Task Analysis and Usability Engineering

LT seminar
1-2 pm, Thursday, 22nd April 2004

Choosing the right task modelling notation: A taxonomy, by Sandrine Balbo, Nadine Ozkan and Cécile Paris, in the Handbook of Task Analysis for Human-Computer Interaction, D. Diaper and N. Stanton (Eds.), 2004
Major projects
The Users and The Interfaces

- **Users:**
  - Professional users (RAN, finance, banking)
  - General public (shopping, info.)

- **Interfaces:**
  - Personal computers, TV
  - Hand-held devices (remote, PDA, phone, multi-media)
HCI research goal

To produce systems that:

- fit into the end-user’s environment,
- allow users to accomplish their tasks and obtain the information they require in an efficient and effective manner,
- take into account the interests and objectives of the clients & stakeholders.
What is Usability about?

“It isn’t about a list of rules. It’s about appropriate design. Designing to fit the task, the users and the environment. As such, it is complementary to the creative process. Graphic design, copy writing and usability seek to give the best experience possible.”

Neil Kindley, 2002
Task analysis methodology

- Interviews with the various stake holders and end-users
- Observations in the wild / zoo
- Think aloud protocol
- Workshops / focus groups with stake holders / managers / end-users
Task analysis is not about...

- User characterisation
- Structure and usage of artefacts
- Flow of action between people/roles
- Physical environment
- Context/culture which constrains how the task is done
What do we mean by task model?
The Use Case example

- **Book a flight**
  - uses **Find the right flight**
  - uses **Pay**
  - uses **Issue receipt & ticket**

- **Choose a flight**
- **Select other parameters**

This diagram illustrates the flow of tasks involved in booking a flight, showing how each task relates to the others in the process.
The Use Case example

User Intention | System Responsibility
---|---
> Find the right Flight  
> Pay | > Issue Receipt & Ticket
The Use Case example

<table>
<thead>
<tr>
<th>User Intention</th>
<th>System Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select departure airport</td>
<td>Update return airport list</td>
</tr>
<tr>
<td>Select return airport</td>
<td>Flight selected</td>
</tr>
<tr>
<td>&gt; Choose a flight</td>
<td></td>
</tr>
<tr>
<td>Issue receipt &amp; ticket</td>
<td></td>
</tr>
<tr>
<td>&gt; Find the right Flight</td>
<td></td>
</tr>
<tr>
<td>&gt; Pay</td>
<td></td>
</tr>
<tr>
<td>&gt; Issue Receipt &amp; Ticket</td>
<td></td>
</tr>
</tbody>
</table>

- Book a flight
- Pay
- Issue receipt & ticket
- Choose a flight
- Select other parameters
- Find the right flight
What are TMs used for?

Hierarchy of tasks:
- Scoping & Structuring URS

Terminology:
- Categories / Tutorial / Help / Documentation generation

Define & Predict
- Evaluating usability

Design
- Defining/ Organising [new] functionalities

Communicate
- Develop & Deploy
Communicate

Client:
- Stake holders
- Experts
- End-user

Experts:
- Brand strategist
- Market researcher
- Business analyst
- Graphic artist
- Software engineer
- HCI engineer
- Copywriter
the FFlow example

Go-fly.com availability & booking page

- Select departing airport from pull-down menu
- Update arrival airport pull down menu
- Select arrival airport from pull down menu
- Select all other parameters
- Select 'Check availability & book'
- Check for errors
- Error message
- No errors
  - Select flight page
  - click 'Ok'

Sandrine Balbo, *Task Analysis and Usability Engineering*
Extract expertise, validate

- Make a one-off payment
- Paying in slip
  - Clear
  - Close
  - Save

- Assign to a portfolio

- e-IFA is identified
  - View e-IFA
  - e-IFA details
  - Yes

- View withdrawal details
- Make a new withdrawal
- Change withdrawal
- Change view
- Change payment
- Submit
- Change 1 bank
- View payment history
- View e-IFA
- e-IFA is identified
  - Yes
  - View e-IFA

- Contact
- Request a change form
- Send email
- Request a change form
- prepopulate

- Back to...
- Service my IFP products

- Make a one-off payment
- Paying in slip
  - Clear
  - Close
  - Save

- e-IFA is identified
  - View e-IFA
  - e-IFA details

- View withdrawal details
- Make a new withdrawal
- Change withdrawal
- Change view
- Change payment
- Submit
- Change 1 bank
- View payment history
- View e-IFA
the Diane+ example

Book a flight

Find the right flight

Pay

Issue receipt and ticket

Enter flight details

Display all flights corresponding to details

Choose a flight

Select departure & arrival airports

Select other parameters

Select departure & arrival airports

Select departure airport

Update return airport list with possible flights

Select return airport
Hierarchy of tasks

Write controls & topics help:

- Write for all controls
- Write for all windows
- Write for all topics
- Find out how application works

- Per control
- Per window
- Per topic

- Find out how one topic works
  - Write for the topic
    - Per control
    - Per window
    - Per topic
  - Write for remaining controls
    - Per control

XOR
Scoping & Structuring URS
Defining the right terminology

- To provide information about the end-user's **vocabulary**
- To help build **categories, indexes**
- To provide structure for **tutorials**
- To automatically generate the procedural on-line **help** ("how-to"), as in Isolde
Defining the right terminology

Choose a phone

Please select one or more of the following:

Select feature:
- Call timer
- Call divert
- Caller display
- Dedicated phonebook key
- One touch dialling
- Voice activated dialling
- Optional car kit
- EFR compatible
- WAP
- Internal Modem
- Clock/Alarm or Date
- Games
- MP3
- Picture Messaging
- Predictive Messaging
- Keypad lock
- Call waiting/hold
- Dedicated voicemail key
- Speed dialling
- Hands free compatible
- Vibrating alert feature
- Data compatible
- Text messaging (SMS)
- Sync with PIM
- IrDA
- Detachable Fascias
- Handsfree included
- Personal organiser
- Ringtones - Download and/or Composer
- Voice commands

View phones
User & System’s TM

User’s TM

Choose/Get a model

Load models or/and digitised designs

Digitise

Open

System’s TM

Load models or/and digitised designs

Digitise

scan

Open

Open model

Open digitised design

scan
Evaluating usability

User’s TM

Choose/Get a model
Load models or/and digitised designs
Digitise

System’s TM

Load models or/and digitised designs
Digitise
Open model
Open digitised design
Scan
Defining new functionality

User’s TM

- Choose/Get a model
- Load models or/and digitised designs
- Digitise
  - scan

System’s TM

- Open model
- Open digitised design
  - scan
- Load models or/and digitised designs
  - Open
Defining new functionality

User / System's TM

Choose/Get a model

Load models or/and digitised designs

Digitise

Open model or digitised design

scan
Research questions

Client:
- Stake holders
- Experts
- End-user

Solution team:
- Brand strategist
- Market researcher
- Business analyst
- Graphic artist
- Software engineer
- HCI engineer
- Copywriter
Research questions

- Appropriateness of TM for communication
- Appropriateness of TM for modelling tasks
- Adaptability of TM to new aims, to new type of systems, to new system requirements

General research goal:
- Developing supporting tools and methods to enhance and support communication
Question?

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