



Usability Competency Centre, IBM UK

## Long-term (longitudinal) research and User Experience design

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Long-term research and User Experience



## Learning objectives and target outcomes

- Objectives**
- Learn three main long-term (LT) research strategies
  - Recognise advantages and limitation of each strategy
  - Identify interest in and opportunities for LT research in UX design
  - Share knowledge of current practices and examples of LT research

## What is long-term research?



- Long-term research is an enquiry that
  - Monitors a set of research subjects over time
  - Informs about what happened to the subjects at different time periods
  - Collects data on two or more occasions
- Strategies (research designs): trends, panels, event history

## What does long-term research study? Examples

- |                      |   |
|----------------------|---|
| Social sciences      | ▪ Social changes  |
| Psychology           | ▪ Personal and group development, adaptation mechanisms   |
| Education            | ▪ Sustainability of learning and training effects   |
| Medicine             | ▪ Disease monitoring, treatment effects   |
| User experience (UX) | <ul style="list-style-type: none"> <li>▪ User research: emerging user needs and changes in existing needs</li> <li>▪ Design: product under development</li> <li>▪ Evaluation: product life-cycle and user learning curve</li> </ul> |

## Strategy 1: Trends (cross-sectional studies)



- Analyse a sample of the target user population at a **specific point in time**
- Cover a variety of different characteristics within the studied user group
- All surveys within the same study use the same materials and protocol
- Each consecutive survey uses a **new sample**, but samples are similar
- Offer an instant, but **static snapshot** of the studied process

## Strategy 1: Trends (cont.)

- |                        |   |
|------------------------|---|
| <b>Best suited for</b> | ▪ Analysing trends within the user population   |
| <b>Typical methods</b> | ▪ Interview, questionnaire, user test   |
| <b>Data unit</b>       | ▪ User group  |
| <b>Advantages</b>      | <ul style="list-style-type: none"> <li>▪ Data are more readily available</li> <li>▪ Data can be analysed in a simpler way than other LT data</li> <li>▪ Trends allow detecting change at the aggregate level</li> </ul> |
| <b>Limitations</b>     | ▪ Not suited for analysing changes at the level of individuals  |

## Strategy 1: Trends and UX

### User research

- Analysing emerging user needs within a population, e.g.
  - Theme: 5-year trends in on-line gaming patterns of teenage girls
  - Goal: Inform the UX strategy of a new dating game *Cute Lara*

### Evaluation

- Evaluating trends in product usage over time, e.g.
  - Theme: 5-year trends in *Cute Lara*'s uptake and usage patterns
  - Goal: Justify long-term ROI in *Cute Lara*'s usability

## Strategy 2: Panels (prospective studies)



- Analyse a sample of the target user population at **different points in time**
- Cover a variety of different characteristics within the studied user group
- Each consecutive observation uses the same **fixed sample**
- Monitor **dynamics of changes** within the particular user sample
- Panel types suitable for UX research: consumer, household, cohort

## Strategy 2.1: Panels - Consumer



- Best suited for
  - The degree of stability or change of opinions and attitudes
- Unsuitable for
  - Studying trends within a target user population
- Typical methods
  - Interview, questionnaire, walkthrough
- Data unit
  - Individual user

## Strategy 2.1: Consumer panels and UX

- Design
  - Iterative evaluation of attitudes toward design features, e.g.
    - Theme: search for the most appealing look of an office cubicle
    - Goal: improve emotional response to a work environment
- Evaluation
  - Evaluating attitudes toward the product throughout its lifecycle, e.g.
    - Theme: satisfaction with different releases of *Yak!.com* website
    - Goal: gathering data for improving new releases of *Yak!.com*
    - Theme: attitudes toward desirability of cameras in cell phones
    - Goal: prioritise demand for features to inform product strategy

## Strategy 2.2: Panels - Household



**Best suited for**

- Studying behavioural changes of individuals
- Studying behavioural changes within groups

**Unsuitable for**

- Studying trends within a target user population

**Typical methods**

- Interview, questionnaire, user test, contextual enquiry

**Data unit**

- Individual user or user group

## Strategy 2.2: Household panels and UX

**User research/  
Evaluation**

- Study of product acquisition and usage
  - Theme: acquisition and usage of *Smart Fridge* in Alaska
  - Goal 1: inform design strategy of cooling products used in Alaska
  - Goal 2: evaluate usage of *Smart Fridge* features over time
- Study of changes in user behaviour caused by a new product
  - Theme: changes in collaboration practices of remote teams using *Ping Me Now* application
  - Goal 1: evaluate ROI of *Ping Me Now* usability
  - Goal 2: inform design strategy of *Ping Me Tomorrow*

## Strategy 2.3: Panels - Cohort



- Best suited for**
  - Comparing the effect of the same event on different groups
- Unsuitable for**
  - Studying trends within a target user population
  - Studying changes within individuals
- Typical methods**
  - Interview, questionnaires, test, contextual enquiry
- Data unit**
  - User group

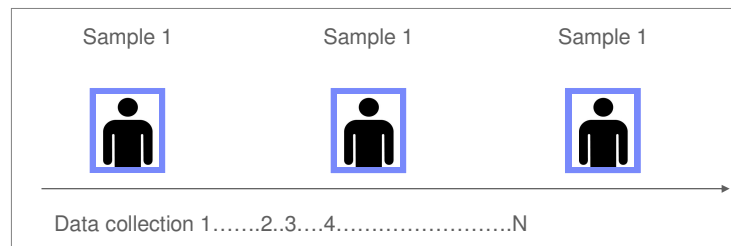
## Strategy 2.3: Cohort panels and UX

- User research/  
Evaluation**
  - Long-term impact of the same technology, product or experience on different user groups
    - Study: ease of learning of *Ping Me Now*: teenagers vs. parents
    - Goal 1: evaluate usability of the product in different user groups
    - Goal 2: inform design strategy of *Ping Me Tomorrow*

## Strategy 2: Advantages and limitations of panels

- Advantages**
- Distinguish between temporary and lasting features of a phenomenon
  - Analyse evolution of user and product behaviour
  - Help understanding the dynamics of difficult to analyse behaviour
  - Look into consequences of phenomena for specific user groups
- Limitations**
- Panel attrition: participants drop out from the study
  - Discrete data collection: what happens between data points is unknown;
  - Panel conditioning: users maybe influenced by their earlier responses

## Strategy 3: Event history



- Continuous monitoring and recording of events **as they take place in the context in which they take place**
- Data are often collected retrospectively
- Information collected often relates to repeated events

## Strategy 3: Event history (cont.)

- Best suited for**
  - Investigating continuous changes and events
- Typical methods**
  - Contextual enquiry and diaries
- Data unit**
  - Individual users
- Advantages**
  - Discover not only change, but also exact time when it happens
  - Can continuously monitor and record events and changes
- Limitations**
  - Recall bias: retrospective recollection is not always accurate
  - Participants drop out from the study (similar to panels)

## Strategy 3: Event history and UX

- User research/  
Evaluation**
  - Can substitute or compliment difficult to conduct studies
    - Theme: field evaluation of a mobile device for aircraft engineers
    - Goal: full understanding of the usage of the device in the field
  - Continuously monitor usability parameters
    - Theme: identify critical points in learning *I Am The Boss* application
    - Goal 1: track and understand learning curve of the users
    - Goal 2: gain a better insight into the usage patterns of *I Am The Boss* application, to feed the design strategy of further releases

## Advantages and limitations of LT research: Summary

- Advantages**
- Unique ability to find answers to questions not tackled by other methods
  - Ability to measure changes in behaviour of individual users and groups
  - Ability to describe patterns of change in user experience over time
  - Ability to find connections between events widely separated in time
  - Ability to well-inform strategic design and UX decisions
  - Ability to provide long-term feedback on strategic UX decisions
- Limitations**
- Typically cost more than other type of user research and evaluation
  - Can be very time consuming

## Feasible? Practical? Necessary?

- In a small group, discuss what you have learned about LT research. Consider the following questions:
  - Would your organisation benefit from LT research?
  - Would it be feasible or practical to conduct LT research in your company?
- From the experience of your group members, pick a project or product that could benefit from LT research:
  - Briefly describe the project or product
  - Choose a strategy that would fit the study best. Explain your choice. Outline how you will conduct data collection and analysis
- Each group presents their project outline to the audience.

## Are you sure you want more science?

*“Usability works with the the ambiguous, the provisional, the ephemeral. It does not require lab coats and strives for the artistic freedom to improvise. Watertight standards and scientific values aren’t going to get us anywhere we want to go.”*

- “Usability and science” editorial, <interactions>, March 2005

Thank you!

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