Cognitive Load in Interpreting and Translation (CLINT)

Project Summary

ZHAW - Zurich University of Applied Sciences
UZH - University of Zurich

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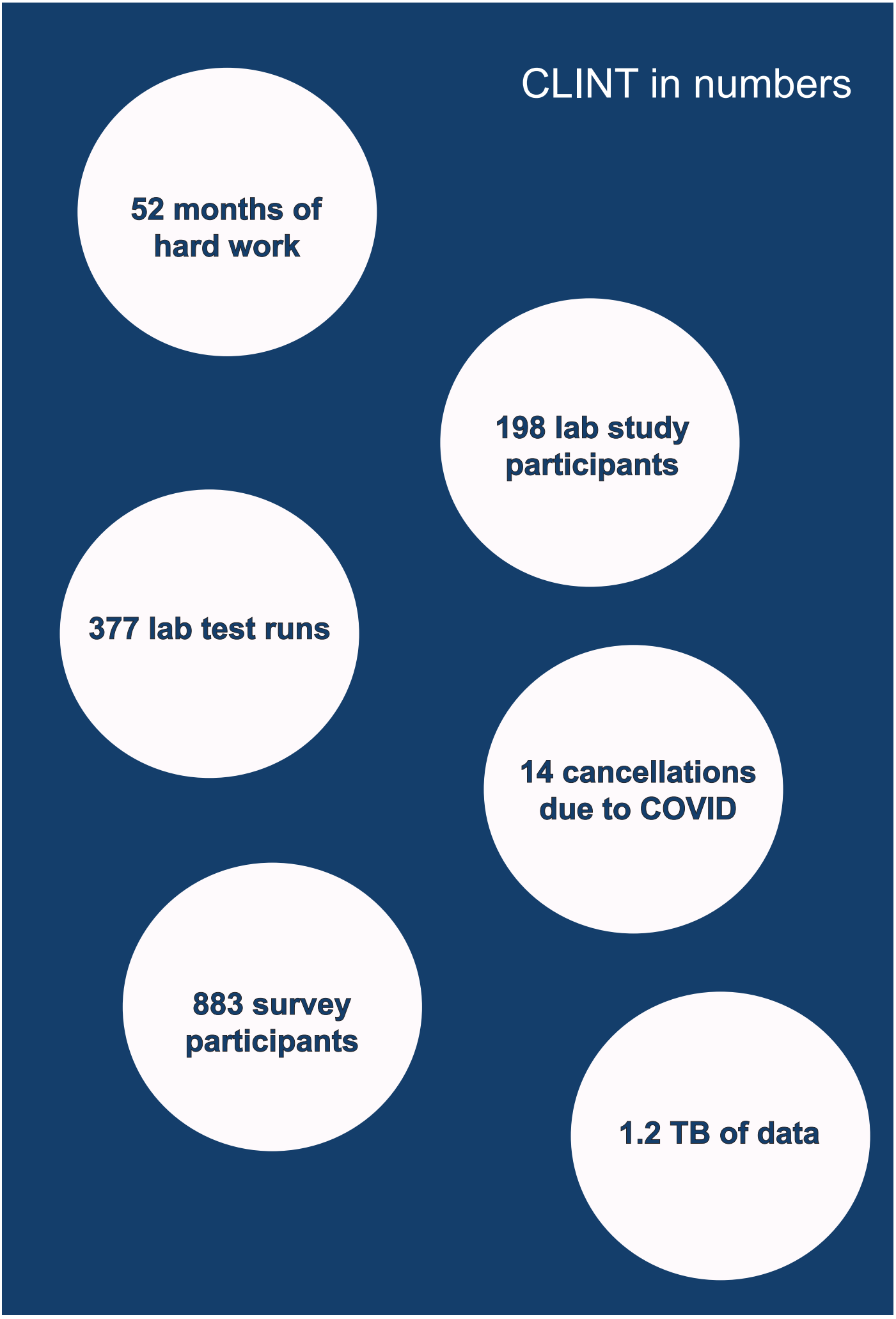

CLINT in numbers
52 months of hard work
198 lab study participants
377 lab test runs
14 cancellations due to COVID
883 survey participants
1.2 TB of data

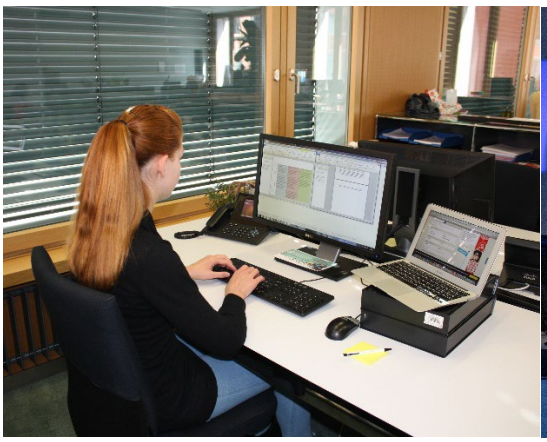
Study design and research work

The motivation for the interdisciplinary project *Cognitive Load in Interpreting and Translation (CLINT)*, which was funded by the Swiss National Science Foundation (SNSF), was related to one of the more outstanding linguistic aspects of today's increasingly interconnected world: the use of English as a lingua franca (ELF). Despite its obvious importance in global communication, there has been very little research into the personal costs, and in particular the cognitive load and potential stress, for non-native speakers of English who have to work in that language. This project addressed these gaps by examining how German native-speaker translators and interpreters with different levels of expertise (i.e., students and professionals) as well as multilinguals without formal training in interpreting or translation cope with ELF input. The project was a cooperation of ZHAW interpreting and translation researchers with UZH (University of Zurich) neuroscientists and focused on performance, self-report, behavioural, and physiological indicators of cognitive load during interpreting, translation and general language processing tasks in laboratory and simulated workplace settings. In both contexts, we emphasized the importance of realistic conditions, having collected actual academic presentations and related texts in English produced by native speakers of one of the three languages of interest (i.e., Chinese and Swiss national languages other than German).

In an innovative approach, we compared the original ELF versions with edited English versions (EdE) of the same material in order to evaluate cognitive load while controlling for the general demands associated with interpreting and translation tasks. Despite the restrictions imposed as a result of the COVID-pandemic, almost 200 volunteers – both students and professionals – took part in our laboratory experiments and provided data in the form of audio and video recordings, eye tracking, keyboard logging, commentaries, interviews, and physiological indicators such as heartrate and EEG measurements. In addition, almost 900 professional interpreters and translators participated in an online survey that focused on the difficulties ELF presents and how they cope with those. The large variety of data allows a rich description of the cognitive challenges that ELF can cause for interpreters, translators and multilinguals alike.

The data has been analysed, and the results have been shared with the teaching and research community in the form of over 30 presentations at national and international conferences, 20 publications, two PhD theses, and nine MA theses to date. In the overview on the next page, the main results are presented for four of the research questions driving the project and some implications are suggested for interpreting and translation practice and teaching.

More information and details about the main investigators and other researchers involved in this study are available on the ZHAW project database, and in the SNSF project databank.



Research questions, results, and implications

What influence does interpreting or translation expertise have on processing ELF input?

While interpreting professionals were able to cope with the ELF input when it was of a general nature, they demonstrated a significantly higher loss of information over time when interpreting a technical speech produced by a non-native speaker of English as opposed to the EdE version of the same speech. Interpreting students, by contrast, were somewhat overwhelmed by both the general and technical texts. Both professionals and students opted for considerably more completions to the source text (both general and technical) when interpreting from the ELF version, with qualitative rather than quantitative differences between the two groups. This suggests a perceived need to make the source text clearer for the audience. As for the translators, there was little difference observed in the quality of the texts produced by the professionals from both source text versions whereas the students' translations of the ELF source texts were of significantly lower quality in terms of accuracy and fluency than their translations of the EdE versions of the source texts.

What indicators of cognitive load are associated with processing ELF?

The EEG experiment in the UZH lab setting demonstrated that simultaneous interpreting of ELF and EdE input is associated with a high cognitive load for students and multilinguals, although less so for the professionals. For professional translators, though, several indicators show that processing ELF source texts does seem to be harder than the EdE versions (see numbers in bold in the table below), with more keystrokes, editing, mouse clicks, online research, and/or long pauses.

	Technical text (EdE)	*Technical text (ELF)*	*General text (EdE)*	*General text (ELF)*
keystrokes	124	121	117	**129**
deletions	13	12	11	**15**
mouse clicks	86	**105**	50	**71**
browser visits	25	**28**	14	**22**
pauses > 1 s	125	**131**	125	112

Effort measures for professionals' translation processes (means per 100 target text characters)

What processing problems does ELF cause compared with standard English?

The majority of the professional translators, conference interpreters and community interpreters estimated in the survey that at least half of the English texts they translate or interpret were produced by non-native speakers and that the latter produced a much higher proportion of the poor-quality source texts they dealt with. Half or more of the translators mentioned awkward sentence structures, odd word choice, misuse of vocabulary, grammatical errors, and odd style as particular problems in processing ELF texts. For 60% or more of the conference interpreters and slightly fewer of the community interpreters, unusual pronunciation also caused significant problems in processing ELF speeches.

What coping strategies do interpreters and translators use when processing ELF?

General approaches to coping with ELF input, such as inferring meaning from the situation, consulting resources, actively engaging in sense-making, and reformulating, were frequently mentioned by conference interpreters and translators. For translators and community interpreters, the most common strategy by far, though, was to ask the client or a colleague for clarification. This is not an option for (simultaneous) conference interpreters, which might explain why so many of them explicitly mentioned stalling or having to exert extra effort to process the source text as well as rectifying or improving on the source text in the target rendition. Interestingly, most of the participants also said that while ELF texts can be easier to work with because the sentence structures tend to be simpler, they preferred to work from source texts produced by native speakers.

Taken together, our findings support the assumption that processing ELF input requires more effort than processing EdE but that professional interpreters and translators seem to have developed useful strategies to help them cope with the challenge. Rather than having to acquire such strategies from possibly frustrating and negative experiences, these could be presented to aspiring language mediators in the form of targeted training with ELF input from speakers from various backgrounds.

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