Temporal Relevance (TR)

- In this work, we focus on the impact of TR
  - Temporal Relevance is one of the main determinants of the level of temporal awareness
  - Definition: level of relevancy and importance of time dimension in a specific state required for the optimal adaptation to the external environment
  - It remains uninvestigated whether TR will affect the time perception of Web search users and further have influence on the perception of system effectiveness
- RQ1: What is the impact of TR on time perception in Web search scenario?
- RQ2: Are the results consistent across different tasks and different search users?

Experiment Setup

- Manipulating Temporal Relevance (TR):
  - Treatment group: “timing block”, a flashing colored block (visually informing the user about elapsed time — high TR)
  - Control group: no “timing block” (low TR)
- Search tasks:
  - 16 informational search tasks created based on queries from search logs
  - Backstories spoken directly to the participants
- Settings:
  - Participants are not allowed to acquire time from devices in external environment
  - Participants are required to estimate the time spent during the task in seconds, e.g., the duration of the whole search session

The Impact of TR on Time Perception

- Treatment (high TR): the perceived time (ptime) in the treatment group is significantly longer (10.36% with p-value < 0.01) than the dwell time (dtime)
- Control (low TR): No significant difference between dwell time and perceived time.

The Impacts of Tasks and Users

- For 15 of the 16 tasks, the average ptime in the treatment group is longer than the average dtime
- In the control group, ptime is very close to dtime

Average Estimation Offset (AEO)

\[ AEO = \frac{1}{\text{#tasks}} \sum_{t=\text{tasks}} \frac{\text{ptime}_t - \text{dtime}_t}{\text{dtime}_t} \]

More participants are with positive AEOs in the treatment group

Conclusion & Future work

- Users tend to perceive longer duration in high TR settings, for example, in some time critical situations.
- We would further explore other factors’ impacts in perceived time (e.g. relevance, satisfaction, etc.)