



EMPIRICAL HCI STUDY EXPERIMENT EXECUTION, POWER ANALYSIS

SAN 2019/20

EMPIRICAL HCI STUDY

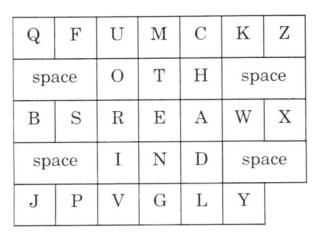
- Goal of the study is to test the performance of the newly design keyboard for text writing
- 1. Define research questions
- 2. Define experiment variables
- 3. Describe participants and recruitment procedure
- 4. Define procedure and tasks
- 5. Conduct experiment and measure data
- 6. Evaluate the data measured and draw conclusions

CONDUCT THE EXPERIMENT

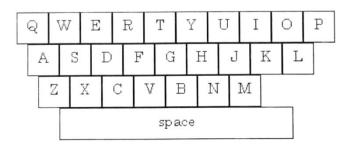
- Read the instructions
- Prepare the experiment setup
- Conduct the experiment
- Store measured values into a shared table:

https://bit.ly/2RAA6oW

Method "A"



Method "B"



DETAIL INSTRUCTIONS

- Research questions (+ null hypothesis)
 - you can define more than one research questions
- Independent and dependent variables
 - think also of other variables than those needed for measuring speed (NOTICE: A relevant research question must be defined for them)
 - what can be the other variables (control, random, confound)
 - how the values will be measured
- Participants
 - what population does it (should it) represent
 - what should you be aware of during recruitment
- Counterbalancing (within vs. between subject setup)
- Procedure and tasks
- Classification of the experiment validity

DETAIL INSTRUCTIONS

- Statistical analysis of data reporting
 - − H₀/H₁ rejection/acceptance
 - group effect, asymmetric learning effect
 - learning curve across trials
 - compare learning curve of method A and B
 - how to determine number of trials when the method A will become faster than method B
- Power analysis of the experiment setup
 - compute and discuss optimal parameters (power, effect size, α , n) for such study
- Parameters of discovery experiment
 - n, X % chance of discovering problems affecting Y % of users

THANK YOU FOR ATTENTION

