

ABSTRACT

Differences in Comprehension and Production in Sight and Written Translation Experimental Tasks as Indicated by Eye-Tracking and Keystroke Logging

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This paper reports on a study to be conducted at Kent State University in spring 2009 that compares sight translation and written translation. We propose that sight translation provides an opportunity to study certain aspects of translation by removing writing and its concomitant cognitive load from the overall process. Sight translation, because it does not typically result in the kind of product expected as the end result of translation, represents a form of language mediation with less emphasis on the translation product. By recording behavior during sight translation via eye tracking and audio recording, significant data could be generated to reveal underlying comprehension processes. Verbal data such as pauses, repetitions, silence, and filler words could indicate comprehension challenges encountered by the sight translator. Written translation is presumed to reflect a greater influence of production processes given the additional constraint of producing a complete written product. Data derived from keystroke logs and from the analysis of the written translations, while also reflecting comprehension processes, should also reveal the increased influence of the written production task.

In the proposed experiment, verbal data from sight translations will be analyzed in parallel with eye-tracking data, including gaze time and location, number and length of forward and backward saccades, and fixation points. We will measure first pass reading time (sum of fixations occurring within a region before a saccade out of the region), second pass reading time (rereading), total reading time (for the target passage), and the probability of regressions into a region. Textual data from the written translations will be analyzed in parallel with keystroke log data.

We assume that comprehension and production processes can be disrupted in different ways by manipulation of the source text. For this initial study, the independent variable will be syntactic density, although in future other variables such as lexical density could be used. The dependent variables will be eye movement patterns and errors in verbal output for the sight translation, and keystroke log patterns and errors in written output for the written translation.

In the proposed design, each participant translates a number of experimental texts using sight and written translation. Each text has two versions, one syntactically dense and the other virtually identical, but with a simpler syntactic structure. Each text is sight translated and written translated by different participants and each participant will perform both tasks (sight and written) but will only perform one such task on any given text. The paper reports on the experimental design and any preliminary research results from the experimental tasks.

Our specific hypothesis is that as the syntactic density of the source text increases, comprehension becomes more difficult and disruptions in sight translation, measured by eye movements and errors, increase. However, as the syntactic density of the source text increases, production, measured in keystroke logs and errors in written translation, is less significantly disrupted, since production is a subsequent stage to comprehension.