

Time Limits, Information Search and the Use of Search Assistance

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PROBLEM AND PURPOSE

In real life, we often search with limited time.
In research studies, we often impose time limits.

RQ1: What is the impact of a time limit on:

- use of novel search assistance feature
- task process

RQ2: What is the relationship between time spent on task and time pressure?

We extend prior work by examining the impact of a **consistent time limit** and investigating its effects on the **use of a search assistance tool**.

METHOD

Lab-based user study with 24 participants.*

Four tasks to **find and bookmark** information that would help address the task.

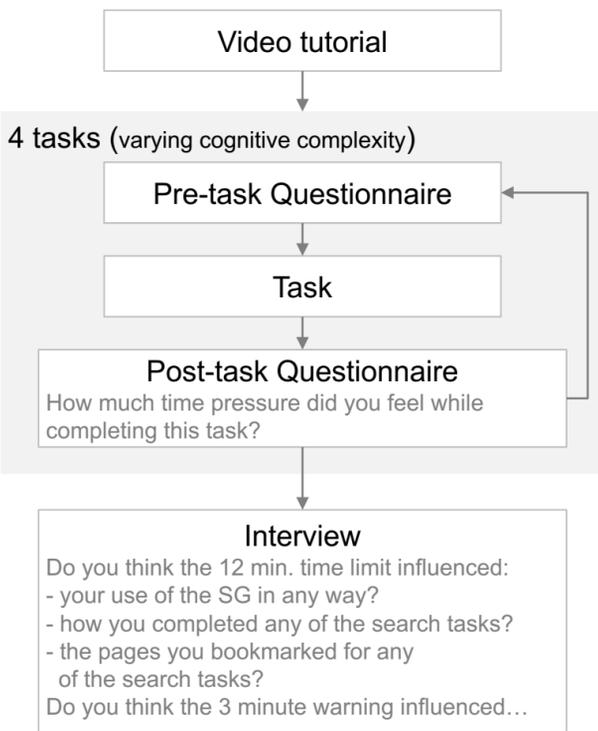
12 minute time limit, 3 minute warning

Tasks varied in **cognitive complexity**:

- **Remember:** find a fact
- **Understand:** compile a list of items
- **Analyze:** compile a list of items, analyze differences in a list of items
- **Evaluate:** compile a list of items, understand differences, make a recommendation

This research is part of a broader study investigating the use of the Search Guide (see Capra et al. 2015).

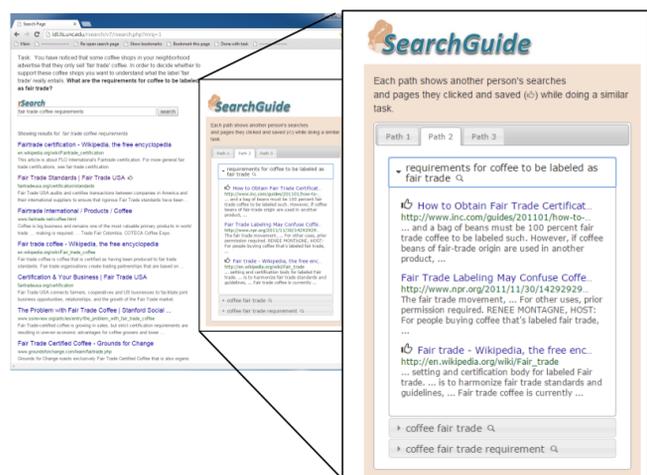
PROCEDURE



SEARCH ASSISTANCE - SEARCH GUIDE

Search Guide (SG) provided search assistance.

- **Three search trails** (queries, pages viewed, bookmarks) from people who completed the same search task.
 - Displayed to the **right of the search results**.
- Participants could also see the current task as well as save and view saved relevant pages.



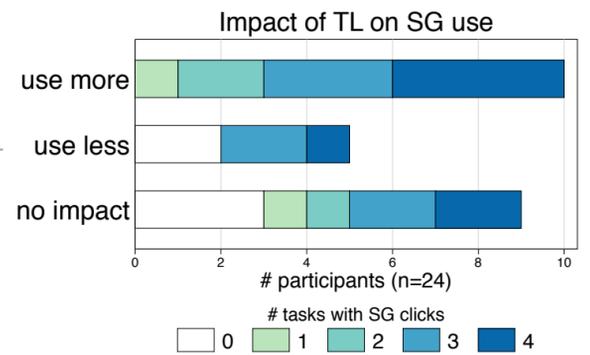
RESULT #1: TIME LIMIT IMPACTED CLICKS ON SG (USE)

15 participants (63%) said the time limit influenced their use of the SG.

When it was the easy questions, the time was like whatever. But when it came time to do like the first one with the farmer, it was like 'go to the Search Guide to find information' because if you don't then you might run out of time. (p11)

Maybe this would be useful but I don't have time to verify that it would be useful in the 12 minutes. (p19)

It was kind of a new feature... the search bar looks exactly like Google which I use all the time so I was just more comfortable with that...once I had gotten into the topic, I felt a little more comfortable using a new method-the Search Guide. (p215)



RESULT #2: TIME LIMIT IMPACTED TASK PROCESS

In interviews, participants described multiple ways the time limit impacted their process.

Read easy articles (n=4) — *I only had 12 minutes, I didn't want to spend it trying to decipher this scholarly article (p17)*

Skim read (n=12) — *I didn't want to spend a lot of time reading specific details, I was looking for main points. (p39)*

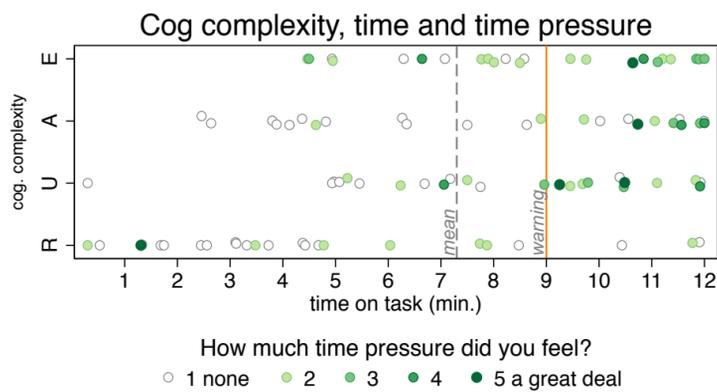
Lower bookmarking threshold (n=10) — *I was more bookmark friendly...I just bookmarked them so I could come back (p39)*

3 min warning -> Change strategy (n=5) — *I was using the 'you have 3 minutes left' as a point where... evaluate all the information gathered and I used the time before that to gather as much information as possible (p17)*

Evaluate progress (n=3) — *When the 3 minute timer came up, I was like what information do I have, what do I need, what can I get (p33)*

Stop task early (n=10)

RESULT #3: MORE TIME PRESSURE WITH TIME SPENT ON TASK



...for the ones where I didn't get the information right away, I was like oh my gosh I'm not learning anything and my time is slowly ticking away... I felt pressured then when the information wasn't popping up... when it was just right there, I didn't feel any time pressure (p11)

3 min **warning**: 19 participants (36 tasks: 3 R vs. 11 U, A, E*); $M_{time} = 7.3$ min (3.4);
Time pressure: $M_{tp} = 1.7$ (1.35); **TP > 1**: 19 participants (49 tasks: 8 R, 9 A, 14 U, 18 E**)
 $r_s(time, time\ pressure) = .47^{***}$

SUMMARY

An imposed **12 minute task time limit** with a **3 minute warning**

- impacted participant's **decisions to engage** with a novel search assistance feature
- influenced **behaviors** and 3 min. warning triggered strategy shifts and progress evaluation.
- Perceived **time pressure correlated with time spent on task**.
- In addition, participants reported time pressure (> 1) and experienced more 3 minute warnings for more cognitively complex tasks.