

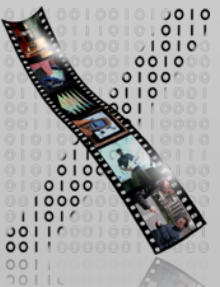


CTHCI Lab 07

Final Exam Preparation

*Nur Al-huda Hamdan
Media Computing Group
RWTH Aachen University
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<http://hci.rwth-aachen.de/cthci>



Exam Scope (1/2)

- Lectures
 - S01 Research Approaches in HCI
 - S02 Experimental Research
 - S06 Statistical Analysis in HCI Research
 - S07 HCI Design Patterns
 - S08 Gestural User Interfaces
 - S09 Human computation
 - S10 Personal fabrication
- Reading assignment (in depth)
 - (Wobbrock, 2014) 7 Research Contribution Types in HCI
 - (McGrath, 1995) Methodology matters



Exam Scope (2/2)

- Reading assignment
 - Understand and apply the methodology
 - New!** (Wobbrock et al. CHI '2005) Maximizing the guessability of symbolic input
 - Understand and discuss implications of statistical practice in HCI
 - (Cumming and Finch, American Psychologist 2005) Inference by Eye: Confidence Intervals and How to Read Pictures of Data
 - Interpreting graphs
 - Contributions, interaction design, how they prove the main contributions
 - (Dearden and Finlay, 2006) Pattern Languages in HCI: A Critical Review
 - (Vatavu et al., ICMI 2013) Relative accuracy measures for stroke gestures
 - (Bernstein et al, UIST '10) Soylent: a word processor with a crowd inside
 - (Mueller et al., 2012) Interactive Construction



Question Types

- **Memory:** recall facts
 - Name, describe, explain, sketch
- **Convergent:** Integration of memorized information
 - Compare and contrast concepts
 - Analyze the given examples
- **Divergent:** Encourage free generation of ideas
 - Agree/disagree and justify your answer
 - Give an example of concepts
- **Application:** Apply knowledge/skill to a new situation
 - Extracting contribution, experimental design, criticizing validity



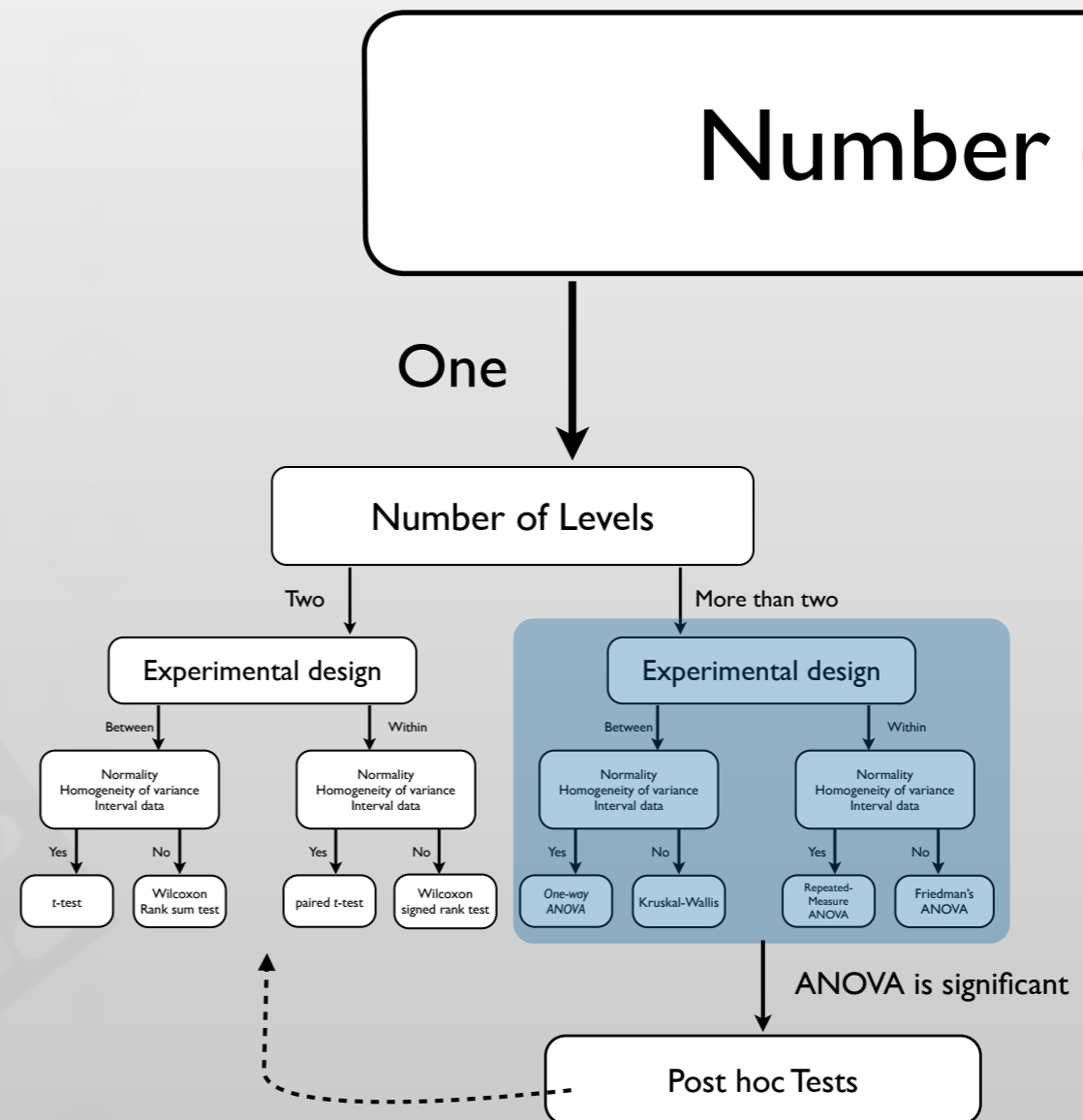
Terminologies

- Research approaches:
 - Empirical science, ethnography, engineering & design
- Research contributions
 - Empirical, artifact, methodological, theoretical, dataset, survey, and opinion
- Empirical research strategies
 - Descriptive, relational, experimental
- Experimental design
 - Within-subjects, between-subjects



Statistics

- NOT in the exam
- Statistical test choice beyond
 - t-test
 - paired t-test
 - ANOVA
- Calculation of statistics by hand

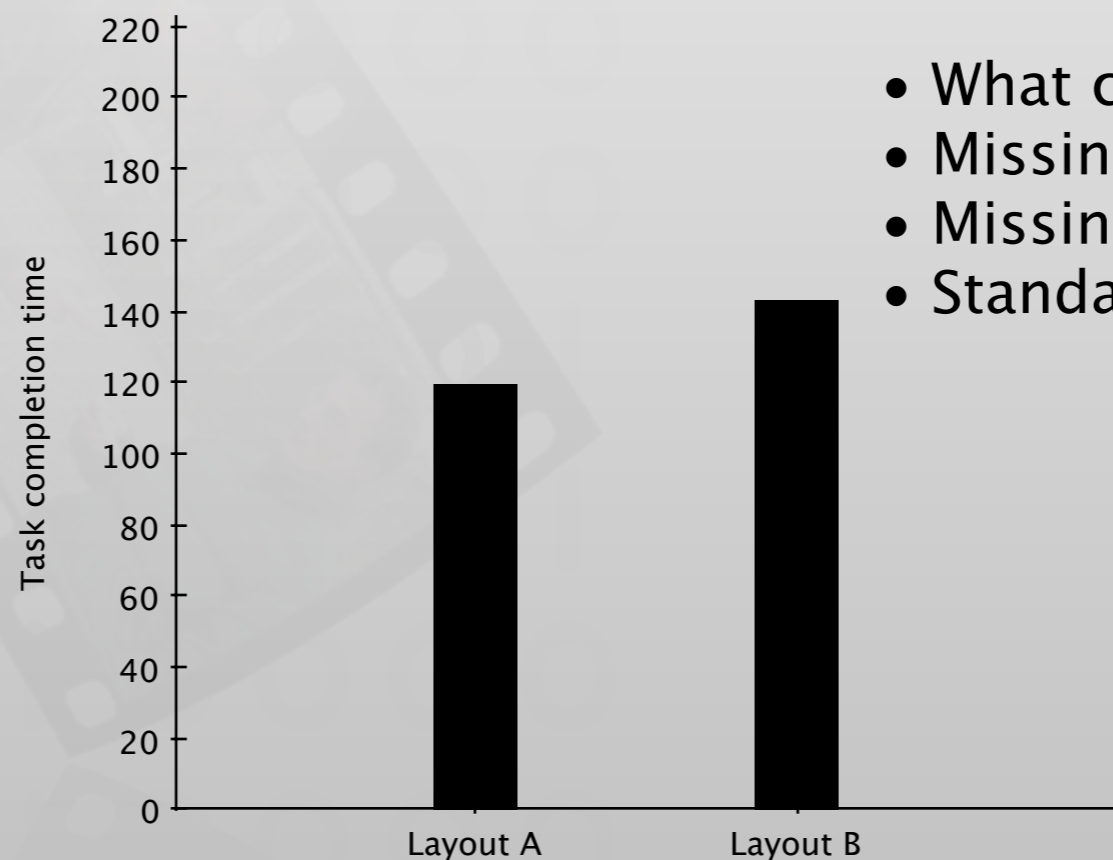


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Statistics: Knowing what's missing & how to fix

- Chat conducted an experimental study comparing task completion time between two keyboard layouts. Chat presented the following results and conclude that users were faster with layout A than with layout B. Identify flaws in his conclusion and suggest improvements.



- What central tendency is used?
- Missing spread (CI, SD, variance)
- Missing unit
- Standardized effect size

