

Where is the audience? Testing the audience reception of non-professional subtitling

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This paper presents the results of a pilot study exploring the reception of non-professional subtitling. Nine participants were shown three video excerpts with commercially available professional subtitles and two different versions of non-professional subtitles. To examine participants' reception, eye-tracking was used to collect gaze data, while questionnaires and interviews were used to assess comprehension and translation difficulty. The results indicate that the reception of the product depends on the participants' level of English. Additionally, the participants demonstrated a greater degree of comprehension with professional subtitling, but their level of satisfaction with the content and the translation does not vary significantly. The methodology to explore the reception of subtitled material is supported by the results of the pilot study.

Keywords: non-professional subtitling, reception, audience, viewer behavior

Introduction

The participatory culture enlarged by Web 2.0 has allowed a greater number of people to take part, as active and as passive users, in online consumption and production activities. At the same time, in the globally connected world, media producers serve international audiences, rather than geographically or politically divided target markets. The distribution of audiovisual content over the Internet illustrates this situation. In 2013 the most frequently downloaded TV series episode via BitTorrent was the season finale of *Game of Thrones*, with 5.9 million downloads¹, exceeding the 5.5 million traditional television users in the United States – this number does not include the number of online streaming users. Further, half the episode downloads occurred during the first

week after the release, reflecting the audience's unwillingness to put up with extended delays in international releases.

Under these circumstances, subtitling is an essential requirement for international audiences since not everybody can consume the content in its original language. Given the user-friendly software that is freely available now to produce subtitles, and the way audiences develop emotional attachment to audiovisual content, non-professional subtitling has become an option for a significant number of users. The expansion and longevity of non-professional subtitling communities further indicate the importance of this phenomenon.

In this project, I explore the reception of professional and non-professional subtitles. Adopting the user's perspective, my aim is to test whether there is a difference between the reception of professionally and non-professionally subtitled audiovisual products, depending on the listening-comprehension proficiency of young viewers. I assume users with different levels of listening-comprehension skills will engage differently with the subtitled products, especially when the original language of the product is not entirely foreign to them.

Categories of non-professional subtitling

Non-professional subtitling is a heterogeneous phenomenon that can be divided into different categories depending on the focus of interest.

From the perspective of the translation initiator, the focus could be on crowdsourcing and user-initiated translation (Fernández Costales 2012). In crowdsourcing, a company traditionally decides what material needs to be translated and asks users to translate the content, according to a set of requirements defined by the company. User-initiated translations, on the contrary, are produced by independent volunteer communities where members are in charge of the entire process. The TED Open Translation Project² is the quintessential example of crowdsourcing, while Addic7ed³ and OpenSubtitles⁴ are characteristic examples of user-initiated translations.

When the format is considered, two different types of subtitles can be distinguished: pro-am (professional-amateur) subtitling (Leadbeater and Miller 2004) and innovative subtitling. Pro-am subtitles are mainly guided by the principle of producing subtitles that are at a near-professional quality level. The Pro-am communities tend to imitate professional subtitling; they do not embed the subtitles in the video, but rather distribute them as individual subtitle files to be used with specific video versions. Innovative subtitling, on the other hand, explores new possibilities in the subtitles, such as variations in terms of colors and fonts or creative spelling to express emotions. Sometimes it also includes surtitles or glosses to add supplementary information. To be

able to include these new features, subtitles must be embedded directly in the video.

Research on non-professional subtitling

Research on non-professional subtitling has experienced a steady growth in recent years. The influence of translation communities and the emergence of crowdsourcing models in specific translation markets have raised awareness in the Translation Studies community about the non-professional translation phenomenon. The first studies dealing with non-professional subtitling, specifically fansubbing, explored it as part of the fandom phenomenon (Napier 2001, Cubbison 2005), mostly in areas related to Asian Studies. Nornes (1999) makes a claim for updating the mainstream approach to film translation. He argues that *abusive subtitling* may open up a range of new possibilities for subtitlers to experiment with language and formatting (by using textual and graphic abuse), which could lead the viewer to the original. From his perspective, abusive subtitling is an emerging subtitling practice guided by instinct and experimentation, rather than by “the inertia of convention” (Nornes 1999: 18).

Since 2000, the study of non-professional translation has taken root in Translation Studies proper. The phenomenon has been approached from different perspectives: Some researchers have described the working mechanisms of the communities and groups (Díaz-Cintas and Muñoz 2006, Pérez-González 2007, 2012) while others have compared non-professional and professional translations (Bogucki 2009, La Forgia and Tonin 2009). Aspects related to the ethics and legality of these practices have also been explored (Leonard 2005). Considering its possibilities for translator training, O’Hagan (2008) calls for exploration of the usefulness of non-professional translation environments in professional training settings. O’Hagan (2011) has edited a volume of *Linguistica Antverpiensia on Community Translation*, providing a general view of the phenomenon.

Even though non-professional subtitling initiatives are evidently a result of viewer empowerment and the decentralization of media flows, Translation Studies research on non-professional subtitling still lacks studies on users’ actual reception and evaluation of these products. Caffrey (2009) studies the cognitive effort necessary to watch Japanese anime subtitled in English, both with and without additional pop-up glosses. The results suggest that increased processing effort is required when a pop-up gloss is on screen, which results in less processing time allocated to the subtitle and a greater number of skipped subtitles. The study found that participants had a better understanding of culturally marked items when they watched the videos with pop-up glosses, although they also reported the speed of the subtitles to be too fast. Künzli and Ehrensberger-Dow (2011) study audience response to surtitles by comparing

the reception of translated material that includes surtitles explaining specific cultural references in the video. They conclude that the material using surtitles produces a higher cognitive load, but “participants’ performance in terms of retention of various verbal and visual elements in the movie excerpts was identical in the two conditions” (2011: 197). The authors point out that using surtitles for an entire film could yield other results, such as fatigue and/or reduced reception capacity. However, Ramos Pinto (2013) found some of the viewers consciously decided whether or not to follow the surtitles and thus achieved greater surtitle processing efficiency. Künzli and Ehrensberger-Dow also stress that the acceptance of innovative subtitling might be related to the age and literacy level of the users. In a pilot study with four participants, Secară discusses the use of *txt lingo* (the creative spelling used in chats, SMS and electronic communication) in subtitling for specific environments such as short online videos. The participants reported no problems reading the subtitles and relating to the viewing experience. Eye-tracking data also indicate that the use of such creative spelling would allow viewers to spend more time on the image. Secară also notes that this type of subtitling might be suitable for a certain age group and a specific type of video. Although Caffrey (2009), Künzli and Ehrensberger-Dow (2011), and Secară (2011) have explored some of the common features in non-professional subtitling, they all report on characteristics found in material prepared by the researchers. These studies do not analyze authentic subtitles produced by fans.

Methodology

The present study is on the *reception* of non-professional subtitling. Although Kovačić pointed out in 1995 the need for reception studies in audiovisual translation already in 1995, this area still lacks attention from translation scholars (Gambier 2008). Adopting an empirical approach, this study aims to answer the question: Does the audience’s reception indicate any difference between professional and non-professional subtitles?

The experiment uses eye-tracking, questionnaires, and interviews to collect data on participants’ response when they engage with professional and non-professional subtitling. The participants are grouped according to their listening-comprehension skills in English. I assume these different levels of proficiency will be reflected on behavioral differences in terms of the respective time spent on the subtitle and on the image. Eye-tracking has been used in audiovisual translation since the 1980s (d’Ydewalle et al. 1987) to monitor, collect, and report gaze information from the viewers in terms of fixations, saccades, and attention shifts between the subtitle area and the image area. The data from the eye-tracker are complemented with information from questionnaires and interviews regarding participants’ audiovisual habits, their understanding of the content and their attitude towards subtitling.

The data collection for the study was divided into three different stages.

Pre-experiment questionnaire

This stage involved a pre-experiment questionnaire on the participants' background, media-consumption habits, linguistic knowledge and a listening-comprehension test to select a subset of participants. A proficiency test was developed and used to gather information on the participants' listening-comprehension skills.

Since standardized tests are designed to assess a wide range of skills, I had to develop a special proficiency test to categorize the participants according to their listening-comprehension skills alone. Considering that, from a linguistic point of view, understanding a TV series requires mostly listening skills, I designed a listening-comprehension test using an excerpt from the TV series used for the experiment. As Thomas (1994: 322) explains, this type of test "has the advantages that if all participants are tested uniformly, proficiency within the sample may at least have internal consistency and that subgroups may be compared with respect to proficiency on some rational basis."

Students were asked to watch a 103-second excerpt from the TV series *The Big Bang Theory*, in English and without subtitles, and answer seven questions. Based on the number of correct answers, they were classified into three groups: low (0-2 correct answers), mid (3-4 correct answers) and high (5-7 correct answers). One of the main objectives of the pilot experiment was to validate the appropriateness of this test as a tool to categorize the participants.

Eye-tracking session

The eye-tracking session and the interview combined lasted between 40 and 60 minutes per subject. During the eye-tracking session, the participants watched the clip and answered the comprehension questions. The study included three different types of subtitles: one professional version and two non-professional versions. Tobii Studio 3.2.1 was used to create the video excerpts and on-screen questions, collect gaze data and to record the participants' verbal responses. At the beginning of the eye-tracking session, the participants were asked about their active and passive use of English. After that, they read a synopsis of the TV series and watched the clips. The sequence in which the subtitles were presented was randomized so that the subtitles were presented in all possible positions (initial, medial and final). The randomization design included six sequences. As indicated in Table 1, the sequences of presentation of the three types of subtitles (PRO = professional version, NP1 = non-professional version 1 and NP2 = non-professional version 2) were actually semi-randomized because the order of presentation of

the clips was not altered. The reason for this was twofold: 1) rotating the clips would add complexity to the experiment design and would require more participants, since there would be 54 possibilities; and 2) the selected videos were assessed for comparability so that their individual differences would not affect the analyses.

After each clip, the participants answered 16 questions on their comprehension of the clip, in terms of both their subjective opinion on different aspects of the clip and recall testing. All questions were presented on the same computer screen and participants answered them orally. The first question asked if they had seen the episode before (to see if this variable affects the results), and then they were asked to explain what happened in the video. The next six questions assessed their reception in terms of three different types of information: narrative, verbal and iconic (cf. Hickethier 2007, quoted by Künzli and Ehrensberger-Dow 2011). Three additional questions asked the participants to rate (on a 6-point scale) the content of the dialogue, their enjoyment, and their difficulty following the translation. They were also asked to give reasons for their ratings.

Table 1: Presentation sequence used

Order	Clip 1	Clip 2	Clip 3
Test 1	NP1	NP2	PRO
Test 2	PRO	NP1	NP2
Test 3	NP2	PRO	NP1
Test 4	NP1	PRO	NP2
Test 5	PRO	NP2	NP1
Test 6	NP2	NP1	PRO

Interview

To conclude the experiment, I interviewed the participants immediately after the eye-tracking session to learn more about their audiovisual consumption habits. The interview included questions regarding the participants' knowledge and considerations of non-professional subtitling. At the end of the interview, I informed them about the specific purpose of the research. Interviews lasted between 15 and 25 minutes.

Pilot experiment

Participants

The group of participants for this pilot experiment comprised nine second-year undergraduate students of the BA program in English at the Universitat Rovira i Virgili (Spain): 8 women and 1 man, ranging from 20 to 27 years ($M = 23.1$, $SD = 3.0$). I contacted students by e-mail and 15 of them volunteered

to participate in the experiment. According to the number of correct answers to the questions from the pre-experiment questionnaire, five students were placed in the low-level of English group (LLE); six in the mid-level group; and four in the high-level group (HLE). Participants in the mid-level group were not included in the experiment. All of them were Catalan or Spanish native speakers and had normal vision or corrected-to-normal vision (by wearing glasses or contact lenses). The participants were deliberately only told that the research was related to media reception, in order to make sure their attention to the subtitle area was not mediated by their expectations for the experiment. At the end of the experiment, I informed them about the specific purpose of the study.

Apparatus

The participants were seated between 53 and 63 cm away from a 23-inch LED monitor with a 1920x1080 resolution. Eye-movements were recorded using a Tobii X120 eye-tracker. The participants wore headphones during the entire experiment. I calibrated the eye-tracker for each participant before the experiment: participants focused their gaze on a dot that stops at 9 data points in a 3x3 grid displayed on the screen. Lighting was kept relatively constant by closing the blinds and turning on the same lights for all sessions.

Material

Three excerpts, of between 3:08 and 3:55 minutes long, were selected from the second season of the popular sitcom *The Big Bang Theory* (CBS 2007–). The show focuses on five characters: Leonard, an experimental physicist; his flat mate, Sheldon, a theoretical physicist; their two equally geeky and socially awkward scientist friends, Howard and Raj, and their neighbor, Penny, an aspiring actress. The show builds its comedy around the contrast between the geek characters' intellect and lack of social skills and Penny's outgoing personality and low education level. Since it was first released in the United States in 2007, the show has proved to be an international success and has maintained large audience ratings.

Three different sets of subtitles were included in the study: one professional version and two non-professional versions. The professional version (PRO) was taken from the DVD distributed in Spain. The two non-professional versions were taken from two online communities: aRGENTeam (NP1) and TusSeries.com (NP2). These two communities were selected because they were both active in 2008 (when the episodes were broadcasted in the United States), and their records indicated that the subtitles were produced internally. Additionally, both communities follow pro-am guidelines and distribute the subtitles in the form of .srt files instead of embedding them in the video file itself. Since the frame rates of the video versions are different, I

decided to use two different versions of the video instead of altering the time codes. I prepared three versions of each clip using DVD Decrypter 3.5.4.0, FairUse Wizard 3D R2 and Total Video Converter 3.71.

Procedure

Prior to the experiment, I wrote a protocol for the eye-tracking and interview session. The experiment took place in the *Aula d'Anàlisi de la Parla* at the Universitat Rovira i Virgili, during two weeks in December 2012. I arranged individual appointments with the participants. They selected a suitable time and date for the session and came to the laboratory individually. Upon arrival, I verbally informed them regarding their participation in the study and their rights, and they signed the appropriate consent form.

Table 2: Sequence randomization for the pilot experiment

Participant	English Level	Sequence	Clip1	Clip2	Clip3
P1	Low	1	NP1	NP2	PRO
P2	High	2	PRO	NP1	NP2
P3	Low	3	NP2	PRO	NP1
P4	Low	1	NP1	NP2	PRO
P5	High	5	PRO	NP2	NP1
P6	High	5	PRO	NP2	NP1
P7	Low	2	PRO	NP1	NP2
P8	Low	4	NP1	PRO	NP2
P9	High	6	NP2	NP1	PRO

Regardless of the low number of participants in each group, all six possible sequences were tested in order to identify any possible problem in the order of presentation. I seated the participants in front of the monitor one by one, and calibrated the eye-tracker to their eyes. Once the calibration process was successfully completed, I started the video playback. I assigned a sequence to each participant and showed them the three excerpts, alternating the three conditions, as shown in Table 2. After each clip, they orally answered the on-screen questions and recorded their answers with a microphone. Immediately after this session, they took part in the interview.

Results

Only the results from eight participants are included here. In accordance with Caffrey (2009), the gaze data threshold was set at 85%. Participant 1 was excluded from the analysis because the gaze data collected did not meet the threshold.

Eye-tracking data

Taking into consideration that initial testing showed the presentation order of the subtitles for this sample is not a relevant variable for mean fixation ($F(5,18)=325.46$ $p=0.545$), the following results will present some statistical analyses regardless of the low number of participants included in this pilot experiment. Two areas of interest (AOIs) were defined for the analyses: a rectangle surrounding the subtitles (subtitle area) at the bottom of the screen and the rest of the screen for the image area.

Fixation length

The mean fixation length for each participant, for each condition, was calculated by dividing the sum of the length of the fixations by the number of fixations (Table 3). No significant difference was found between the mean lengths of the fixations on the subtitle area among the participants based on their level of English ($F(1,18)=0.013$ $p=0.909$), nor the type of subtitle ($F(2,18)=0.867$ $p=0.437$). The same occurred with the fixations on the image area and the level of English ($F(1,18)=0.394$ $p=0.538$), and the type of subtitle ($F(2,18)=0.011$ $p=0.989$).

Table 3: Means for fixation length (in milliseconds) and number of fixations by AOIs (Subtitle and Image), Group and subtitle condition (PRO, NP1 and NP2)

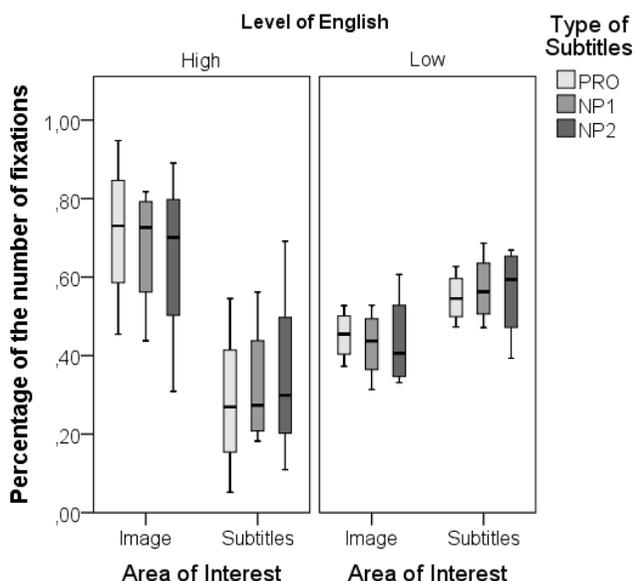
	Fixation length (ms) Subtitle area		Fixation length (ms) Image area	
	Mean	SD	Mean	SD
<i>Low Level of English Group (LLE)</i>				
PRO	200.97	15.84	352.86	63.60
NP1	223.87	10.92	369.94	55.02
NP2	202.32	19.46	342.31	21.77
<i>High Level of English Group (HLE)</i>				
PRO	202.36	26.50	383.74	135.45
NP1	208.79	33.33	371.97	118.04
NP2	212.83	21.21	385.31	136.73

Number of fixations

As shown in Figure 1, in the LLE group, 44% of all fixations are on the image, while this number rises to 68% in the HLE group. Thus, there is a significant difference ($F(1,18)=13.39$ $p<0.01$) in the percentages of the fixations allocated to the image depending on the level of English, but this percentage did not differ significantly between the subtitle conditions ($F(2,18)=0.137$ $p=0.873$). A similar correlation with language level was found for the *percentage* of time allocated to the subtitle area ($F(1,18)=13.39$ $p<0.01$). A paired t-test showed there is a significant difference between the

amount of fixations allocated to each area by the two groups, HLE ($t(11)=3.31$ $p<0.01$) and LLE ($t(11)=-2.39$ $p<0.05$).

Figure 1: Percentage of fixations on areas of (image and subtitle) by group (HLE and LLE) and type of subtitle (PRO, NP1 and NP2)

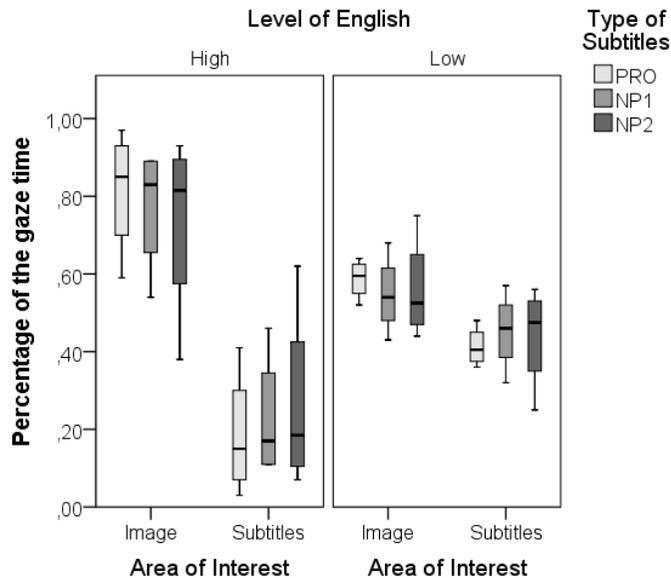


Percentage of gaze time

The proportion of gaze time spent on each area of interest (Figure 2) shows that both HLE and LLE fixated more on the image (77% and 56% respectively) than on the subtitle area (23% and 43%). As with the percentage of the number of fixations, there is a significant difference in the proportion of gaze time on the image ($F(1,18)=10.83$ $p<0.01$) and the subtitle area ($F(1,18)=10.83$ $p<0.01$) by level of English, but the type of subtitle does not have a statistically significant effect. Within-group analyses also confirmed significant differences in the percentage of gaze time in each area for each group, HLE ($t(11)=5.26$ $p<0.0001$) and LLE ($t(11)=2.43$ $p<0.05$).

A visual inspection of Figures 1 and 2, and the standard deviations of mean fixations (Table 3), indicate that the data from HLE subjects have greater dispersion than those from LLE subjects, which is consistent with the different levels of proficiency. LLE participants rely mostly on the subtitles, while HLE participants might make a conscious decision about reading the subtitles or not. When comparing the percentage of fixations to the percentage of gaze time on the image and on the subtitle area, on average, participants in the LLE group have more fixations on the subtitle area than on the image, but their fixations are longer on the image than on the subtitles.

Figure 2: Percentage of gaze time on areas of interest (image and subtitle) by group (HLE and LLE) and type of subtitles (PRO, NP1 and NP2).



Comprehension questionnaire

Table 4 presents the percentage of correct answers by the participants under the three conditions. As can be seen in the means, the PRO condition ranks higher than NP1 and NP2 in both groups, with 76.7% correct answers in the LLE group and 83.3% in the HLE group. Analysis of the answers shows differences in the scores for the Verbal Attention questions, where the PRO subtitles correlate with better results than the other two versions: 70% for PRO condition and 40% and 50% for NP1 and NP2 among the LLE participants, and 87.5% for the PRO condition and 62.5% for both NP1 and NP2 in the HLE group.

Table 4: Percentage of correct questions by type of question and condition

	Verbal Attention	Iconic Attention	Narrative Attention	Mean (cued recall)	Gist Comprehension (free recall)
<i>Low Level of English Group</i>					
PRO	70.0	80.0	80.0	76.7 (<i>SD</i> = 5.7)	100
NP1	40.0	80.0	80.0	66.7 (<i>SD</i> = 23.1)	100
NP2	50.0	90.0	70.0	70.0 (<i>SD</i> = 20.0)	60
<i>High Level of English Group</i>					
PRO	87.5	87.5	75.0	83.3 (<i>SD</i> = 7.2)	75.0
NP1	62.5	87.5	75.0	75.0 (<i>SD</i> = 12.5)	100
NP2	62.5	62.5	62.5	62.5 (<i>SD</i> = 0.0)	75

In the Narrative Attention and Iconic Attention questions, the PRO and NP1 subtitles yield the same results in both groups.

As can be seen in Table 5, the means self-reported comprehension ratings were positive and very similar: 4.0 for PRO and 3.8 for NP1 and NP2 in the LLE group and 4.2 for NP1 and 4 for both, PRO and NP2 in the HLE group, on a scale from 0=none to 5=very high. These do not reflect the differences found in the analyses of the comprehension questions.

Ratings on the difficulty to follow the subtitles were also highly positive, with the only rating below 4 being 3.5 (where 0=very difficult and 5=very easy) for the NP1 in the HLE group. This difference is unexpected since participants in the HLE group were less dependent on the subtitles, but as can be seen in Figures 1 and 2, some participants in the HLE group did use the subtitles.

Table 5: Self-reported comprehension and translation difficulty by type of subtitle

	PRO	NP1	NP2
<i>Self-reported comprehension*</i>			
LLE	4.0 (<i>SD</i> = 0.7)	3.8 (<i>SD</i> = 0.4)	3.8 (<i>SD</i> = 0.4)
HLE	4.0 (<i>SD</i> = 0.8)	4.2 (<i>SD</i> = 0.5)	4.0 (<i>SD</i> = 0.8)
<i>Translation difficulty**</i>			
LLE	4.2 (<i>SD</i> = 0.8)	4.6 (<i>SD</i> = 0.5)	4.0 (<i>SD</i> = 0.7)
HLE	4.2 (<i>SD</i> = 0.5)	3.5 (<i>SD</i> = 0.6)	4.2 (<i>SD</i> = 0.5)

* 0 = none and 5= very high

** 0 = very difficult and 5= very easy

Discussion

The eye-tracking data show a significant difference in the behavior of participants with different levels of English, with the participants in the LLE group spending around 56% of the time in the image area and participants in the HLE group spending around 77% in the image area. This difference coincides with comments made by the participants during the interviews, when some mentioned they normally use subtitles as an aid rather than as their main source of information. This also corroborates the initial assumption that participants engage differently with the content depending on their language skills. The participants displayed similar gaze behavior under all three subtitle conditions, which is consistent with the participants' failure to notice differences between the subtitles during the interviews.

The results from the comprehension questions and the self-reported comprehension suggest different attitudes. Most of the participants mentioned in the interviews that, beyond this experiment, they had noticed low quality in non-professional subtitling available online, which relates to the general assumption of low quality in amateur translations. Nevertheless, when they

were asked to assess the difficulty of following the different subtitle versions included in this experiment, the ratings for all conditions were highly similar. Additionally, when asked if they noticed any difference between the subtitles, they only mentioned subtitle speed and appearance on the screen as relevant factors. All the participants said they had good comprehension of the material, and the general comprehension ratings were high for most of the conditions, but in fact, their answers to the questionnaire showed different levels of comprehension, probably depending on the type of translation (Table 4). This result might suggest participants' expectations do not necessarily correspond to a need to understand the content entirely.

The results from the comprehension questionnaire show that the Verbal Attention scores have an impact on the overall result. This may be a consequence of the sample size being small. The analysis of the data suggests the proposed methodology is suitable for studying the reception of professional and non-professional subtitling. Based on this experience, the methodology will be fine-tuned and the experiment will be reproduced with a larger sample in order to offer a better account of the reception of non-professional subtitling.

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Notes

¹ <http://torrentfreak.com/game-of-thrones-most-pirated-tv-show-of-2013-131225/>

² <http://www.ted.com/OpenTranslationProject>

³ <http://www.addic7ed.com/>

⁴ <http://www.opensubtitles.org/>

