HCI Research at the University of Waikato

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Introduction

- **HCI is multi-disciplinary**

- **Focus on different types of devices**
  - from big electronic whiteboards to small mobile phones

- **Focus on different types of applications**
  - from single user applications to groupware

- **Focus on different stages of software development**
  - from requirement analysis to user evaluation and testing
Large Interactive Display Surfaces
Large Interactive Display Surfaces

Mimio digitizer

Projection screen

Mimio pen
Lightweight Lecture Capture

Moa

- Species
- Distribution
- Food
- Extinction
Slide Title

- Point One
- Point Two
- Point Three
- Point Four
- Point Five
Deep Video

Optics Package

Direct Backlight

Front Display

Rear Display
Deep Video
The goal of the project is to experiment with the use of a multi-layer display in an attempt to improve the contextual information provided to the user(s) of a word processor. In contrast to a paper document, a on-screen document tends to lack clues to show the overall structure of a document. With a book, rough location is always obvious. The thickness of the pages before and after the current point of focus can be felt. In our project we have chosen to concentrate on conference paper size documents — up to ten or twelve pages. There are several phases of document development. Depending on personal preference, a writer may type some headings and come back to fill in the text later, maybe working backwards and forwards through the document. Alternatively they may start at the beginning and type until they reach the end. Phases might be planning, writing, reviewing, correcting, revising, reorganizing. The first two phases are well supported by existing word processors. A screen will comfortably show two or three paragraphs and allow editing of text. Reading is well supported, so long as the reader works from beginning to end. However, jumping about is usually cumbersome in contrast to the experience of using paper. Frequently, one needs to refer back to some earlier point as one reads. It is easy to scroll or search back. But the process one loses focus. There is no simple equivalent to keeping one’s finger on the focus point. Navigating back and forth is cumbersome. On paper various zooming options are available. The user can spread all the pages of a (reasonably small) document on a table and look at the overall pattern. It is also possible to look at a page as a whole, or to focus in on text with little more than a change of attention. On a computer zooming is possible,
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Aim of Testing

Is the mobile visualisation an improvement over a simple text based itinerary? (simple conventional database)

Hypothesis: Visualisation once understood by user allows the user to do all tasks by text method just as well but also allows user to make estimates and determine how events interrelate to each other in ways that a text only interface could not.

[possibly also test if the vertical orientation is an improvement]

- paper vs mobile text vs visuals (horizontal and vertical)
- also find out if general user preference exist as far as a i.e. do they like clocks on turning points or on the line; do they like some way of accessing they understand where they are or do they prefer for handling of too many places on the y axis

User preference (2)

Use these develop a optimised default configuration for the

Metrics to be recorded:
- time taken
- task completed
- correct answers
- % of times they require help
- some way of accessing they understand where they are or score for not getting lost
- results of post user trial questionnaire
- background characteristics about user
- [more to be added]

Criteria for accepting/rejecting hypothesis

Tasks identified as either 1) able to be done with text well and 2) can't be done in text well or at all. Results from the metrics recorded when using the visualisation to perform type 1 tasks must be statistically indifferent from those metrics gotten from
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Speech and text interleave chart

IF $A = 0.19770$, IF $B = 0.041475$, Inter-participant IF $= 0.31098$, IF $s = 0.11876$

Text segments within time interval: 273-274 secs

<table>
<thead>
<tr>
<th>Action</th>
<th>Agent</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>point</td>
<td>masood</td>
<td>3</td>
</tr>
</tbody>
</table>

Hypothesis: Visualization once understood by user allows the user to do all tasks done by text method just as well but also allows user to make estimates and determine how events interrelate to each other in ways that a text only interface could not.

File
- Highlight hi IF$_p$
- Highlight hi IF$_s$
- Select region
- Zoom in
- Zoom out
- Show Text
- Play Audio