

# Pupil Size as an Online-Measure of Cognitive Load

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Resource-Adaptive  
Cognitive Processes



## Preliminaries

### Cognitive load:

- Amount of “mental effort” devoted to task(s)

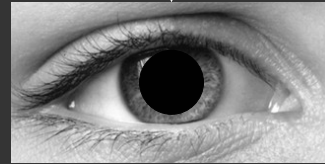
### Online-measurement:

- Measurement while the task is performed

### Application-example:

- Deciding on Interruption:  
Interrupt the user with a notification of an Email-receipt?

# Pupil Size as Online-Measure



## Why the Pupil?

### Advantages:

- quick reaction
- not intrusive
- no physical contact
- continuous measurement
- no subjective bias
- highly sensitive

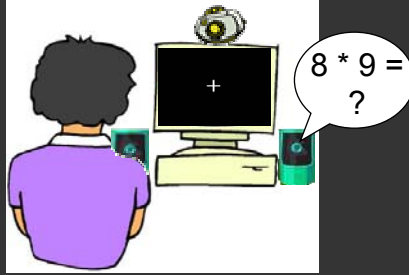
### Disadvantages:

- too sensitive
- not diagnostic
- noisy

# Experimental Design

Design

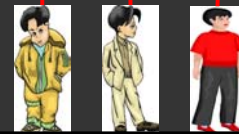
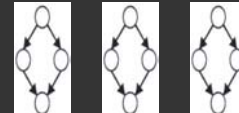
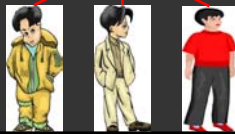
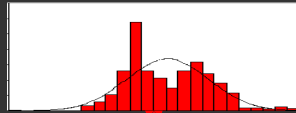
previous studies



new study

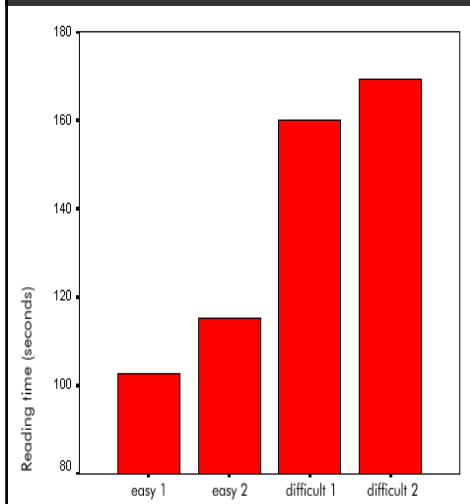


Analysis

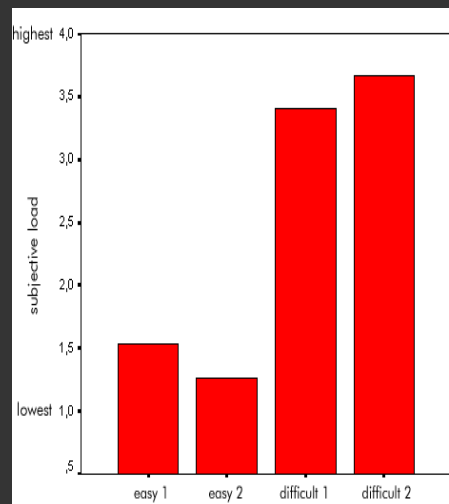


## Data I - Behaviour

Reading times:

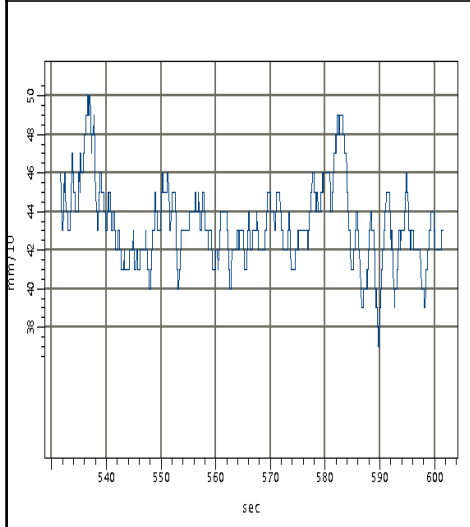


Subjective load:

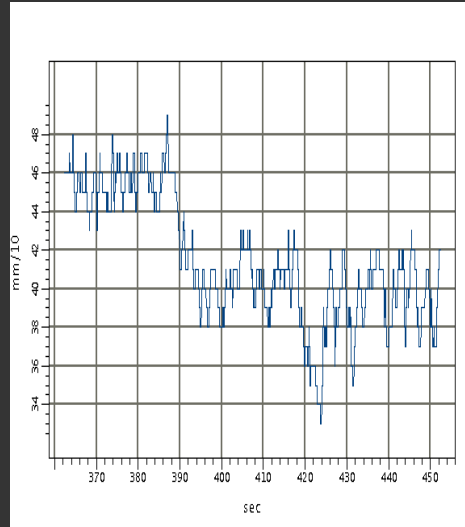


# Data II – Pupil Size

Easy reading:



Difficult reading:



## Is the Pupil Size Unsuitable?

Recording ERPs (Event-related brain potentials) in addition to the pupil size may answer this question.

