An Example of User-Testing for an Airline Check-In System (Kiosk + Website)

Project realised for Amadeus Global Travel Distribution

Applications

- Airline Check-In Kiosk (in airports):
  - Touch-Screen
  - Allows to edit the Boarding Pass
- Airline Check-In Website:
  - For travellers who have already booked their flight
- > 2 series of User-Testing sessions
- > Analysis and Comparison of the 2 systems

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Context and Challenges

- Evolution in the Travel Industry:

  – More and more 'self-service' operations

- Access to different publics:

  – Different profiles, cultures, computer skills…

- Importance of the check-in:

  – Critical (conditions Boarding)

  – Often under time pressure, in busy contexts

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Usability Requirements: Kiosk Characteristics

- Touch-Screen, implying specific interaction constraints:

  - Size limitation (interaction zones not smaller than a finger size)

  - Sequential / straining input (1 finger / action at a time)

  - Reduced feedback possibilities (for example no 'mouse-over') > Importance of Error Recovery interaction means

  - Pointing more than Dragging

- Presence of different devices:

  - Credit card / passport insertion…

  - Less standard than computer devices

Usability Requirements: Kiosk Characteristics

- Non-trained users:

  – Requirement for a fast and efficient interaction

- Importance of physical parameters:

  – Environment, user size and position, etc.

- Presence of different devices:

  – Credit card / passport insertion…

  – Less standard than computer devices

- Importance of Confidentiality

- > Requires a specific approach and design

User-Testing Objective

- Assess the usability of 2 prototypes:

  – Respectively for Kiosk and Website

- Measurement Criteria (ref. ISO 9241):

  – Effectiveness > success / failure in task completion

  – Efficiency > compare collected data with ideal sequence

  – Satisfaction > measured by satisfaction questionnaire

What is User-Testing?

- A technique that allows to test an application with users
  - who are representative of the **'real end-users'**

- Reproducing as much as possible the conditions
  - of the **real interaction**

- Establishing experimental hypothesis
  - and **controlling different factors** that might affect the usability

- Testing these hypothesis
  - Through **pre-defined tasks**

- Applying the relevant analysis to collected data:
  - **Quantitative** (statistics) + **Qualitative**

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User-Testing Preparation

- Prototypes Creation:
  - With a real kiosk for the Kiosk-based application

- Preparation of Testing Scenarios (tasks):
  - Real tasks that the end-users will be supposed to realize through the application

- Identifying User Profiles (according to Key Variables):
  - Travel Frequency, Travel purpose (Business vs Leisure), IT Skills
  - Impairments (visual + mobility)

User-Testing Preparation

- Experimental Design:

    – Combining user profiles with tasks

- Users' recruitment:

    – Based on defined Users' Profiles: 'screening questionnaire'

User-Testing Sessions

- User Lab (Amadeus User Lab in Sophia):
  - Two-way mirror
  - Test session recording (screen-recording + video-recording)

- Team:
  - A usability specialist / facilitator who explains the protocol to the user
  - Observers (members of the team: usability, marketing, development)

User-Testing Sessions

- Participant's welcome

- Pre-test questionnaire (control user's profile)

- Realisation of the tasks

- Task de-briefing with the user

- Post-test satisfaction questionnaire (SUS – System Usability Scale)

- *Duration: 1 to 1,5 hr per user*
  - *21 participants for the Kiosk*
  - *20 participants for the Website*

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Equipment for Kiosk Testing

Air Kiosk User Testing - Analysis

Equipment for Website Testing

Air Kiosk User Testing - Analysis

Collected Data

- Profile Data

- Comments per screen per user / task

  – With screen + video-recording

- Answers to the SUS Questionnaire

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Analysis

- Problems Inventory:
  - Per screen / task
  - Including Severity: very high, high, medium, low
- Problems Categorisation. Example:

| Finding	Usability Problem
"User selects the passenger, is surprised by the term, deselects and continue"	➔ "Status and action are associated"
Total: 246 findings	Total: 120 usability problems

Analysis

- ## Statistics:

  - ### Per Tasks / User Groups > identify the impact of users' profiles on interaction. Ex:

  - ### Per Screen > identify most problematic parts of the application

- ## Etc.
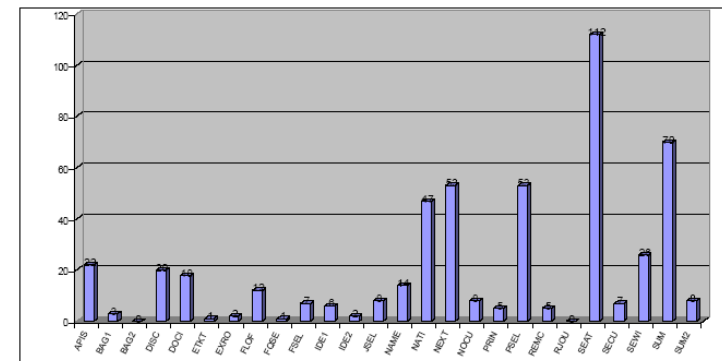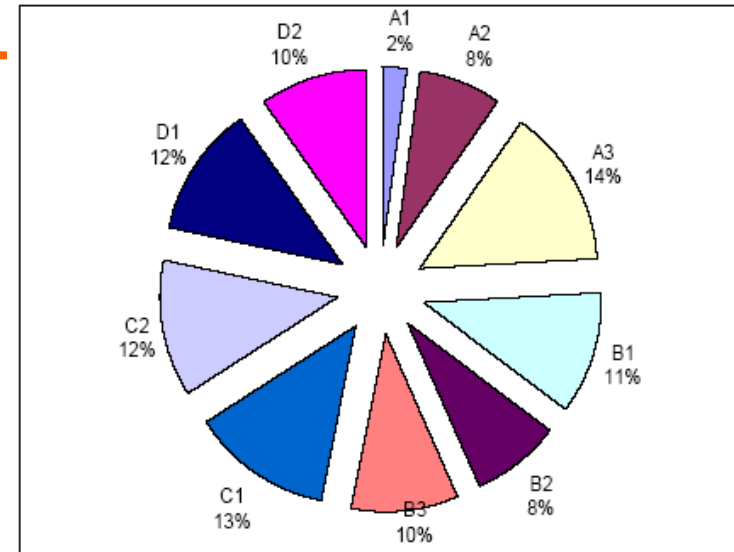
Analysis

- Satisfaction (qualitative). Example:
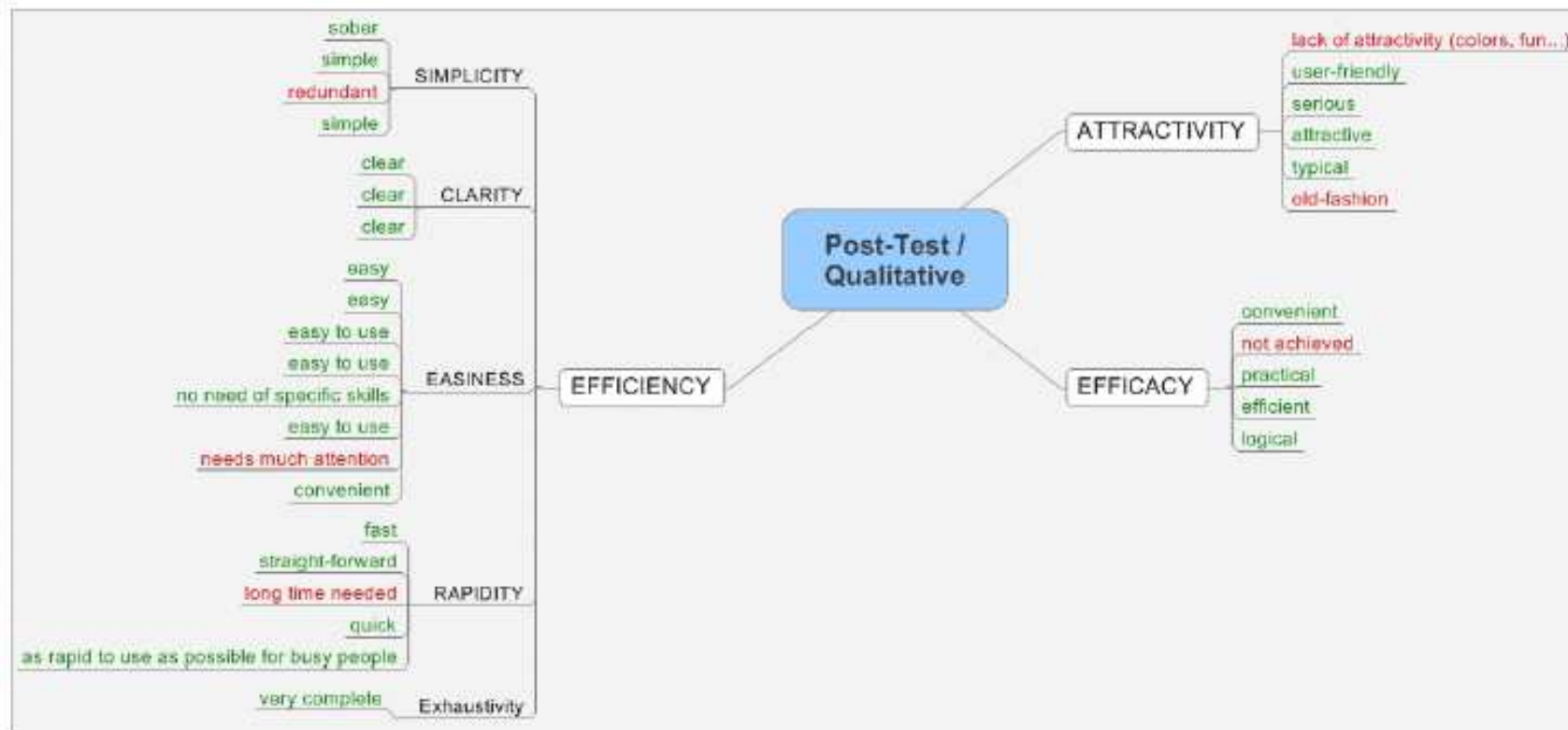
Key Conclusions

- Users' profiles requiring the most attention are:
    - IT novices who are occasional travellers
    - Frequent flyers with good IT skills (high-level of expectations, tend to go fast, do not read and therefore make more errors)

- User-Expectations for Internet Check-In were higher than for Kiosk:
    - In general, users more used to Internet > more demanding

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Output from User-Testing

- Identify key problems (most frequent / most critical)
- Identify if these problems are correlated to users' profiles:
  - E.g. travel frequency, IT Skills
  - > Identify if the interface should be adapted according to users' profiles
- Localize precisely the origin of the problem:
  - For example, a specific element / feature in a specific screen
  - > Find solutions for improving the interface

Output from User-Testing.

- General recommendations:
  - Transversal usability principles
  - Design guidelines
- Specific Recommendations:
  - Screen Per Screen
  - Usability Problem > Design Recommendation

Output from User-Testing. Example.

- Usability Problem:
  - (ex.) Interaction problem with the mini seat-map
- Design Solution(s):
  - (ex.) Modifications on the mini seat-map (e.g. representation of the plane front-back, speeded-up scrolling, etc.)

Analysis

Thank You!

For more information:

catherine.bellino@dia-logos.net

teresa@ludo-tic.com

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