ICS 667
Advanced HCI Design Methods

4. Interface Architecture

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The Gulfs of HCI
Scenario-based Design

Information and Interaction correspond to the two gulfs

Usage Centered Design Overview

Content model (interface architecture) models both Information and Interaction, but abstractly.
Interface Architecture

- Contexts say what content and tools go together to support some tasks
- Navigation Map says how you move between contexts
- Together they describe the content, functionality and organization of the interface while abstracting away from details of appearance and behavior

Mapping Task to Content Model

Oversimplifying: to translate a use case into a context, nouns become contents and verbs become tools
Navigation Map

Main Dialogue

• Content display area (sometimes editable).

• Linkage display: relates content display elements

• Command tool that carries out actions within the present context.

• Command tool that takes you to another context.

Sticky notes
• Are easy to reorganize
• Are never mistaken for the real interface!
NetLearn Example


Big Picture: Assessing Work with respect to Criteria

Purpose: Evaluate whether work meets criteria; evaluate skills in doing this evaluation.

<table>
<thead>
<tr>
<th>USER INTENTION</th>
<th>SYSTEM RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner &gt; Submit Work</td>
<td>Records work in coach area</td>
</tr>
<tr>
<td>Coach &gt; Edit Work Collection</td>
<td>Moves anonymous work to workgroup area</td>
</tr>
<tr>
<td>Learner, Coach &gt; (Review Work) Annotate Work</td>
<td>Records and displays links</td>
</tr>
<tr>
<td>Learner &gt; Review Annotations</td>
<td>Enables easy browsing of links and attached comments</td>
</tr>
</tbody>
</table>

Coach > Review Use of Criteria | Enables summary display of which criteria each person used and which they missed |

Coach > Create Public Archive of Annotated Work | Moves anonymous work with links/comments to public (disjoint) area. Makes printable form available |

Comments: Might start with only coaches doing the annotation, but they gradually draw the learners in. Might start with individual feedback of coach to learners, visible in public space, but gradually other learners start commenting on each other's work. (Need to select display of links by particular person.)

There are more activities to be sorted but this is a starting point that covers a lot of ground.
NetLearn Essential Use Cases

### Learner or Coach

#### Submit Work

**USER INTENTION**
- Enter study-group
- Select assignment
- Select work to upload
- Add explanation
- Indicate completion

**SYSTEM RESPONSIBILITY**
- List work and options
- Upload
- Indicate success status

**Learner or Coach**

#### Annotate Work

**USER INTENTION**
- Select link type
- Indicate completion and assignment point
- Optionally add comment (warning)

**SYSTEM RESPONSIBILITY**
- Indicate readiness
- Add link to display
- Attach comment to link

**Learner or Coach**

#### Review Work

**USER INTENTION**
- Enter study-group
- Select work collection
- Select work

**SYSTEM RESPONSIBILITY**
- List work
- Display work details
- Link to external resource

**Learner or Coach**

#### Review Annotations

**USER INTENTION**
- Enter study-group
- Select work collection
- Select work

**SYSTEM RESPONSIBILITY**
- List work
- Display work details and links
- Request comments on link
- Display comments on link
- Report until done

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Let's build a context for this ...

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**Learner or Coach**

#### Submit Work

**USER INTENTION**
- Enter study-group
- Select assignment
- Select work to upload
- Add explanation
- Indicate completion

**SYSTEM RESPONSIBILITY**
- List work and options
- Upload
- Indicate success status

Note: examples may be charts or math problems.
Annotation Use Cases

First let's critique them ... We can handle all of these in the same context.

Learner or Coach
Annotate Work

**USER INTENTION** | **SYSTEM RESPONSIBILITY**
---|---
Select link type | Indicate readiness
Indicate completion and attachment point | Add link to display
Optionally add comment (warning) | Attach comment to link
Criteria are lists provided by ? |

Learner or Coach
Review Work

**USER INTENTION** | **SYSTEM RESPONSIBILITY**
---|---
> Enter study group
Select work collection | List work
Select work | Display work details and links
(Open Link to Criteria) Repeat until done |

Review Annotations

**USER INTENTION** | **SYSTEM RESPONSIBILITY**
---|---
> Enter study group
Select work collection | List work
Select work | Display work details and links
Request comments on link | Display comments on link
Repeat until done |

“Detail Work” (Annotation) Display

**USER INTENTION** | **SYSTEM RESPONSIBILITY**
---|---
Select link type | Indicate readiness
Indicate completion and attachment point | Add link to display
Optionally add comment (warning) | Attach comment to link

Criteria Display

Linking Tools

Comment Entry

We thought we might need to switch between examples of work ...
Various visual mockups were generated for discussion ...

Navigation Map
Try it with canonical components

<table>
<thead>
<tr>
<th>MATERIALS</th>
<th>DESCRIBED BY</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>container*</td>
<td>contents</td>
<td>Configuration holder</td>
</tr>
<tr>
<td>element (single item)</td>
<td>contents</td>
<td>Product image thumbnail</td>
</tr>
<tr>
<td>collection (multiple items)</td>
<td>contents (or set)</td>
<td>Personal address list</td>
</tr>
<tr>
<td>notification**</td>
<td>message/condition</td>
<td>Access privileges denied</td>
</tr>
<tr>
<td>acceptor** (active material)</td>
<td>[Accept] contents</td>
<td>Search term entry field</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOOLS</th>
<th>action/operator*</th>
<th>action</th>
</tr>
</thead>
<tbody>
<tr>
<td>start</td>
<td>action</td>
<td>Print invoice</td>
</tr>
<tr>
<td>stop/suspended</td>
<td>[action]</td>
<td>Start consistency analysis</td>
</tr>
<tr>
<td>select</td>
<td>[Select] element</td>
<td>Stop searching</td>
</tr>
<tr>
<td>create</td>
<td>[Create] element</td>
<td>Group member selector</td>
</tr>
<tr>
<td>delete</td>
<td>[Delete] element</td>
<td>New customer</td>
</tr>
<tr>
<td>modify</td>
<td>[Modify] element</td>
<td>Remove network connection</td>
</tr>
<tr>
<td>move</td>
<td>[Move] element</td>
<td>Change shipping address</td>
</tr>
<tr>
<td>duplicate</td>
<td>[Copy] element</td>
<td>Put into approved list</td>
</tr>
<tr>
<td>go/link/drill**</td>
<td>[To/Open] target</td>
<td>Copy user profile details</td>
</tr>
<tr>
<td>perform** (and return)</td>
<td>[Perform] action</td>
<td>To home page</td>
</tr>
<tr>
<td>toggle**</td>
<td>[Toggle] condition</td>
<td>Set user preferences</td>
</tr>
</tbody>
</table>

* generic (all-purpose) component  
** optional (specialised) component