



Languages & The Media

8th International Conference & Exhibition on
Language Transfer in Audiovisual Media

October 6 – 8, 2010, Berlin, Germany

Organised by



in Poland

Agnieszka Szarkowska
University of Warsaw

a.szarkowska@uw.edu.pl
www.avt.ils.uw.edu.pl

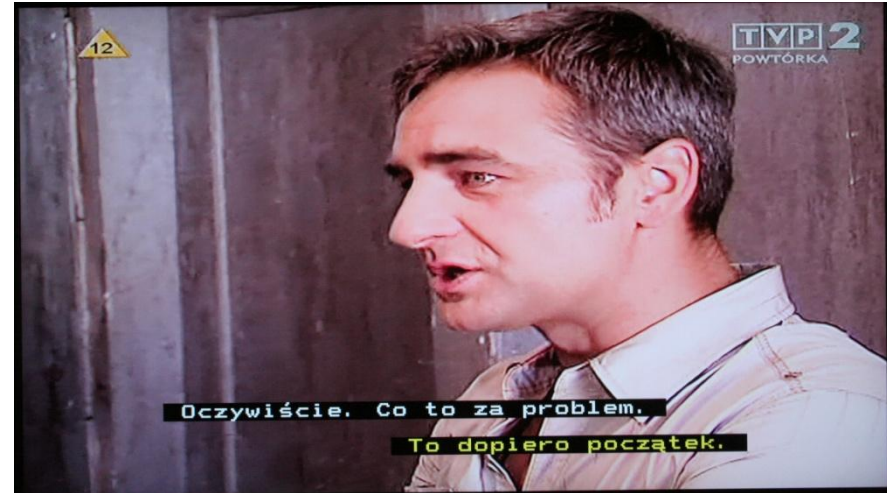
The hearing impaired in Poland

- Poland – 38m people
 - **deaf** – ca. 100,000
 - **hard of hearing** – ca. 800,000 – 900,000
- Polish AVT landscape
 - Voice-over on TV
 - Digital TV in its infancy
 - Subtitles in cinemas (to foreign films only)

SDH on Polish TV

- Public television (TVP) on its two channels TVP₁ and TVP₂
 - 2009: ca. 8% broadcast time
 - 2010: ca. 4% broadcast time
- Films, soaps, TV series, current affairs programmes, documentaries
+ one news programme per day
- Intra- and interlingual

SDH on Polish TV (analogue)



Sign language interpreting on Polish TV

- On public television (TVP)
 - Since 1979
 - News, soaps, religious programmes
 - Signed Polish vs. Polish Sign Language
- On commercial channel (POLSAT NEWS)
 - Since Sept 2010
 - One 15-minute programme a week
 - Polish Sign Language

Sign language interpreting in soaps



SLI in news programmes on TVP



SLI or subtitling? – long questionnaire

What do you think is the best way to make audiovisual material accessible?

Paper version

Online version

Signer

32%

2%

Subtitles

65%

91%

Other

4%

9%

Eyetracking: parameters and variables

1. **Character identification**: colours, displacement, tags
2. **Subtitling style**: edited, standard, verbatim
3. **Position**: bottom, top, mixed
4. **Emotions**: description, emoticons, nothing
5. **Sounds**: description, icon, nothing
6. **Justification**: left-aligned, centred
7. **Borders**: borders, no borders
8. **Box**: black box, no box
9. **Shadows**: shadows, no shadows

Eyetracking procedure

- Pre-test questionnaire
- Eyetracking tests
 - 9 parameters with two or three variables each
 - Total: 23 clips
- Three comprehension questions after each clip
 - General understanding
 - Textual elements
 - Visual elements
- Question on preferences after each parameter

Eyetracking in Poland

- Interdisciplinary Center for Applied Cognitive Studies at the Warsaw School of Social Sciences and Humanities and the Institute of Applied Linguistics at the University of Warsaw
- Eyetracker
 - EyeLink 1000
 - Monocular
 - Frequency rate: 500 Hz
 - Head supported
- Software
 - Experiment Builder
 - Data Viewer



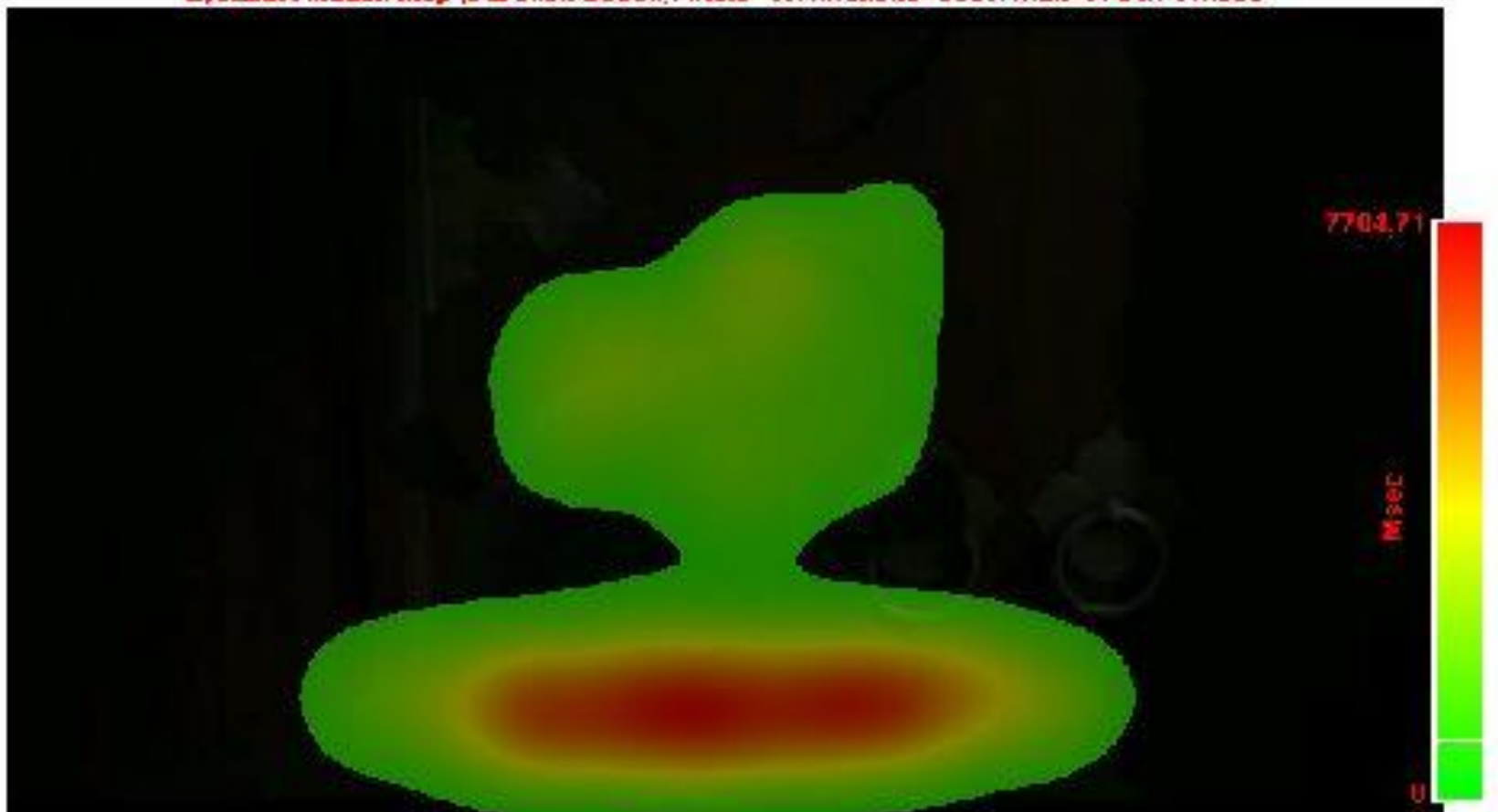
Fixations and saccades



Gazeplot of a verbatim subtitle: Deaf participant

Subtitles as areas of interest

EyeLink Fixation Map (Duration Based): trials=10, fixations=3353, max=7704.71 msec



Fixation duration-based heatmap
(verbatim subtitles, Deaf participant)

Eyetracking variables

- **Time to first fixation** = the time which elapsed between subtitle onset and the first fixation that entered the AOI with subtitles
- **Mean reading time** = the period of time that participants spent on reading subtitles compared to the time spent on watching the whole clip

Participants in Polish eyetracking tests

- Total number = 42
 - 24 women, 18 men
 - 12 deaf, 19 hard of hearing, 11 hearing

Age	Deaf	Hard of hearing	Hearing
18-24	1	6	3
25-39	9	8	4
40-59	2	1	3
60+	0	4	1
TOTAL	12	19	11

Verbatim or edited? – long questionnaire

Which of the options below do you prefer?	Paper version	Online version
---	---------------	----------------

Literal subtitles that contain absolutely all the information	60%	72%
Not so literal but easier to read	40%	26%

Verbatim or edited? – comprehension

	Verbatim	Standard	Edited
Hearing	79 %	64%	49 %
Hard of hearing	78 %	73 %	57 %
Deaf	82 %	67 %	63 %

Verbatim or edited? – eyetracking

Time to first fixation (ms)

	Verbatim	Standard	Edited
Hearing	267	191	241
Hard of hearing	258	264	207
Deaf	178	212	239

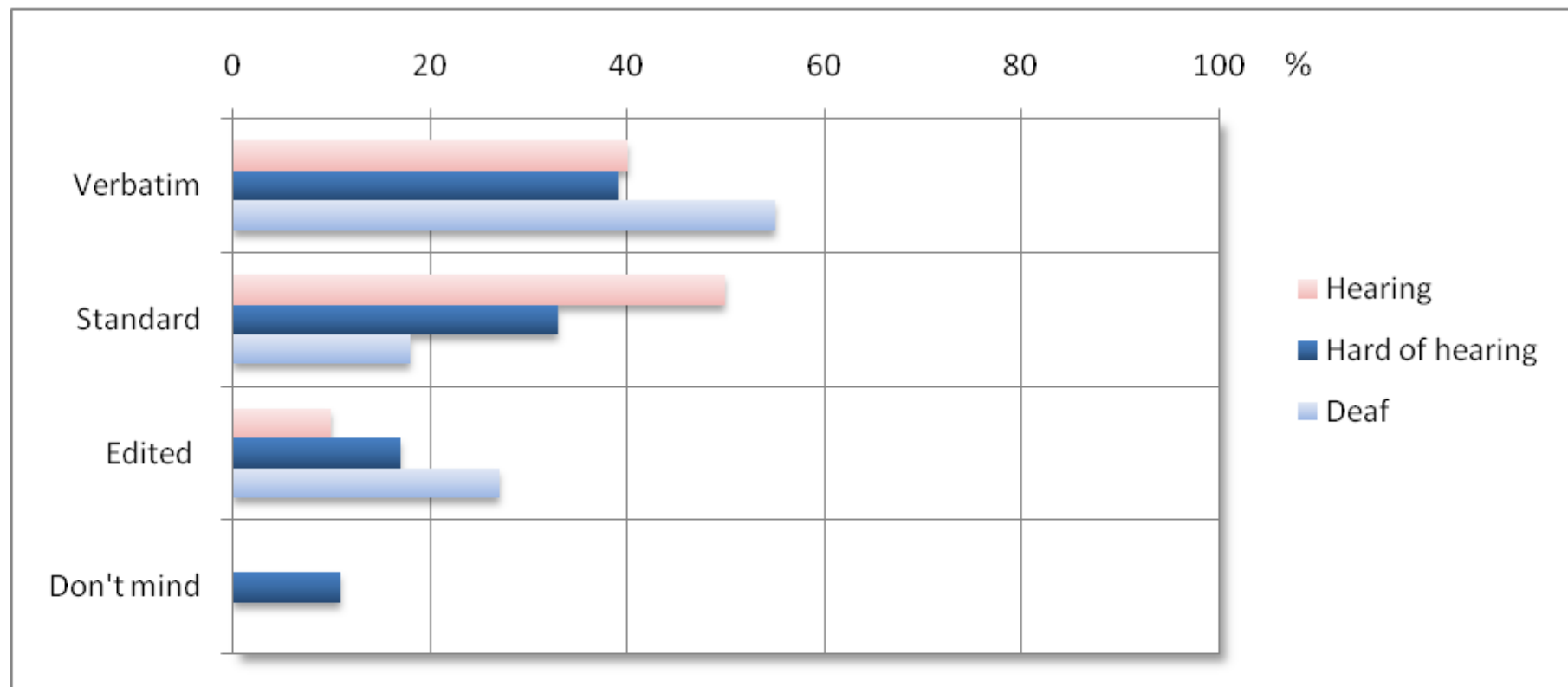
Mean reading time

	Verbatim	Standard	Edited
Hearing	45%	40%	35%
Hard of hearing	50%	44%	35%
Deaf	60%	51%	43%

	Adapted	Standard	Verbatim
Deaf			
Hard of hearing			
Hearing			

Fixation duration-based heatmaps: Subtitling style

Verbatim or edited? – preferences



So what?

- Long questionnaire: the first and largest survey on SDH in Poland
- Eyetracking: a large research corpus of dynamic scenes:
42 participants x 23 clips x ca. 20 subtitles each
 - ca. **20,000 eyetracked subtitles**
 - ca. **1,000 minutes** of eyetracking recordings
- Research on reading & dynamic scene perception
 - More shorter fixations on subtitles, fewer longer fixations on image
 - Data on languages other than English (with fixations of 200-250ms, mean saccade length 7-9 letter spaces) (Rayner 1998)
 - Silent reading vs. reading when listening to text being read aloud
 - Silent reading: mean fixation duration: 225 ms, mean saccade size: 8 letters
 - Oral reading: mean fixation duration: 275 ms, mean saccade size 6 letters
- Study limitations

Questions or comments?

a.szarkowska@uw.edu.pl

AVT Lab

www.avt.ils.uw.edu.pl