

# The reception of subtitling by the deaf and hard of hearing. Preliminary findings

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*Audiovisual translation is a complex means of communication where multiple sources of dynamic information interact. This complexity presents methodological challenges for research, particularly when studying the way different viewers receive information with subtitles. In an attempt to tackle this complexity, we combined eye-tracking and oral questionnaires in a reception study of 72 subjects, including deaf and hard of hearing sign-language users, deaf and hard of hearing oral-language users and hearing oral-language users. Preliminary findings suggest that oral-language users tend to be more efficient with verbal information, whereas sign-language users may be more efficient with visual information. Further, these differences might be due to general communication aspects rather than strictly hearing aspects.*

*Keywords: reception, audiovisual translation, accessibility, eye-tracking*

## Introduction

In Audiovisual Translation (AVT) communication is conveyed using multiple information codes. Meaning is articulated through a network of verbal and non-verbal elements, roughly outlined in dialogue and images (Chaume 2004, Gambier 2013). All these elements are processed almost concurrently through our visual and auditory channels, and interact in the construction of meaning. Even so, research has been mainly concerned with the verbal level, especially with translation strategies. However, in subtitling for the Deaf and Hard of Hearing (SDH) the non-verbal level is especially worthy of attention. The oral discourse conveyed in the subtitles needs to be processed through the visual system and includes dialogues, music, sound effects and other paralinguistic features (Arnáiz-Uzquiza 2012), which might increase its information load. The role of the type of audience in the interplay between reading and watching must also be considered.

This article will provide an overview of Reception Studies in AVT and will present an experimental design and the preliminary results of a study on SDH aimed to investigate the effects that subtitling speed and viewers' hearing and communication profile have on reception.<sup>1</sup>

## **Reception Studies: theory and methodology**

The list of scholars who encourage research on reception is noteworthy (Neves 2008, Gambier 2008, Orero 2005, Jensema 2000, d'Ydewalle and de Bruycker 2007, Romero-Fresco 2011 and forthcoming). On a micro-level, research is required on viewers' needs and preferences so that translation strategies can be reviewed. On a macro-level, it is needed to gain empirical evidence of how viewers deal with audiovisual semiotics. Nevertheless, little attention has been paid in practice to the role and importance of non-verbal information or to the way different viewers process and prioritize information from different types. The notion of "reception", nevertheless, encompasses various meanings and, as stated in Gambier (2009), a consensus has not been reached. Most AVT scholars do however agree that a comprehensive approach should consider three levels of expertise: response, reaction and repercussion (cf. Kovačič 1995, Chesterman 2007, Gambier 2007 and 2009). These can be glossed as follows:

Response concerns the legibility of the information conveyed in the audiovisual text, i.e. the perceptual decoding of its elements. It includes physiological and behavioral responses – either automatic or automated through practice – related to motor and attentional processes.

Reaction concerns the readability of the elements contained in the text. It comprises cognitive and psycho-cognitive processes (such as short and long term memory, comprehension or understanding).

Repercussion concerns viewers' attitudes and beliefs. It accounts for their feedback to and assessment of specific audiovisual and translation strategies and practices. It can be viewed from an individual or a sociocultural perspective, if social or culturally-based groups share beliefs and preferences.

Each level provides a different type of information and involves a different method of analysis. To examine viewers' responses we may seek evidence of where attention or effort is deployed. Controlled experimental methods can be then used to record and measure eye movements, pupil or neuronal responses, using eye-tracking, pupillometry or electroencephalography (EEG). On the other hand, to analyze reaction and repercussion survey methods should be used: questionnaires (oral, written,

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online, self-administered, etc.), interviews (unstructured, semi-structured, guided, etc.) or even additional standardized tests (on reading, oral and written comprehension, etc.). Caffrey (2009) provides a list of AVT studies with combined approaches and it keeps growing (see Perego 2012). A combination of approaches leads to a higher reliability, since it allows two or more levels to be addressed. As the levels are not isolated or independent from one another, an interesting window is open: does response affect reaction/ repercussion? Does reaction have an effect on response/ repercussion? Or repercussion on response/ reaction? Comparison and complementarities of methods can lead to a better interpretation of results.

### **From theory to practice: a reception study on SDH**

We have designed an experimental reception study on SDH. Combining eye-tracking and a set of questionnaires, it investigates the role of subtitling exposure speed and participants' hearing and communication profile. The study collected data from 72 participants grouped into three hearing and communication profiles: D (deaf sign-language users), HOH (deaf and hard of hearing oral language users) and H (hearing oral language users). One by one they watched two excerpts from films in English with SDH subtitles in Spanish (randomly displayed at three exposure speeds) and answered a set of questionnaires. The study explored how verbal and visual information were processed and prioritized and whether reception was affected by subtitling speed and/or the participant's profile.

#### *Research questions, objectives and hypotheses*

The research questions (RQ), objectives (O) and hypotheses (H) are structured into the levels of reception and arranged around the aspects under study: subtitling speed and viewers' profiles. Specific hypotheses are stated for response and reaction. For repercussion, because of its qualitative nature, no hypotheses were made.

RQ 1: Does subtitling exposure speed affect response?

O: To see whether speed affects the time participants look at the subtitles and the images, and the number of crossovers between these areas.

H: The greater the speed, the more time participants will spend on the subtitles and the less time on the images, and the fewer the crossovers.

RQ 2: Does the participant's profile affect response?

O: To see whether the profile affects the time participants look at the subtitles and images, and the number of crossovers between these areas.

H: The greater the deafness and the dependence on sign language, the more time participants will spend the subtitles and the less time on the images, and the fewer the crossovers.

RQ 3: Does subtitling exposure speed affect reaction?

O: To see whether speed affects how participants recall, process and understand the verbal and the visual information.

H: The lower the speed, the better the recall, processing and understanding of the verbal information and the worse the recall, processing and understanding of the visual information.

RQ 4: Does the participant's profile affect reaction?

O: To see whether the profile affects how participants recall, process and understand the verbal and the visual information.

H: The greater the deafness and the dependence on sign language, the better the recall, processing and understanding of the visual information and the worse the recall, processing and understanding of the verbal information.

RQ 5: Does subtitling exposure speed have repercussions?

O: To see whether speed affects the participants' feedback and assessment.

RQ 6: Does the participant's profile have repercussions?

O: to see whether profile affects participants' feedback and assessment.

### *Variables*

A viewer-oriented AVT study will at least have two types of variables: sociological – related to the population – and audiovisual – related to the material. These could be correlated to a set of translation variables: spatial-temporal, textual or paratextual (Gambier 2007). In this study, the variables are as follows:

#### *Independent variables*

The subtitling exposure speed (defined as the number of seconds for which subtitles are displayed on screen) consisted of three levels: short (1-2 seconds), medium (2-4'') and high (4-6''). The participants' profiles (based on hearing and communication skills) contained three groups: D (deaf Spanish/Catalan sign-language users), HOH (deaf and hard of hearing Spanish language speakers) and H (hearing Spanish language speakers).

Subtitles were commissioned from a translator who applied the Spanish guidelines for SDH (AENOR, 2012) and the speeds were adapted afterwards by the researcher. The profiles corresponded to a natural distinction. A pre-

study questionnaire about the daily use of language and hearing capacity was used in order to allocate participants. For the D and HOH, it included questions about the type of education received, degree and age of hearing loss, and use or not of hearing aids or cochlear implants.

### *Dependent variables*

Based on the methods of analysis, two sets of variables (produced by eye-tracking and questionnaires respectively) were expected to be affected by the independent variables. According to the type of information provided, these were:

(Response) Duration and count eye-tracking variables: fixations on the subtitles and the images, total visit duration (percentage of time in both areas) and number of crossovers between areas.

(Reaction) Comprehension questionnaire-based variables: narrative understanding of the plot and characters, recall of visual and verbal information and inference of information.

(Repercussion) Assessment questionnaire-based variables: feedback about subtitling speed, other translation strategies and reception practices.

### *Control variables*

These variables were controlled through a set of questionnaires and a focus group among AVT researchers:

Sociological variables: age and gender, level of education, levels of reading comprehension in Spanish and oral comprehension in English (for group H), reading and subtitling viewing habits and familiarity with the audiovisual material used.

Audiovisual variables: period of release and original language, type of film (fiction), duration, verbal and visual density.

### *Films*

The selection of non-appropriate audiovisual material might affect results. Apart from copyright, issues as representativity (when studying one fragment of a film or program) or comparability (when comparing fragments) need to be considered. In this study, in order to strengthen its validity, decisions were taken and agreed upon through discussion groups. To avoid lip-reading (most HoH participants used it to access spoken language) English was the language chosen for the audio track. Two films were chosen from the DVD catalogue of the distributor *Cine Accessible: Cassandra's Dream* (Allen 2007) and *Slumdog Millionaire* (Boyle 2008). In order to maintain attention span, two excerpts (one from each film) of less than two minutes were selected. They contain the main narrative elements from the structure proposed by Branigan

(1992: 14): introduction of settings and characters, explanation of a state of affairs, initiating event, statement of a goal by the protagonist, complicating actions, outcome, reactions to the outcome. Without altering the narration, the last two elements were deleted in order to explore the participants' ability to infer information. Overall meaning was expected to come from the dialogue in one excerpt and from the images in the other. Continuous and high-speed dialogues (indicators of verbal density) were required for both cases. However, the number and type of shots (indicators of visual density) were expected to differ. The excerpts were as follows:

*Cassandra's Dream* (CD): The excerpt shows Howard telling his nephews about some problems he is having with a former member of his company. He tries to ask them for something that is not revealed. The sequence has two shots, one of more than one minute in which the camera travels around the three characters, starting with a wide shot and ending with a medium close up. The faces are mostly out of focus or covered by trees. Visual information is scarce and static and does not take precedence over the construction of meaning, which is primarily based on the verbal dialogue.

*Slumdog Millionaire* (SM): The excerpt shows how the Indian boy - who stands up in front of the Taj Mahal next to a sign advertising tours - is mistaken for a guide by a foreign couple. He accepts to give them a tour and gets paid for it but makes up the stories behind the historical places and monuments they visit. It has more than thirty shots, most short and static, which go from long and shot-reverse-shots to close-ups and extreme close-ups. Visual information participates actively in the narrative development, becoming essential for understanding the meaning.

#### *Selection and sample of participants*

The number of participants depended on the experiment design and their classification responded to sociological factors. Although payment was not expected, travel expenses were covered. The duration of the tests, the mode of contacting the participants and their availability affected time management. Prior contact could help to pre-classify participants and may lead to fewer absences. However, it could also affect behaviour. In this study, the researcher had no previous contact with participants. Difficulties were found to complete the expected numbers and the data collection lasted over seven months. In few cases, it was difficult to allocate participants to groups. The research pre-criteria (based on hearing capacity) did not coincide with participants' personal criteria (based on communication preferences) so profiles were adjusted to both.

The volunteers were recruited in Catalonia. D participants were contacted through local associations for deaf people and MultiSignes (industry partner specialized in accessibility). The laboratory was set up in the premises of the

company, which also provided sign language interpreting services. HOH participants were reached through ACAPPS (Federation of Catalan Associations of Hard of Hearing People), where part of the tests took place. Additional tests were conducted at the public library El Clot-Josep Benet and at the University Rovira i Virgili. H participants, mainly neighbors and workers from surrounding locations, travelled to the different laboratories.

A total of 22 male and 50 female participated. As shown in Table 1, homogeneity in the age and gender distribution could not be achieved. D participants had Spanish/Catalan Sign Language as first language whereas H and HOH were Spanish/Catalan oral language users. Group HOH, as happened with most D participants, had received an auditory oral-based education, either in conventional or deaf schools. Only the four youngest D participants attended a bilingual school with an inter-modal (oral and sign-based) approach. Among the rest of D participants, five acquired sign language as adults, and the rest in childhood by contact with other deaf children. Table 2 shows the degree and age of onset of deafness of D and HOH participants and the use of cochlear implants and hearing aids.

**Table 1:** Number of male and female and age intervals (in years).

Groups	Gender distribution		Age interval
	Male	Female	
H	9	15	23-48
HOH	3	21	23-69
D	10	14	18-65

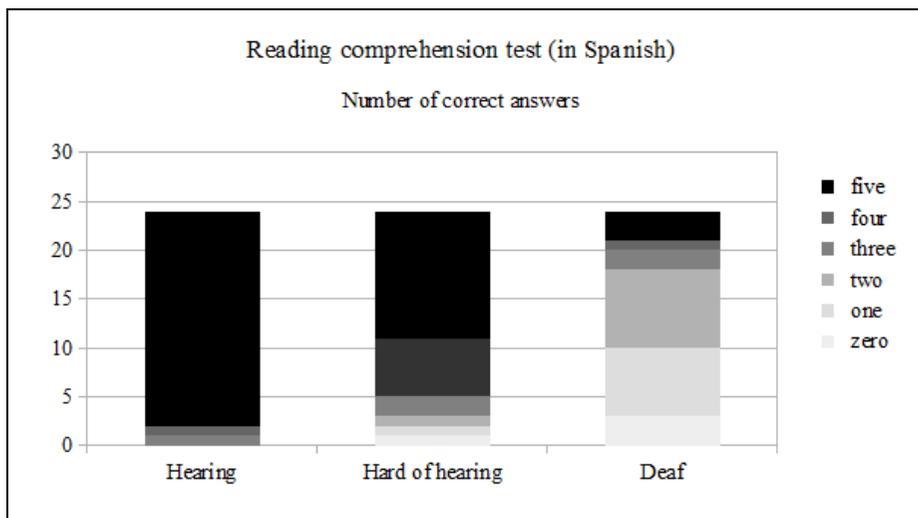
**Table 2:** Specific features from groups HoH and D.

Variable	Categories	D	HOH
Degree of deafness	Profound	24	12
	Severe-profound	0	12
Age of onset of deafness	Prelocutive (0-3 years)	23	11
	Postlocutive (+ 3 years)	1	13
Use of cochlear implant	No	22	19
	In one ear	2	4
	In two ears	0	2
Use of hearing aid	No	17	7
	In one ear	4	7
	In two ears	3	10

In terms of education, an elementary level was minimally required. However, differences were found. A total of 21 H and 13 HOH participants had a university level. In group D this number drops to three. Only one H,

four HOH and one D attended high school. Most D participants received a vocational or an elementary education (ten and ten) while HOH and H participants with these levels were much less in number (four and three/ two and none). Participants' level in reading comprehension in Spanish was also assessed. They were asked to read a text and provide answers to five questions. As seen in Figure 1, differences were observed. Most D participants had trouble in understanding the text (only four fully or almost fully comprehended it). Group H, on the contrary, had very good comprehension, as did most HOH (21 answered all or almost all questions correctly).

**Figure 1:** Answers to the reading comprehension test.



### *Experiment design and distribution*

The participants watched the excerpts (A: SM and B: CD) in the original versions. Subtitles were randomly displayed at three speeds (1: high, 2: medium and 3: short) and assignments were completed in order of participation (see Table 3). To prevent H participants with a good level of English from understanding the auditory information, their sound was turned off. Their level of listening comprehension in English was assessed by watching a sequence of the film *The Royal Tenenbaums* (Wes Anderson 2001) without subtitles and answering five multiple-choice questions. The 12 participants with the lowest scores did the experiment with sound (s) and the 12 with the best scores with no sound (n). The order of the excerpts was reversed to avoid any effect.

**Table 3:** Design and distribution.

Clips and speeds	Groups					
	D		HOH		H	
A1-B2	1	2	1	2	1 (n)	2
A1-B3	3	4	3	4	3 (n)	4
A2-B1	5	6	5	6	5 (n)	6
A2-B3	7	8	7	8	7 (n)	8
A3-B1	9	10	9	10	9 (n)	10
A3-B2	11	12	11	12	11 (n)	12
B1-A2	13	14	13	14	13 (n)	14
B1-A3	15	16	15	16	15 (n)	16
B2-A1	17	18	17	18	17 (n)	18
B2-A3	19	20	19	20	19 (n)	20
B3-A1	21	22	21	22	21 (n)	22
B3-A2	23	24	23	24	23 (n)	24

### *Tools, methods and procedure*

All tools and methods were pilot-tested. A study with six participants (two from each group) assessed the appropriateness of the eye-tracking test and questionnaires. Written questionnaires were used with groups H whereas OH and group D was administered oral questionnaires through sign language interpreting. Written answers were shorter as participants did not elaborate on them. On the other hand, the personal interaction involved in the oral administration allowed for more fluid communication and despite taking longer, led to more detailed answers. Thus, for the definitive experiment, oral questionnaires were used with all groups. The questions not well understood were made more explicit and a question about preference for sign interpreting or subtitling for TV (which arose in the pilot study) was added. The order and the nature of the instruments were:

Questionnaire to elicit personal information: age, education, type and degree of deafness, language and communication skills.

Test for reading comprehension in Spanish.

Test for oral comprehension in English (for group H).

Eye-tracking test. After the process of calibration, participants' eye movements were registered while watching the videos on a TV monitor with a Tobii X60 eye-tracker at a rate of 60Hz.

Comprehension questionnaires. After watching each video, participants answered the corresponding questionnaire with six questions: two on narrative information, three on recall of information and one on inference of

information. Measures for evaluation were established after a control test with 15 English native speakers who watched the videos without subtitles and answered the same questions.

Questionnaire on subtitling viewing habits and preferences with 15 questions (one yes/no, four open, five Likert scale and five multiple choice).

The average duration was 45 minutes. Participants knew that they were volunteers for a European study on SDH but were informed in situ about the procedure. They were also asked to sign a consent form to fulfil the ethical requirements of the Autonomous University of Barcelona. It was emphasized that they should watch the videos as they would do in a non-experimental setting. Without consistency in the instructions, as happened in the pilot test, participants would have focused on reading the subtitles, presumably because “subtitling” was in the name of the experiment. At the end, they were told the overall objective and had the opportunity to express their opinions.

## **Preliminary results**

Here we present the preliminary findings concerning the effect of participants’ profile on the level of reaction. Statistical analysis has not yet been applied so the tendencies observed require further corroboration.

The participants were asked about the relationship between the characters in the excerpt and for a summary of the plot. Groups H and HOH obtained very good, almost identical results but HOH participants were slightly better in the comprehension of the plot of SM, with higher visual cognitive load. Presumably through practice, HOH could have developed strategies for switching attention effortlessly. Group D, on the other hand, obtained low scores. An improvement was observed in SM, so visual information could have supported their comprehension. However, it did not lead to full comprehension, as the answers were incomplete. In CD, visual information did not provide enough support and overall performance was poor. Except for five subjects who obtained very good results, D participants experienced difficulties when extracting the narrative information.

Three questions were designed to analyse participants’ recall and processing of information: one about the verbal information conveyed in the subtitles, one about the visual information from the images, and one open question, the answer to which could come from both sources. This third question was designed to identify the type of information prioritised. Answers to the verbal question reflect some differences. In CD, group H obtained the best results, closely followed by group HOH. Group D, again, with the exception of very few participants, performed very poorly. In SM, H and HOH behaved similarly and obtained very good results. Performance of group D slightly improved but answers were still partial. Results from the visual question also show differences. In CD all groups obtained very good results

but in SM these differed. The worst performance was that of group H and the best was that of group D. In contact with sign language, they might have a naturally developed ability to understand images. Group HOH also obtained good results. In the open question in CD, most H and HOH participants referred to both verbal and visual information. In SM, however, they just mostly referred to verbal. In CD, most of group D alluded to visual information but in SM they referred to verbal information. These results show a pattern similar to that found in other studies (Cambra et al. 2008, 2009 and 2010, Romero-Fresco 2011, Arnáiz-Uzquiza forthcoming): regardless their profile, participants prioritised verbal over visual information.

Finally, the participants were asked to infer information and anticipate the consequences of the actions developed in the excerpts. As mentioned, the narrative content did not include the “outcome” and “reaction to the outcome”. Group H obtained the best results. Surprisingly, given the results for the other categories, groups D and HOH had a comparable performance. In CD, all H participants answered correctly, as did most HOH and more than half of D. In SM, group H had very good results but HOH and especially D had a poor performance. Once more, few D participants obtained good results in both cases.

These recurrent D participants turned out to be those with the best scores in the test for reading comprehension: the one postlocutive deaf and the four who received a bilingual and inter-modal oral and sign language education. According to research on inter-modal bilingualism by Morales-López (2010), it is essential for deaf children to acquire sign language at early stages of the learning process in order to develop a second oral language, as the early development of one language facilitates the acquisition of a second one. Nevertheless, within the current deaf community in Spain and Catalonia, few sign-language users could actually be considered native users of the language. It was not until the last twenty years that schools for deaf children started to move from an exclusively auditory oral-based approach to a bilingual approach that integrates oral and sign languages. Therefore, only some of the youngest generations are native sign-language users. The majority of sign-language users, however, consider the sign language their natural language, despite having learnt it at later stages of childhood or adulthood. The sample in this study shows this, as only four participants were strictly native sign-language users. This educational context might explain the ability shown by the native users when compared with the difficulties faced by the non-native users. However, definitive conclusions cannot be drawn due to the limited number of participants with this specific profile.

Even without statistical analysis, some of the hypotheses have been partially confirmed. The sign-language users were more efficient in comprehending, recalling and inferring visual information, and oral language users were more efficient with verbal information. However, this was not

always the case: perhaps through practice, HOH seemed to have developed strategies to cope with split attention and efficiently process multimodal information. The same could be said of the few bilingual and native sign-language users, although the differences between L1 and L2 acquisition in sign languages require further research. The results of this study, as indicated, are expected to be in tune with the findings of previous studies by Cambra et al. (2008; 2009; 2010), Romero-Fresco (2011) and Arnáiz-Uzquiza (forthcoming). Our results also seem to confirm some differences between the reception of the two videos, as their visual load was significantly different. However, this would need to be further investigated.

### **Conclusions and further steps**

Although the analysis of the data is still underway, some interesting results have already been obtained. Results on the effect of viewers' hearing and communication profile on reaction have partially confirmed that oral-language users were more efficient with verbal information and sign-language users with visual. The results also indicate that differences might be more due to communication rather than hearing aspects, since despite the deafness and hearing loss, most HOH (perhaps more accustomed to watch with subtitles) and some few D native sign-language users seem to have developed efficient strategies to efficiently switch attention. Nevertheless, these possible differences between native and non-native deaf sign-language users deserve further research.

It also seems that visual information might be a support for group D, especially in narrative comprehension and inference of information; although reading the subtitles takes precedence over viewing the images in all the group cases. This could be an added difficulty for group D, especially for the non-native sign-language users with a low level of reading comprehension. As Cambra et al. (2008; 2009; 2010) and Romero-Fresco (2011) claim, it would be important to find subtitling exposure times adequate to their cognitive needs, which should provide enough time to read and extract relevant narrative information from the subtitles and to view and benefit from the cognitive support of the images. Nevertheless, more research is still needed on how visual and verbal information are actually processed and how they complement each other.

### **References**

- AENOR. 2012. Norma UNE 1531010: Subtitulado para Personas Sordas y Personas con Discapacidad Auditiva. Subtitulado a través del Teletexto.  
Allen, Woody. 2007. *Cassandra's Dream*. (film)

- Anderson, Wes. 2001. *The Royal Tenenbaums*. (film)
- Arnáiz-Uzquiza, Verónica. 2012. "Los parámetros que identifican el subtítulo para sordos. Análisis y clasificación". In Rosa Agost, Pilar Orero and Elena di Giovanni (eds) *Multidisciplinarity in Audiovisual Translation/ Multidisciplinarietat en traducció audiovisual*. MonTI4: 103-132.
- Arnáiz-Uzquiza, Verónica. Forthcoming. "Viewers' Opinion of SDH in Spain". In Pablo Romero-Fresco (ed.) *The Reception of SDH in Europe*. Peter Lang: Berlin.
- Boyle, Danny. 2008. *Slumdog Millionaire*. (film)
- Branigan, Edward. 1992. *Narrative Comprehension and Film*. Routledge: London.
- Caffrey, Colm. 2009. Relevant abuse? Investigating the effects of an abusive subtitling procedure on the perception of TV anime using eye-tracker and questionnaire. Doctoral thesis: Dublin City University. [http://doras.dcu.ie/14835/1/Colm\\_PhDCorrections.pdf](http://doras.dcu.ie/14835/1/Colm_PhDCorrections.pdf). Visited December 2012.
- Cambra, Cristina, et al. 2008. "Función de la subtitulación y la interpretación de la imagen en la comprensión de los mensajes televisivos: la comprensión de una serie por parte de los adolescentes sordos". *Cultura y Educación*, 20(1): 81-93.
- Cambra, Cristina, et al. 2009. "Comprehension of television messages by deaf students at various stages of education". *American Annals of the Deaf*, 153(5): 425-434.
- Cambra, Cristina, et al. 2010. "How Deaf and Hearing Adolescents Comprehend a Televised Story". *Deafness and Education International*, 12(1): 34-51.
- Chaume, Frederic. 2004. "Film Studies and Translation Studies: Two Disciplines at Stake in Audiovisual Translation". *Meta*, 49(1) Special Issue on Audiovisual Translation: 12-24.
- Chesterman, Andrew. 2007. "Bridge Concepts in Translation Sociology". In Michaela Wolf and Alexandra Fukari (eds) *Constructing a Sociology of Translation*. Amsterdam and Philadelphia: John Benjamins: 171-183.
- Gambier, Yves. 2007. "Challenges in research on audiovisual translation". In Anthony Pym and Alexander Perekrestenko (eds) *Translation Research Projects 2*. Tarragona: Intercultural Studies Group: 17-25. [http://isg.urv.es/publicity/isg/publications/trp\\_2\\_2009/chapters/gambier.pdf](http://isg.urv.es/publicity/isg/publications/trp_2_2009/chapters/gambier.pdf). Visited July 2014.
- Gambier, Yves. 2008. "Recent developments and challenges in audiovisual translation research". In Delia Chiaro, Christine Heiss and Chiara Bucaria (eds) *Between Text and Image: Updating Research in Screen Translation*. Amsterdam and Philadelphia: John Benjamins: 11-33.

- Gambier, Yves. 2013. "Position of Audiovisual Translation Studies". In Carmen Millan-Varela and Francesca Bartrina (eds) *The Routledge Handbook of Translation Studies*: London: Routledge: 45-59.
- Jensema, Carl, et al. 2000. "Eye movements patterns of captioned television viewers". *American Annals of the Deaf*, 145(3): 275-285.  
<http://www.dcmp.org/caai/nadh130.pdf>. Visited October 2012.
- Kovačič, Irena. 1995. "Reception of subtitles. The non-existent ideal viewer". *Translatio (Nouvelles de la FIT/FIT Newsletter)*14 (3-4): 376-383.
- Neves, Joselia. 2008. "Training in subtitling for the d/Deaf and the hard-of-hearing". In Jorge Díaz-Cintas (ed) *The Didactics of Audiovisual Translation*. Amsterdam and Philadelphia: John Benjamins: 171-189.
- Morales-López, Esperanza. 2010. "Características generales del bilingüismo inter-modal (lengua de signos/ lengua oral)". In Joan Martí i Castells and Josep Mestres i Serra (eds) *Les llengües de signes com a llengües minoritàries: perspectives lingüístiques, socials i polítiques*. Barcelona: Institut d'Estudis Catalans: 175-188.
- Orero, Pilar. 2005. "La inclusión de la accesibilidad en comunicación audiovisual dentro de los estudios de traducción audiovisual". *Quaderns de Traducció* 12: 173-185.
- Perego, Elisa. 2012. *Eye-tracking in audiovisual translation*. Roma: Aracne Editrice.
- Romero-Fresco, Pablo. 2011. *Subtitling through Speech Recognition: Respeaking*. Manchester: St. Jerome.
- Romero-Fresco, Pablo. Forthcoming. *The Reception of SDH in Europe*. Berlin: Peter Lang.
- d'Ydewalle, Géry, and Wim de Bruycker. 2007. "Eye movements of children and adults while reading television subtitles". *European Psychologist* 12(3): 196-205.