Designing Interactive Systems I

Week 10 Discussion, Introduction to Week 11, and Low-Fidelity Prototype Evaluation (Milestone #5)

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http://hci.ac/dis
Week 10
GOMS and Interface Efficiency
In-Class Exercise #1: KLM-GOMS Model

- Krishna wants to go by train from Aachen to Bonn. He tries to find the route using the Google Maps interface.

- Use the keystroke-level GOMS model to predict the time this task takes.

- Do just subdivision a. now (write down the initial operator sequence)
Rules for Placing Ms

- Rule 0, initial insertion for candidate Ms
  - Insert Ms in front of all Ks
  - Place Ms in front of Ps that select commands, but not Ps that select arguments for the commands

- Rule 1, deletion of anticipated Ms
  - Delete M between two operators if the second operator is fully anticipated in the previous one
    - E.g., PMK ⇒ PK

- Rule 2, deletion of Ms within cognitive units (contiguous sequence of typed characters that form a name)
  - In a string of MKs that form a cognitive unit, delete all Ms except the first
    - E.g., “ls" ⇒ MK MK MK ⇒ MK K MK
Rules for Placing Ms

• Rule 3, deletion of Ms before consecutive terminators
  • If K is redundant delimiter at end of a cognitive unit, delete the M in front of it
    • E.g., “bla⏎” ⇒ M 3K MK MK ⇒ M 3K MK K

• Rule 4, deletion of Ms that are terminators of commands
  • If K is a delimiter that follows a constant string then delete the M in front of it (not for arguments or varying strings)
    • E.g., “clear⏎” ⇒ M K K K K K MK ⇒ M K K K K K

Note that the ‘clear’ command does not take any arguments, and is therefore a constant string. ‘ls’ on the other hand, can take arguments and Rule 4 cannot be applied there.
In-Class Exercise #2: Information Efficiency

• Consider a vending machine with the following assumptions
  
  • There are 16 products in the machine, all of which are equally likely to be purchased.
  
  • The user first swipes her credit card (assume that the credit card always works) and then selects the product by entering its product number, which can take values in the range 1–16 (including 1 and 16), as a 5-digit binary code. E.g., for product 1, “00001” (just “1” is not valid).
  
  • The user enters the binary code using a binary keyboard that has just two buttons (“0” and “1”).
  
  • When a valid 5-digit binary code has been entered, the machine dispenses the product.
    (The user does not have to press an additional button for confirmation.)
  
  • The user always provides a valid input.
Week 11 Content

Notations
In-Class Exercise #3: STN

- Dialog to select bold, italics, and/or underline
- Draw the state diagram for:
  - Only Bold checkbox
  - Bold and italics checkboxes
  - All three checkboxes
<table>
<thead>
<tr>
<th>Statement</th>
<th>Agreement Level</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learning goals of the lecture are defined.</td>
<td>strongly agree</td>
<td>63</td>
<td>1.9</td>
<td>2.0</td>
<td>0.9</td>
</tr>
<tr>
<td>The lecture is well structured.</td>
<td>strongly agree</td>
<td>60</td>
<td>1.8</td>
<td>2.0</td>
<td>0.9</td>
</tr>
<tr>
<td>The materials provided are helpful.</td>
<td>strongly agree</td>
<td>61</td>
<td>2.1</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>The lecture content is clear.</td>
<td>strongly agree</td>
<td>61</td>
<td>1.9</td>
<td>2.0</td>
<td>0.9</td>
</tr>
<tr>
<td>Lecture material is summarized at appropriate intervals.</td>
<td>strongly agree</td>
<td>58</td>
<td>2.2</td>
<td>2.0</td>
<td>1.1</td>
</tr>
</tbody>
</table>
... explains the subject matter clearly.  strongly agree  strongly disagree  n=61  mw=1,6  md=1,0  s=0,6

... is willing to answer questions.  strongly agree  strongly disagree  n=41  mw=2,1  md=2,0  s=1,5

... considers students' different levels of knowledge.  strongly agree  strongly disagree  n=58  mw=2,1  md=2,0  s=1,1

... engages my interest in the topic.  strongly agree  strongly disagree  n=59  mw=1,9  md=2,0  s=1,1

... speaks audibly and clearly.  strongly agree  strongly disagree  n=61  mw=1,5  md=1,0  s=0,9

... speaks proper, comprehensible English.  strongly agree  strongly disagree  n=63  mw=1,4  md=1,0  s=0,8

... is well prepared.  strongly agree  strongly disagree  n=59  mw=1,4  md=1,0  s=0,7

... is available outside of the lecture.  strongly agree  strongly disagree  n=23  mw=2,3  md=2,0  s=1,5

... uses media that contribute to students' understanding.  strongly agree  strongly disagree  n=57  mw=1,6  md=1,0  s=1,0
... explains the subject matter clearly.

... is willing to answer questions.

... considers students' different levels of knowledge.

... engages my interest in the topic.

... speaks audibly and clearly.

... speaks proper, comprehensible English.

... is well prepared.

... is available outside of the exercise course.

... uses media that contribute to students' understanding.
**General Conditions Lecture**

The lecture begins and ends on time.

- **strongly agree**
- **strongly disagree**

n=50  mw=1,4  md=1,0  s=0,8

**General Conditions Exercise Course**

The exercise course begins and ends on time.

- **strongly agree**
- **strongly disagree**

n=63  mw=1,3  md=1,0  s=0,5
The flipped classroom is not a perfect institution for a real lecture. It feels like the prof. is not talking to me, but rather I am watching others people listen to the lecture. It makes it harder to pay attention. It would be better, if the video lecture was done in a way that the prof. talks directly to the camera.

Good pict, unfortunately he isn't there to teach (only videos)

Very practical course! With many examples for the practical use of DLS

Video lectures are good.

Very practical course! With many examples for the practical use of DLS

Content is clearly explained

Video lecture: students can decide when and what they watch the lecture.

Lab helps to understand everything better!

The topics are very interesting (first half of semester). The assistants are nice, but I miss live lectures with Jan.

The videos focus on the "wrong" parts, sometimes so that you miss a few things. (I mean the content, not the presentation. You see Prof. Borchers & it would have been better to show the slides or similar.)
The topic of the course is really interesting and I can already notice the impact the course has on the design of software I produce and how I perceive design.

- Definitions are sometimes not clear (Gestalt laws)

Usability of first part of the course → Gestalt laws, design principles... → practical knowledge.

Very intuitive and much practice. Videos instead of lecture. Feedback round is helpful.
Workload

- It is much work to produce the videos and presentations and squeeze everything in the form while not actually learning anything factual from the lecture, but just burning away working time.
- Repeating doing the interviews for the storyboards is very much now, but I did not learn anything new. I would rather like to learn more about DIIS, not doing so much irrelevant work.

High amount of time for watching videos, doing project tasks, going to lab and studio. Reading the book was not helpful and was a high amount of time.

The weekly workload is too much in my opinion and occupies a great deal of my time (too much). Sometimes, organizational stuff does not seem to be well thought through (switching from groups of 3 to groups of 5 without notice in advance, the mid-term,...
Organization

Learning materials is available over multiple ways and not only Moodle.

The correction of the homework/project is done three weeks after we handed them in. Having the correction earlier could be helpful.

The amount of work between Monday and Wednesday was often important to watch until Tuesday to prepare for Wednesday. Maybe upload the videos then one or two weeks earlier.

- sound is not that good in the room.

lecture sometimes speak too unclear
Assignments and projects

- good support for homework / tasks
- too much tasks in the exercise

The correction of the homework / project is done three weeks after we handed them in. Having the correction earlier could be helpful.

- Sometimes it is not really clear what exactly the content of the deliverables should be, especially if it is done.

The assignments are fun to make.
At the beginning, Krishna seems arrogant.

- Krishna seems very competent in OIS.
- The profi, too.
- Interactive lecture - this lecture gave me a very good mood.
Evaluation of Low-Fidelity Prototypes (Milestone 5)
What Next?

• By Wednesday, (Jan. 15):
  • Be prepared to evaluate your prototypes with the mentors
  • Make appointments with users for your study

• Before Monday, (Jan. 20):
  • Watch Week 11 Content: Notations I
  • Submit your solution for milestone 5 on RWTHmoodle