Eye Tracking & The Process of Subtitling

David Orrego-Carmona
Department of Linguistics and Language Practice
University of the Free State, South Africa

Łukasz Dutka
Agnieszka Stankowska
Institute of Applied Linguistics
University of Warsaw, Poland

ABSTRACT
We conducted an eye tracking study with professional subtitlers and subtitling trainees producing interlingual (English to Polish) and intralingual (SDH) subtitles. No TPR study to date has been concerned with the process of subtitling. Data was collected using eye tracking, keystroke logging, screen recording and semi-structured interviews. The participants received the video, the transcription of the English dialogues, subtitling guidelines concerning the length and duration of subtitles and were allowed to use the Internet. The data make it possible to explore the different stages of the subtitling process and the time spent on each task, and to compare the techniques used by subtitling trainees and professionals when they face translation problems.

01 BACKGROUND
Translation process research & human-computer interaction

• Motivation to quantitatively study the process of translation aiming at the possibility of triangulating quantitative and qualitative data in order to test the researcher’s hypotheses (Jakobsen 1998)

• Translation process research has started to ask questions about the usability and suitability of these translation (memory) tools for the translation process (O'Brien 2015)

• A general interest has been put on the way how translators interact with translation tools (O'Brien 2008)

• Translation expertise as an acquired skill involving proceduralization, self-regulation, and metacognition (Shreve 2006)

• Discourse processing during simultaneous interpreting (Ivanova 1999)

• Potential for pedagogical initiatives (Hvelplund 2016)

• Technological competence: how to use a particular translation tool (EMT competences)

02 DESIGN AND METHODS
PARTICIPANTS
• 10 professional translators
• 6 translation trainees

DATA COLLECTION METHODS
• Eye tracking: SMI Red Mobile 250 Hz
• Keystroke logging
• Screen recording
• Key and mouse logging
• Pre-experiment questionnaires
• Semi-structured interviews

Software
EZTitles
Ediat

03 PRELIMINARY RESULTS
Task completion time

<table>
<thead>
<tr>
<th>Subtitling (mins)</th>
<th>SDH (mins)</th>
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</table>
| Professionals    | 55         | 67.33      | 19 | 66 | 19.92 | 19
| Trainees         | 77 (SD 19.97) | 43 (SD 16.45) |

Mean fixation duration/AOI

<table>
<thead>
<tr>
<th>AOI</th>
<th>Time (ms)</th>
</tr>
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<tbody>
<tr>
<td>P02</td>
<td>164.1</td>
</tr>
<tr>
<td>P04</td>
<td>219.2</td>
</tr>
<tr>
<td>N01</td>
<td>205.8</td>
</tr>
<tr>
<td>N02</td>
<td>172.9</td>
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</tbody>
</table>

Internet use and resources

• Online dictionaries and Wikipedia were the resources most commonly used by the participants.
• Wikipedia was used by professionals and trainees alike. Only one professional used P02.
• Participants used Google as a corpus to confirm their decisions and as a tool to find other pages. They rarely visited a website directly by inputting the URL.

04 REMARKS & CONCLUSIONS
Hypotheses
1. TASK COMPLETION TIME
• Professionals will have a lower task completion time.

2. TEXT REDUCTION
• Professionals will have a higher text reduction ratio in the interlingual subtitling task.

3. WORKFLOW
• Professionals will use more specialized online resources.
• Professionals and novices will have a different workflow.

Research-oriented teaching
• Showing students screen recordings of the subtitling workflow has the potential to make them conscious of the decision-making process involved in subtitling. This gives them real-life information about how subtitlers solve problems in various ways and how long it took them to decide on a solution.

Further analyses
• Detailed analysis of the workflow and subtitling styles based on key presses.
• Statistical analysis of eye-tracking data to assess cognitive effort, attention shifts and the distribution of cognitive resources during the subtitling task.

Contact
Dorothy@ufs.ac.za
Muhammad@ufs.ac.za

References
4. Hvelplund, K. T. 2016. Eye tracking and the process of subtitling. No TPR study to date has been concerned with the process of subtitling. Data was collected using eye tracking, keystroke logging, screen recording and semi-structured interviews. The participants received the video, the transcription of the English dialogues, subtitling guidelines concerning the length and duration of subtitles and were allowed to use the Internet. The data make it possible to explore the different stages of the subtitling process and the time spent on each task, and to compare the techniques used by subtitling trainees and professionals when they face translation problems.

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Auditorial Translation Lab
www.atslab.ufs.ac.za