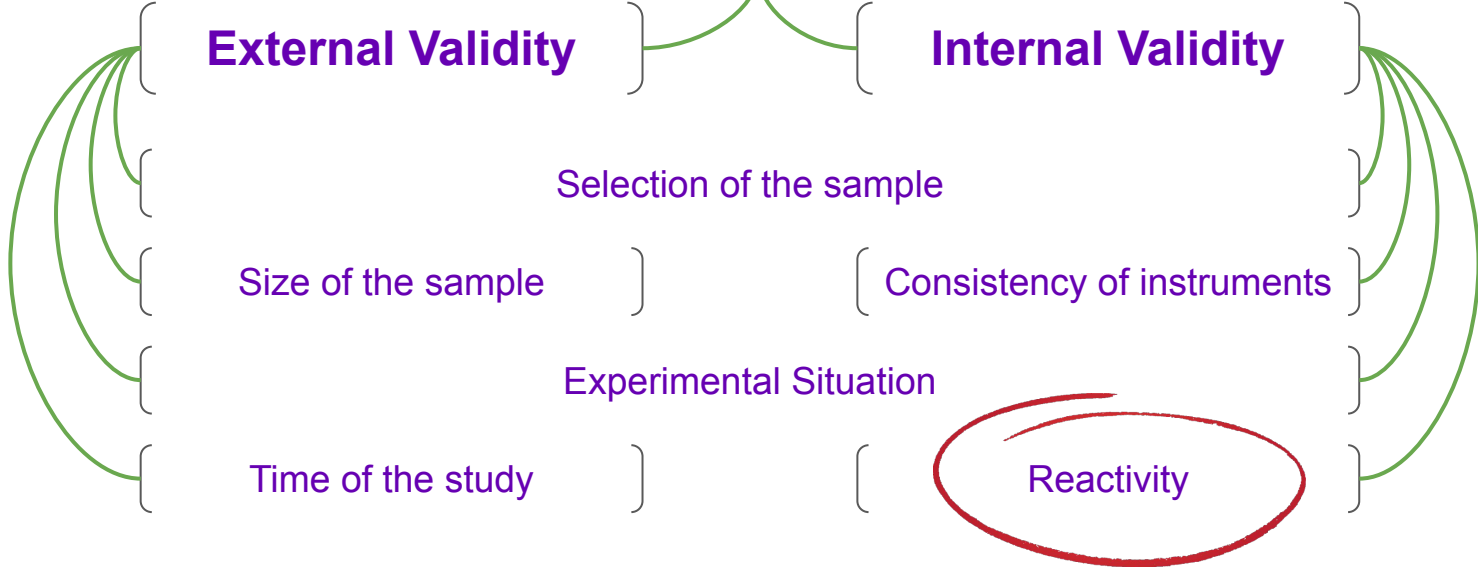**Internal Validity**

Selection of the sample

Size of the sample
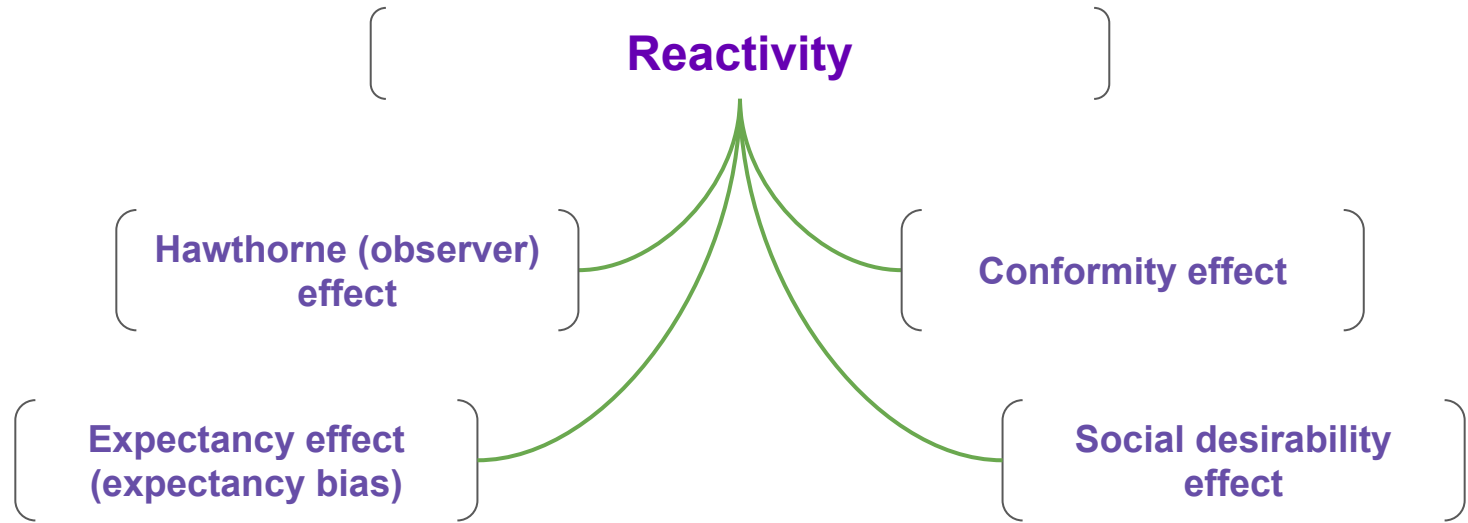
Consistency of instruments

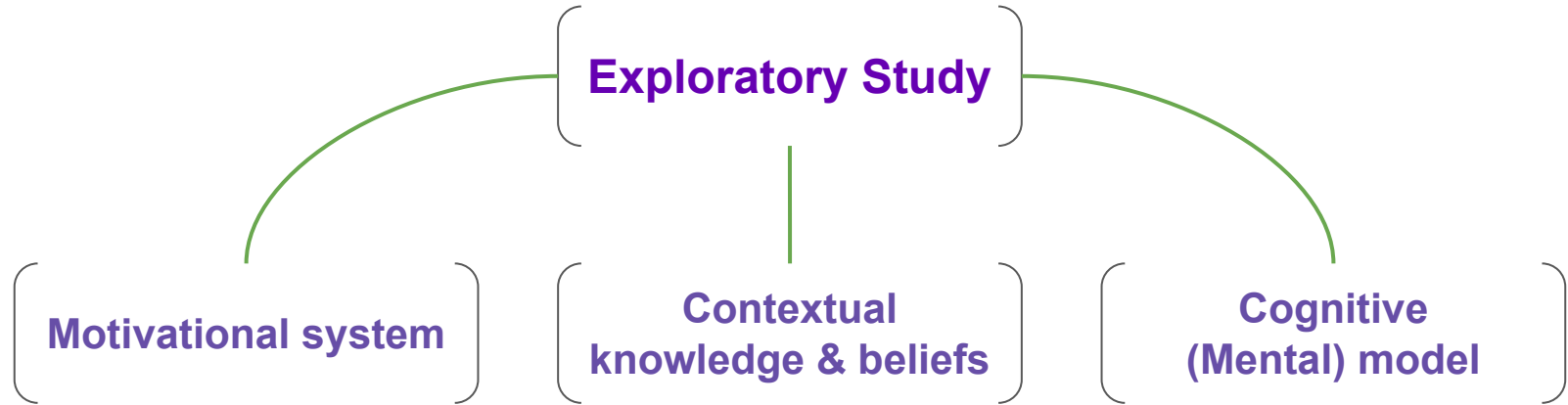Experimental Situation

Time of the study

Reactivity

Understand Your Users: Exploratory Studies

Reactivity

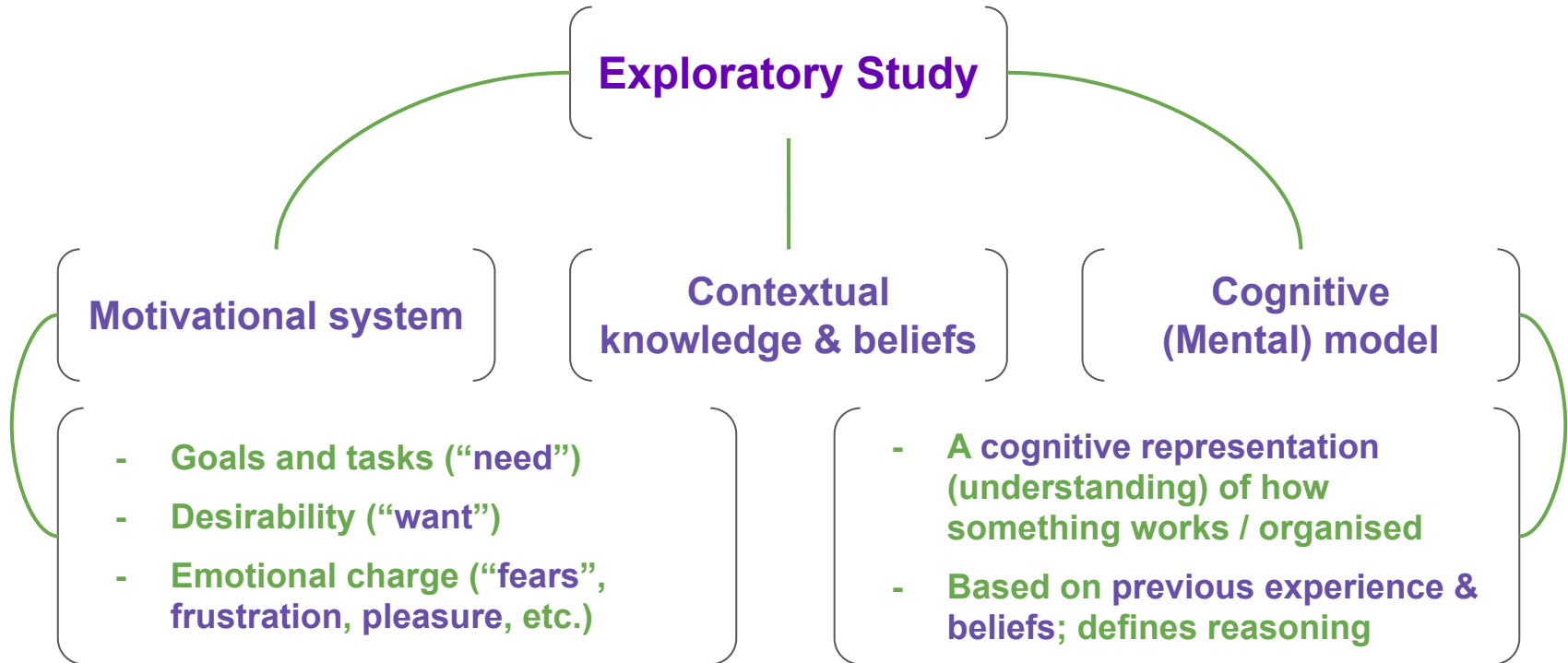Hawthorne (observer) effect

Conformity effect

Expectancy effect (expectancy bias)

Social desirability effect

Understand Your Users: Exploratory Studies

Exploratory Study

Motivational system

Contextual knowledge & beliefs

Cognitive (Mental) model

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 & beliefs; defines reasoning**

Understand Your Users: Exploratory Studies

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

- Questionnaires
- Observations
- Interviews

- Diary/Camera Studies
- Participatory Design

- 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

click me

- Questionnaires
- Observations
- Interviews
- Diary/Camera Studies
- Participatory Design
- 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

click me

- Questionnaires
- Observations
- Interviews
- Diary/Camera Studies
- Participatory Design
- 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

click me

- Questionnaires
- Observations
- Interviews
- Diary/Camera Studies
- Participatory Design
- 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

click me

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