

Übung 7 – Mensch-Maschine-Interaktion

Theme: User Study

The exercise can be done in groups up to 5 students.

Example: Comparison of Text Input Methods

Is text input by keyboard really better than using T9 on a phone?

Devices:	QWERTY-keyboard T9 on a mobile phone
Compare:	Text input speed Error rate Hint: Concentrate on text input only - ignore time to setup/boot/initialize the device or to get into the application
Participants:	Number? Skills? – Computer users, mobile phone users?
Independent variables:	Input method – 2 levels: Keyboard and T9 Text to input – 1 level: Text with about 10 words
Dependent variables:	Time to input a text Number of errors made
Experimental conditions	2 conditions: T9 and Key User 1,3,5,7,9 perform T9, then Keyboard User 2,4,6,8,10 perform Keyboard, then T9 Different texts in first and second run? Particular phone model? Completion time is measure (e.g. stop watch or application) Number of error/corrections is observed
Hypotheses:	H-1: Input by keyboard is quicker than T9 H-2: fewer errors are made using keyboard input compared to T9
Null-Hypotheses:	Assumes no effect H0-1: there is no difference in the input speed between keyboard and T9 H0-2: there is no difference in the number of errors made using a keyboard input compared to T9
Experimental Method:	Within groups Randomized order of conditions
Fairness:	Same conditions and procedure (e.g. light condition, interruptions, noise) Specify procedure for exceptions (e.g. someone does not complete the test)

No bias

Participants ?

Consent:

Further issues: Ethical issues

Privacy

The collected data can be put in a table like e.g.:

User	Order	Time	Time	# Errors	# Errors
		Condition 1	Condition 2	Condition 1	Condition 2
01	c1, then c2
02	c2, then c1	...			
03	c1, then c2	...			
...	...				

Tasks:

Task 1: Specify the Experiment

Give the specification of your experiment. You can complete the example above or define any other experiment of your choice (e.g. graffiti vs. onscreen keyboard, etc.). The specification should contain:

- Goal
- Hypotheses, Null-Hypotheses
- Participants, who, how many
- Independent variables
- Dependent variables (how to measure)
- Exception handling
- Experimental setup
- Consent form

Deliverable:

- Specification of the experiment (including consent form)
- Experiment plan

Submit your solution of Task 1 as a PDF document until **27th of January 2005** to andreas.pleuss@ifi.lmu.de.

Please name your file after the names of the team members.

Task 2: Run the Experiment

Use the exercise at 28th of January to run the user study according to the specification and plan you made.

- Measure variables
- Document the result

- Observe

Deliverable:

- Raw data from the experiment (use a spreadsheet program such as Excel or Open Office Calc)
- Important observations
- List of problems encountered

Part 3: Analyse the Results

Perform a statistical analysis of the data gathered in the experiment. In particular evaluate if one of the methods is significantly faster than the other.

- Analyse the results
- Perform a statistical test
- Summarise your overall results

Deliverable:

- Results of the study

Submit your solution of Task 2 and 3 until 3rd of February 2005 to andreas.pleuss@ifi.lmu.de.

Use PDF as file format for your descriptions and results. For the raw data of your experiment use a spreadsheet program such as Excel or Open Office Calc.

Please name your files after the names of the team members.