

Expanding the Boundaries: **Methodological considerations for subtitling process research**

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Applying TPR to subtitling

Subtitling

- Subtitles as polysemiotic text
 - Audiovisual translators face texts in which the message is transmitted through multiple semantic channels
- The cultural, linguistic and technical issues involved in the creation of subtitles have been systematically studied before
- However, little is known about the process of subtitle creation as such

Study on subtitles

Study

- An eyetracking study of the subtitling process research on a group of professional subtitlers and subtitling students
- Eyetracker: SMI Red Mobile 250 Hz, screenrecording



Study

- Subtitling software
 - EZTitles
 - Edlist
- Pre-test questionnaire
 - Demographics
 - Experience
- Semi-structured interviews



Research questions

- How do subtitlers structure their subtitling process depending on their expertise and the task?
- What are the areas of interest that require more attention from the subtitlers and how do they distribute their attention among the different areas of interest on the screen?
- What type of resources do subtitlers rely on to complete their task?
- How is task completion affected by factors such as experience and the type of software used?

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 specialised online resources
 - Professionals and novices will have a different workflow

Study materials

- Interlingual subtitling
 - English to Polish
 - 1 min. 25 sec.
 - American TV series *The Newsroom*
 - English transcription was provided
 - Task: translation and spotting
- Intralingual subtitling for the deaf and hard of hearing (SDH)
 - Polish to Polish
 - Polish TV series *Hotel 52*
 - 2 min.



Experimental set-up



Demographics

- 18 participants
 - 12 Professionals
 - 6 Novices
- Gender
 - 3 men
 - 15 women
- Mean age: 31.66 (SD 10.93)

Experience in interlingual subtitling

How long have you been subtitling films?	No.	Percentage
0-1 year	1	5%
1-3 years	1	5%
3-6 years	0	0%
over 6 years	6	33%
I don't subtitle interlingually	6	33%
I'm a student without professional experience	4	22%

Place of training

Place	No. of people
University	11
In-house	4
University & in-house	1
Self-taught	2



00:52:06:3 P12_Newsroom.ezt Video2_The Newsroom.avi - 25 fps Preview Mode Profile [P12]

Subtitle View Video Titles Tools Help Check Subtitles... Fix Subtitles... Format...

Outline Ghost box

39 Skąd wiesz?
Pracujesz w IT. 10:01:17:12

41 - Nie, piszę blog.
- Żartujesz?
Are you kidding? 10:01:17:16 01:14 10:01:19:05

43 I think we're in the first hours of
a serious story. 10:01:19:05

Preview List

- 39 Skąd wiesz?
Pracujesz w IT. 10:01:15:20 01:17 10:01:17:12
- 41 - Nie, piszę blog.
- Żartujesz? 10:01:17:16 01:14 10:01:19:05
- 43 I think we're in the first hours of
a serious story. 10:01:19:05

Timeline

10:13 (204/1036) Modified Insert English (United States) Open Native Mode



00:08:46.5

on-TheNewsroom.doc [Tryb zgodności] - Microsoft Word użytek nie...

Wstawianie Układ strony Odwołania Korespondencja Recenzja Widok

Wklej Wstawianie

Schowaj Czcionka Akapit Stylizacja Zmiana stylu Edytowanie

What?
I'm sorry to interrupt
Can I talk to Mac for just a second?
Your guy here is a pain in the ass.
An oil well exploded in the Gulf of Mexico.
The Coast Guard's searching for missing crew members.
I'll fill you in at the 6:00 rundown.
There's more.
He doesn't need to hear this right now.
Let's go outside.
No, if Don doesn't want me to hear it, I'd like to hear it.
Oh, blow me.
I want you to not use that language in front of women and to forever not suggest that image to me.
What's on your mind?
Who are you?
Jim Harper, my senior producer.
Senior? Is he old enough to drive at night?
What happened?
Two calls within five minutes of each other.
The first one was from a friend of mine at BP in London saying he's sitting in meetings where they don't know how to cap the well.
Jesus.
The oil is still spilling?
Yeah, at a pretty alarming rate. The first estimate was about 10,000 gallons an hour.
My guy says it's closer to 100,000 and could get as high as a quarter of a million.
Why is this well different from other wells?
The depth. I need one of your staffers. He's... I don't know his name.
He sits in the back. He's... he's the one with...
Are you trying to say the Indian stereotype of an IT guy?
Yes.

Strona 1 z 1 Wyrazy: 254 Angielski (Dlań Zdobroczyna) 100%

EdList - C:\Users\View X\Desktop\POB_Newsroom.stl

Plik Edycja Konfiguracja Pomoc File

00:15:23

Wideo	Światy	Czas	Dodaj	Usuń
00:10:14				
00:12:05				
00:00:04	00:01:17	78.0	27 (18/5/0)	4
00:12:09				
00:14:22				
00:00:04	00:02:14	7.8	20 (15/3)	5
00:15:01				
00:19:14				
00:00:04	00:04:14	11.6	54 (10/42)	6
00:19:18				
00:00:00	00:19:17	8.9		7
00:00:00				
00:00:00				
00:00:00	00:00:01	8.0		8

Pozostało 122 dni.

0 00:15 Video_TheNewsroom.ar 0:01:22
25fps
Europe

Początek Koniec

Start Zapisz

Science Sports Gaming Education
Psychology Psychiatry Linguistics Training
Human Factors Human Computer Interaction Usability

Sample screenrecording (1)

The screenshot displays the EZTitles IV software interface in Edit Mode. The main window shows a video clip with subtitles. The current subtitle being edited is: "in front of women and to forever not suggest that image to me." The video frame shows a man and a woman in a newsroom setting. The subtitle text is displayed in a black box at the top of the video frame. The video frame also shows the subtitle "What's on your mind? Who are you?" and "Jim Harper, my senior producer." The software interface includes a menu bar (File, Edit, Format, Subtitle, View, Video, Titles, Tools, Help), a toolbar, and a timeline at the bottom. The timeline shows the video's duration from 10:00:12:00 to 10:00:30:00. A preview list on the right side shows a list of subtitles with their start and end times and preview images. The preview list includes: 13 (10:00:16:00 - 10:00:19:21), 14 (10:00:20:00 - 10:00:21:06), 16 (10:00:21:06 - 10:00:21:06), and 17 (10:00:21:06 - 10:00:21:06). The preview list also shows the subtitle text for each item. The software interface also includes a comment box, an edit box, and a timeline with a red diamond marker.

Sample screenrecording (2)

The screenshot displays the EZTitles IV software interface in Edit Mode. The main window shows a video frame with a man speaking, overlaid with subtitles. The subtitles are in Polish and English. A 'Comment' dialog box is open, and a 'Preview List' is visible on the right. The 'Timeline' at the bottom shows the audio and video tracks.

Subtitle 5: W Zatoce Meksykańskiej wybuchł szyb naftowy.

Subtitle 6: Straż przybrzeżna szuka zaginionych członków The Coast Guard's searching for missing crew members.

Subtitle 7: I'll fill you in at the 6:00 rundown.

Preview List:

- 5: 10:00:05:08 - 01:23 - 10:00:07:06
Outline: W Zatoce Meksykańskiej wybuchł szyb naftowy.
- 6: 10:00:07:10 - 01:21 - 10:00:09:06
Outline: Straż przybrzeżna szuka zaginionych członków The Coast
- 7: 10:00:09:08 - 01:03 - 10:00:10:11
Outline: I'll fill you in at the 6:00 rundown.
- 8: 10:00:10:13 - 01:15 - 10:00:12:03

Timeline: 10:00:00:00 to 10:00:20:00

Results

Task completion time

- Novices spent 39% more time in subtitling
- And 56% more time in SDH

	Subtitling (average time in minutes)		SDH (average time in minutes) EZTitles only
	EZTitles	EDlist	
Professionals	55 (SD 18.38)	67.33 (SD 26)	19 (SD 6.52)
Novices	77 (SD 10.07)	-	43 (SD 5.65)

Mouse clicks vs. key strokes in EZTitles in interlingual subtitling

	Mouse clicks	Key presses	User events (TOTAL)	Mouse clicks as percentage of user events
Professionals	273	5411	5685	4%
Novices	489	4307	4796	10%

Mouse clicks vs. key strokes in EZTitles in SDH

	Mouse clicks	Key presses	User events (TOTAL)	Mouse clicks as percentage of user events
Professionals	201	2086	2287	8%
Novices	135	2950	3086	4%

Text reduction in the interlingual subtitling task

- Professionals – 38%
- Novices – 36%

	Number of words	Number of characters
Professionals	218 (SD 11.45)	1231
Novices	225 (SD 6.10)	1240
Source text	354	1178

Areas of interest (AOIs) – attention distribution

The image shows a screenshot of a video editing software interface. The main window displays a video clip with subtitles. The video is titled "Video2_The Newsroom.avi" and is in "Preview Mode". The subtitle text reads: "The first one was from a friend of mine at BP in London saying he's sitting in meetings where they don't know how to cap the well." Below the video, there is an audio waveform labeled "audiowave".

A red box highlights a "Preview List" panel on the right side of the interface. This panel contains a list of video clips with their respective start and end times. The clips are:

- Clip 18: 10:00:25:02 to 10:00:27:18. Outline: "- Co się stało? - Dwa telefony w pięć minut."
- Clip 20: 10:00:27:20 to 10:00:32:11. Outline: "The first one was from a friend of mine at BP in London saying he's sitting in meetings where they don't know how to cap the well."
- Clip 21: 10:00:32:16 to 10:00:32:23. Outline: "Jesus."
- Clip 22: 10:00:33:08 to 10:00:34:07. Outline: "Jesus."

The interface also shows a "Timeline" at the bottom with various tracks and a "Profile [Monika Laskowska]" window at the top right.

Fixation duration (EdList)

	Toolbar	Subtitles	Video	Transcrip -tion	Internet
P08	284.7	275.9	285.3	251.6	278.3
P10	182.4	172.2	156.1	146.3	128.7
P11	233.7	258.5	211	219.5	258.5
P10	179	199.1	169.3	180.7	171.8
Mean	219.95	226.43	205.43	199.53	209.33

Fixation duration (EZTitles)

	Toolbar	Audio wave	Subtitles panel	Subtitles	Video	Internet
P02	164.1	144.4	148.6	144.6	156.2	185.4
P04	206	184.4	186.6	198	198.3	203.2
P06	175.2	189.7	178.6	218.9	198.5	209.5
P07	293.2	223.5	206.8	232.2	213.2	210.3
P09	238.8	200.7	201.4	224.6	197.7	205.6
P12	212.8	163.7	149.2	135.8	135.1	138.7
Mean	215.02	184.40	178.53	192.35	183.17	192.12
N1	205.8	157	165.6	167.9	187.9	222.7
N2	172.9	151.2	146.3	143.6	145.9	174.5
N3	198.9	229.3	217.7	214.7	370	207.8
N4	175.6	210.6	190.1	211.7	195.7	177.5
N5	124.9	130.2	125.8	147.6	138.4	136.7
Mean	175.62	175.66	169.1	177.1	207.58	183.84

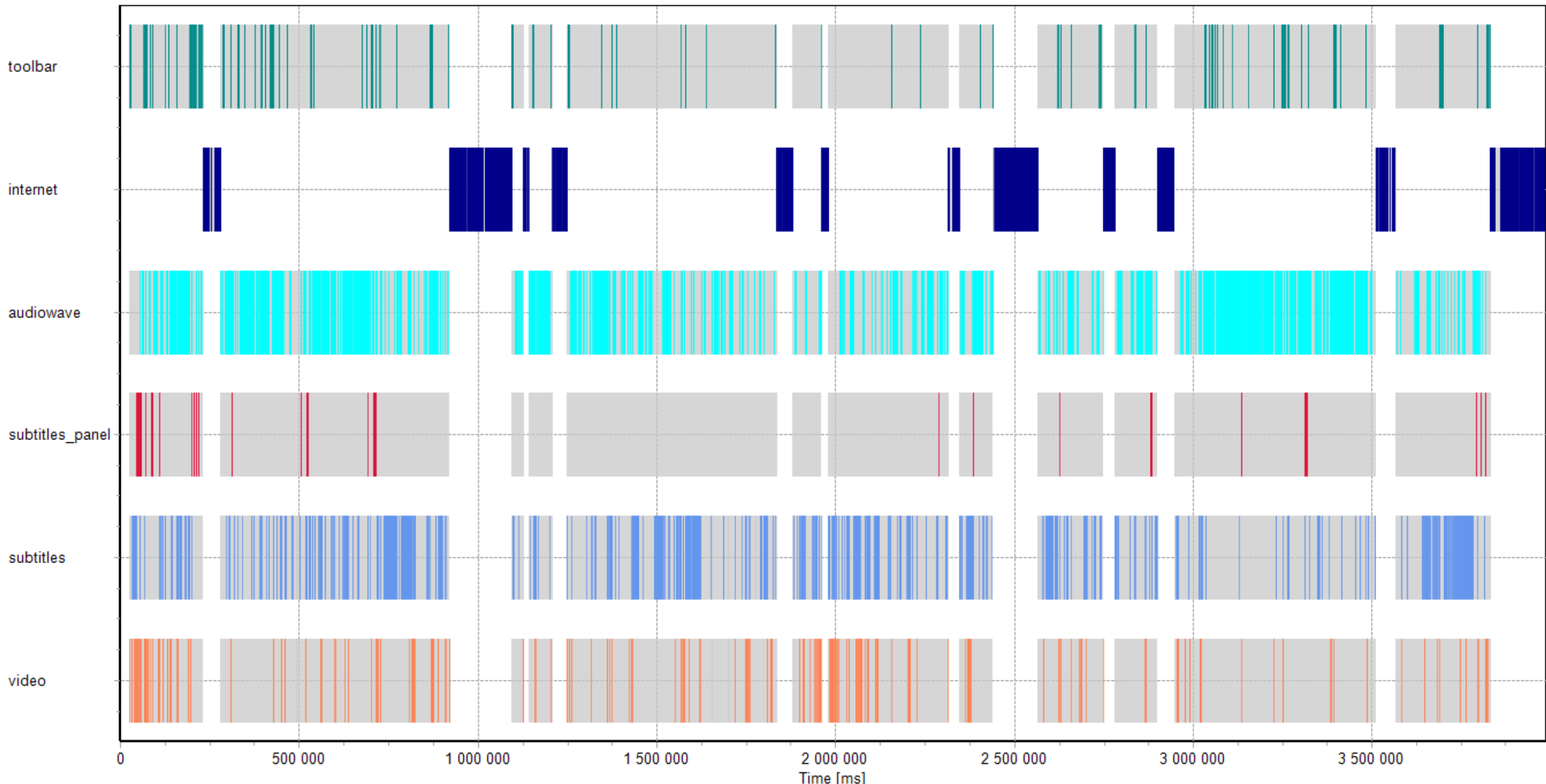
Dwell time in the subtitling area (EZTitles)

	Tracking ratio (%)	Internet use (%)	Dwell time (%) on subtitles	Dwell time (%) on video
P02	63.4	20.2	9.6	1.6
P04	82	22.5	21	4.9
P06	58.4	11.7	27.1	2.2
P07	78	28.1	24	6.3
P09	83.8	22.5	30	4.3
P12	50.7	19	8.7	5.6
Mean	69.38	20.67	22.16	4.15
N1	89.7	11.8	39	7.7
N2	77.4	9.5	28.6	2.8
N3	72.5	12.6	29.1	3.4
N4	77.3	7	27.1	4.3
N5	67.6	19	12.7	6.1
Mean	76.9	11.98	27.3	4.86

Workflow



AOIs vs. Time



Workflow

- Spotting and translation
 - Novices: independent **spotting** and **translation** stages in the workflow
- Revision
 - Novices: several revision rounds
 - Professionals: only one round or the revision of specific parts of the clip
- Watching the clip before starting to translate
 - Novices: all
 - Professionals: only 3

Use of resources

- Awareness of the tool
 - Only two participants used EZTitles unit converter
 - A minority used EZTitles check function
- Online resources
 - Google as a corpus and to access other resources
 - Wikipedia was widely used by professionals and participants alike
 - Only one participant used ProZ

Methodological considerations (1)

- Analyzing screen recordings, which are different for each participant (as opposed to showing all participants the same clip and having all your data in one file)
- Different AOIs for each participant as everyone did different things while subtitling (as opposed to using one template for all the participants)

Methodological considerations (2)

- Various subtitling software and comparing them
 - A separate analysis required for each
 - A number of systems and tools used in AVT and their ever-changing nature
 - Transition from desktop-based software to cloud-based software (often proprietary)

Methodological considerations (3)

- Some aspects of regular TPR are not totally applicable to subtitling process research
- In TPR, the unit of analysis can be a segment from a TM
- However, in the experiment, **it was difficult to compare the subtitles as such as units of translation.**
 - the subtitles vary from a person to another
- In order to use subtitles as individual units of analysis, one would have to resort to using **a template**
- BUT this would modify the cognitive processes of the subtitlers and compromise ecological validity

Methodological considerations (4)

- TPR researchers sometimes use **pauses** as indicators of units of analysis
- a pause (for instance, longer than 5 seconds) would indicate a problem and thus all activities in between two 5-second pauses would be considered a unit of analysis of the process
- Not helpful in segmenting subtitling processes
 - the subtitler is not only dealing with texts but also with the video
 - it is only natural that he or she would (regularly) stop typing to (re)watch the clip or listen to the soundtrack.

So what?

- SPR is needed to help us understand the process and how subtitlers interact with the software
- inform our teaching
- shape the development of the AVT tools of tomorrow
- It's time for a systematic investigation of the process of subtitling

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