Impacts of Disruption on Secondary Task Knowledge: Recovery Modes and Social Nuances

Cooperative Media Lab
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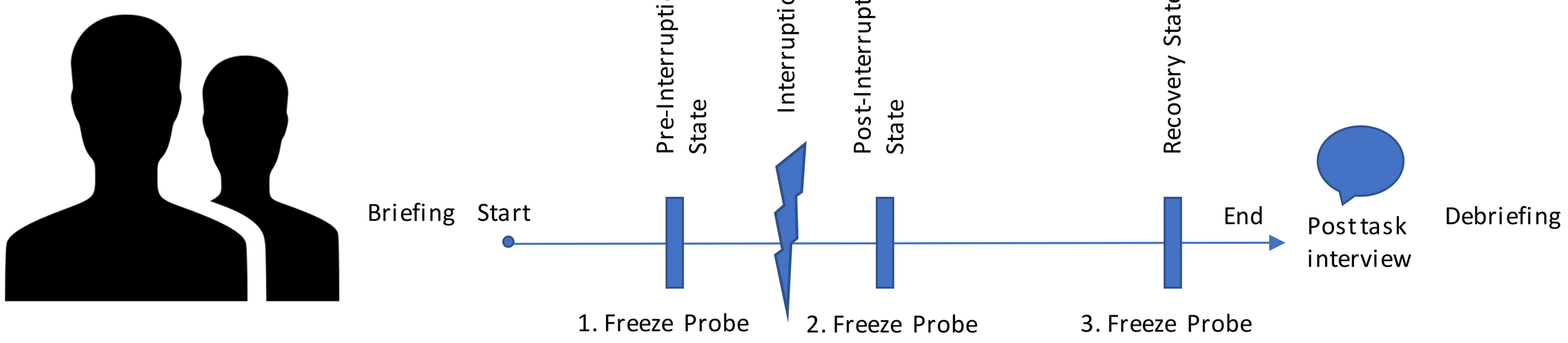

Figure 1. The procedure of the experiment uses three freeze probes.

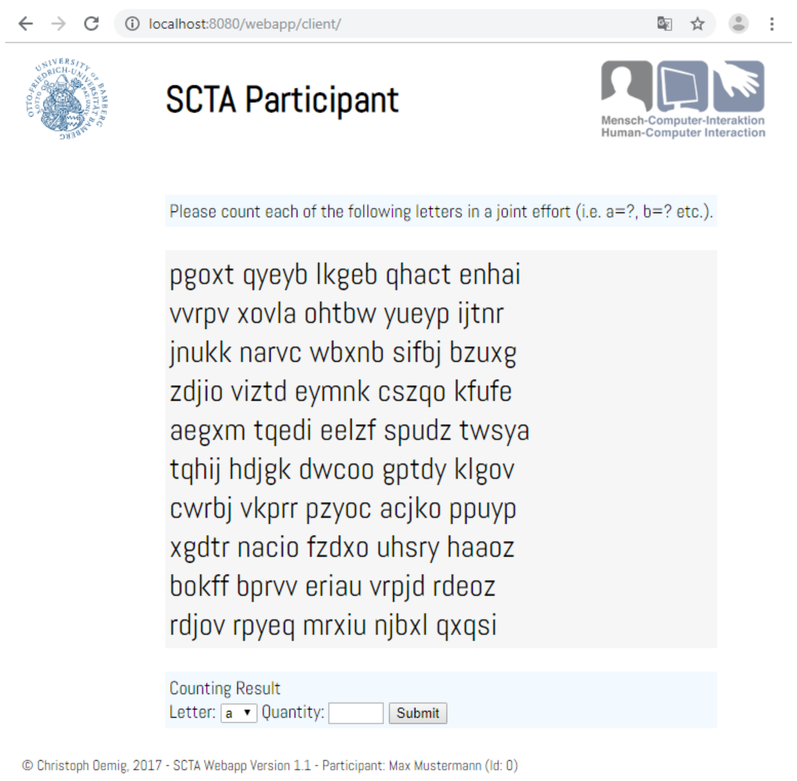

Figure 2. Screen showing the primary counting task.

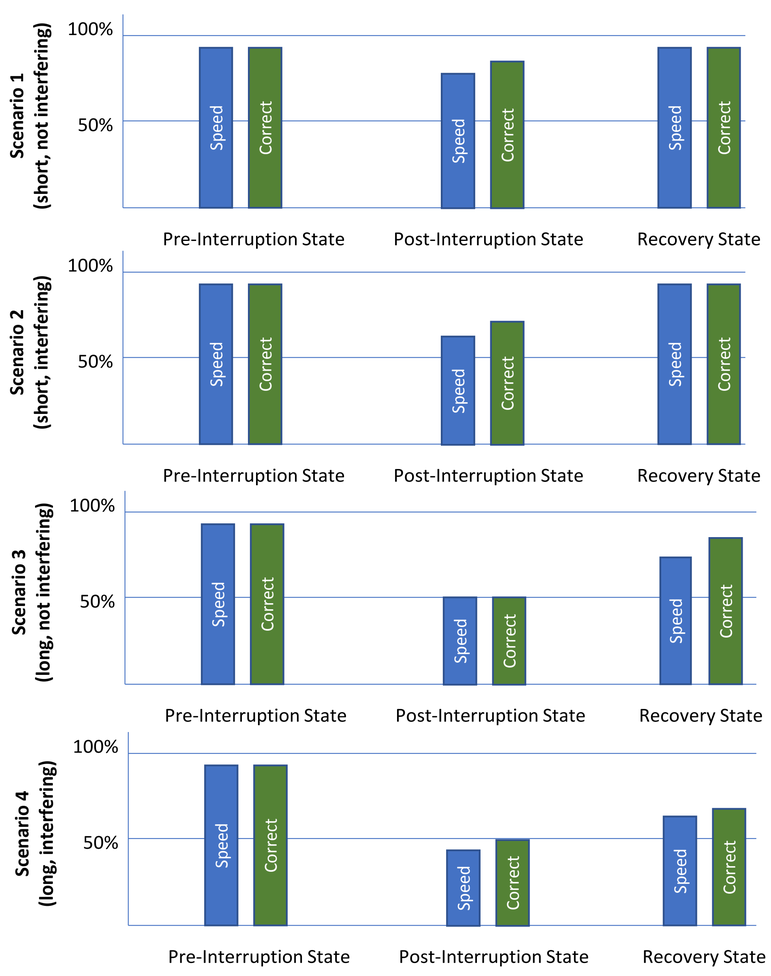

Figure 3. Results for the four scenarios per Pre-Interruption State, Post-Interruption State and Recovery State. The largest impact can be seen with Scenario 4.

Introduction

Collaborative settings and systems introduce the need for the **secondary task of coordination.** The created knowledge thereof is easily compromised by interruption and interference. Since it is hard to avoid disruption entirely, we aim to understand how users recover from disruptions in order to help them recover the best way possible from different types of interruptions using appropriate mechanisms and cues.

Approach

We utilised the **Standardised Coordination Task Assessments (SCTA)** where a group of participants has to engage in the task of collaboratively counting individual letters inside a shared document (cf. Figure 2). The group needs to coordinate the counting effort, i.e., where and how to start and to continue. Counting results (e.g., a=5, b=7 etc.) have to be shared among the group and are recorded centrally as data triplets (letter, timestamp and participant). The SCTA applies freeze probes (suspending the counting task and querying each participant about it) to measure levels of secondary task knowledge in situ.

Experiment

The experiment included measurements (3 freeze probes) before and after one out of four types of interruptions. Assessing the process and state of recovery requires a third measurement (cf. Figure 1). The four types are based on the two dimensions of duration and interference (short-non-interfering, short-interfering, long-non-interfering, long-interfering). Interruptions were mimicked as phone calls. We invited 8 participants (age 29 to 47, 6 males, 2 females) to engage in the counting task in pairs.

Results

While the long-interfering interruption was the one with the greatest impact (measured in terms of speed and correctness of the answers to the questions regarding the secondary task knowledge) (cf. Figure 3), we also discovered two modes of recovery (quick and long) depending on the type of interruption as well. Additionally, we also found the social nuance that participants sacrifice the team's overall performance to wait for their interrupted counterpart rather than to continue with the task at hand.

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