Original Language Subtitles: Their Effects on the Native and Foreign Viewer

Subtítulos en lengua original: sus efectos en el espectador nativo y extranjero

Dr. Jan-Louis Kruger is Associate Professor at the Department of Linguistics at the Macquarie University in Sydney (Australia) (JanLouis.Kruger@mq.edu.au) (http://orcid.org/0000-0002-4817-5390)

Dr. Stephen Doherty is Senior Lecturer in the School of Humanities & Languages at the University of New South Wales in Sydney (Australia) (s.doherty@unsw.edu.au) (http://orcid.org/0000-0003-0887-1049)

Dr. María-T. Soto-Sanfiel is Associate Professor at the Audiovisual Communication and Advertising Department at the Autonomous University of Barcelona (Spain) (MariaTeresa.Soto@uab.es) (http://orcid.org/0000-0002-1364-8821)

ABSTRACT

This study investigates the impact of same-language subtitles on the immersion into audiovisual narratives as a function of the viewer's language (native or foreigner). Students from two universities in Australia and one in Spain were assigned randomly to one of two experimental groups, in which they saw a drama with the original English soundtrack either with same-language English subtitles (n=81) or without subtitles (n=92). The sample included an English native control group, and Mandarin Chinese, Korean, and Spanish groups with English as a foreign language. Participants used post-hoc Likert scales to self-report their presence, transportation to the narrative world, perceived realism, identification with the characters, and enjoyment. The main results showed that subtitles did not significantly reduce these measures of immersion. However, subtitles produced higher transportation, identification with the characters, and perceived realism scores, where the first language of viewers and their viewing habits accounted for most of this variance. Moreover, presence and enjoyment were unaffected by either condition or language. Finally, the main results also revealed that transportation to the narrative world appears to be the most revealing measure of immersion in that it shows the strongest and most consistent correlations, and is a significant predictor of enjoyment.

RESUMEN

En este trabajo se estudia el impacto de los subtítulos en el mismo idioma de la narrativa audiovisual según el idioma del receptor (nativo o extranjero). Estudiantes de dos universidades australianas y una española fueron asignados al azar a uno de los dos grupos experimentales en los que se veía un drama con la banda sonora original en inglés con subtítulos en esa misma lengua (n=81) o sin subtítulos (n=92). La muestra incluía un grupo control de hablantes nativos de inglés, además de grupos de hablantes nativos de chino mandarín, coreano y español con inglés como lengua extranjera. Como medidas post-hoc, los participantes reportaron, mediante escalas Likert, su percepción de presencia, transporte, realismo percibido, identificación con los personajes y disfrute. Los resultados muestran que los subtítulos no reducen las medidas de inmersión. Además, que los subtítulos producen mayores puntuaciones de transporte, identificación con los personajes y percepción de realismo, cuya varianza se explica, esencialmente, por la primera lengua de los receptores y sus hábitos de visionado. Asimismo, los resultados señalan que ni a la presencia ni al disfrute les afectan la condición experimental o el idioma del receptor. Finalmente, muestran que el transporte es la medida más reveladora de la inmersión porque produce las correlaciones más fuertes y consistentes, aparte de ser un predictor significativo del disfrute de los espectadores.

KEYWORDS | PALABRAS CLAVE

Foreign language, subtitling, reception, enjoyment, immersion, perceived realism, transportation, identification with characters.
Lengua extranjera, subtitulación, recepción, disfrute, inmersión, realismo percibido, transporte, identificación con personajes.

1. Introduction and state of the art

When we watch a film or television (particularly, but not exclusively, fiction) our attention is captured to such an extent that our awareness of our immediate surroundings sometimes becomes diminished or suppressed. We watch television or film because we want to be, or cannot help becoming, immersed in the world portrayed to us on the screen before us. This process of immersion is of course not limited to audiovisual text like film, but also occurs in the context of written narrative fiction. Audiences could therefore be said to select media to satisfy certain needs, such as the desire to escape from reality, to be transported into another reality, and the need to be entertained or to relax (McQuail, Blumler, & Brown, 1972). Similarly, for an audience to enjoy television and film, they need to be immersed into or engaged with the fictional reality created by the film (Bilandzic & Busselle, 2011; Vorderer, Klimmt, & Ritterfeld, 2014; Sasamoto & Doherty, 2015).

When we add subtitles as an additional textual element at the bottom of the screen, audiences often feel that the aesthetics of the film are marred by the subtitles, that the image is smudged. In addition to providing access to audiovisual texts to audiences excluded either from the language of the dialogue or from the soundtrack, subtitling has long been hailed as an important tool in language learning, language proficiency, and comprehension. Many studies have already confirmed the benefits of subtitles, particularly in language learning (Danan, 2004; Diao & al., 2007; Garza, 1991; Vanderplank, 1988, 1990; Winke & al., 2013). In the context of fiction film, it has likewise been established that, in spite of anecdotal complaints about the fact that subtitles somehow smudge the image, audiences process subtitles very effectively (d'Ydewalle, Praet, Verfaille, & Van Rensbergen, 1991; Perego, Del-Missier, Porta, & Mosconi, 2010; Perego, Del-Missier, & Bottiroli, 2014).

At a general level, immersion relates to the degree to which a viewer becomes absorbed in a fictional reality. In Media Psychology, the term is used in the same context as transportation and character identification (Green & al., 2004; Tal-Or & Cohen, 2010) but also with concepts such as presence, flow and enjoyment (Wissmath, Weibel, & Groner, 2009), or perceived realism (Cho & al., 2014). Immersion, as well as the related term of engagement, is also viewed as a product of transportation into fictional worlds, character identification, presence, and perceived realism (Bilandzic & Busselle, 2011; Soto-Sanfiel, 2015).

This immersion in film is a relatively sensitive cognitive state. It could, for example, be influenced by factors external to the film, like the physical context of viewing (at home or in a cinema or while traveling) or the social context (alone, with family, with friends or with strangers). What we are interested in here in the first instance, is whether the textual element of subtitles (which is technically external to the film, yet represents the dialogue), will have an impact on immersion. In the second instance, we are interested in the impact of language (that of the viewer, that of the film and that of the subtitles) on immersion.

At an intuitive level it is reasonable to expect that the audience's immersion in film will not be unaffected by the addition of subtitles for the simple reason that visual attention is divided. In other words, unlike the viewer who watches the unsubtitled film, the viewer who watches the subtitled film has to divide visual attention between the image and the words at the bottom of the screen. When viewers do not have access to the audio, or do not understand the language of the dialogue, they are dependent on the subtitles to understand the film, so there is an obvious trade-off. However, when viewers do have access to the audio and understand the language of the dialogue, the subtitles become a redundant source of information. In this case, the viewers may still use the (same language) subtitles to read along with the spoken words, particularly if the latter are not in their first language. The viewer may of course ignore the subtitles, but this is not likely as it has been established empirically that viewers read subtitles automatically regardless of whether they understand the language of the audio (d'Ydewalle & al., 1991). The notion that viewers attend to subtitles automatically is also supported by research on the effect of abrupt onset on the capturing of attention (Remington, Johnston, & Yantis, 1992).

When reading subtitles, viewers therefore have to process an additional visual and verbal source of information that should theoretically impose an additional cognitive load. In the words of Lee & al. (2013: 414), "subtitled films likely tax the attention and memory systems because there is visual information (the scene), as well as verbal information in the form of written, rather than audio, dialog". In this article, we are interested in determining whether this additional processing results in a decrease in immersion in the story world of the film.

In a previous study (Kruger et al., forthcoming), we reported on the first stage of an experiment designed to determine the impact of subtitles on immersion. The material was one episode of an American medical drama (House MD) with English dialogue and same-language English subtitles. English, Korean and Chinese participants saw the drama either with or without subtitles. This stage was conducted as a pilot to test the validity and reliability

of different scales (presence, transportation, character identification, and perceived realism) to determine the impact of the two conditions (subtitled and unsubtitled). Findings from this pilot show no negative impact on immersion caused by same-language subtitles in the above groups.

In this article, we report on a second stage of the experiment in which we expand the sample size, but in which we also investigate the impact of language on immersion. Using an English control group, we aim to determine whether the first language of the audience has an impact on immersion, or whether there is an interaction between language and condition on the different immersion scales. We are also interested in determining whether the dimensions of presence, transportation, character identification and perceived realism are related and similar to Wissmath & al. (2009) and Soto-Sanfiel (2015), and how these dimensions are related to enjoyment.

1.1. Subtitling and immersion

Subtitles compete for visual attention, and therefore draw upon finite cognitive attentional resources to process their visual information. Nevertheless, viewers seem to be able to process subtitles efficiently (d'Ydewalle & al., 1991; Perego & al., 2010; Perego & al., 2014). In their study, Lee & al. (2013) investigate the impact of subtitles on local and global coherence, finding lower global coherence, but higher local coherence in the presence of subtitles. Essentially this means that participants who watched a film in their first language could make more inferences to assist in global coherence which made it possible to comprehend the narrative as a whole and keep track of events and characters. However, participants who watched the

> English subtitles resulted in increased immersion. This was the case particularly in the key dimensions of identification and transportation, which dispels concerns about subtitles distracting the audience. In this context, subtitles seem to focus attention, making it possible for the audience to confirm complicated auditory dialogue visually.

same film in a foreign language with standard subtitles in their first language, could make fewer such inferences, but could make more inferences at the local level allowing them to have a better sense of the local coherence of scenes, but at the expense of global coherence. They conclude that viewers who have to switch between reading the written dialogue in the subtitles and the scene have a decreased ability to make global inferences due to the fact that their cognitive resources (including attention, working, long-term, and long-term working memories) are taxed more than in the unsubtitled condition. However this may suggest that there would be a knock-on effect on immersion, with immersion also being affected negatively by the subtitled condition. Building upon this, the context of our study is same language subtitling, where the audience is not reliant on the subtitles for access to the dialogue, but the subtitles merely confirm the dialogue in written form.

In this regard, Lavaur and Bairstow's (2011) investigation of the impact of subtitles on film comprehension in relation to the viewers fluency level is particularly interesting to our study. In their study, they compared the visual processing and dialogue comprehension of French viewers with beginner, intermediate and advanced English proficiency levels when watching a film clip in original English without subtitles, and with English or French subtitles. They found that for beginners, the visual processing decreased from unsubtitled to English subtitles, to French subtitles (i.e. becoming worse the higher their reliance was on the subtitles), whereas the dialogue comprehension had the opposite trend. In other words, for this group, visual data were extremely important for their comprehension. The advanced group had higher visual processing and dialogue comprehension in the unsubtitled version where there was no distraction by subtitles, indicating that subtitles were unnecessary for their comprehension. The advanced group's visual processing and dialogue comprehension were hampered. In the intermediate group, subtitles did not have any impact on either source. Their study did not, however, investigate either immersion or enjoyment, although the interaction between comprehension and immersion and enjoyment is an interesting theoretical question that we will later revisit.

Further to this, Wissmath & al. (2009) established that a subtitled version of a film does not result in less immersion than a dubbed version of the same film when measured by means of self-reported spatial presence, transportation, flow and enjoyment. In that study, it was found that foreign language subtitles (i.e. audio dubbed into the language of the audience with subtitles in a foreign language) did reduce the immersion, presumably as a result of the distraction the incomprehensible subtitles cause. Perego & al. (2014) similarly established that a dubbed version of a film does not hold any cognitive or evaluative advantages over a subtitled version of the film in either young or older adult viewers.

These findings by Wissmath & al. (2009) and Perego & al. (2014) only focus on the difference between subtitled and dubbed versions of a film. In this study, we investigate the impact of the presence or absence of same-language subtitles (original English soundtrack and English subtitles) on psychological immersion and enjoyment. Furthermore, in addition to the two conditions of subtitled and unsubtitled film, we investigate the influence of language on immersion by testing groups of English native speakers and Chinese, Korean and Spanish-Catalan speakers who have English as a foreign language. Unlike the previous studies, in which the audience did not understand the language of either the subtitles or the audio, this study focuses on the impact of the visual interference of subtitles on psychological immersion and enjoyment, rather than the impact of translation-related variables such as equivalence at some level or translation shifts.

> The fact that subtitles resulted in increased identification with characters as well as transportation indicates that subtitles fulfil a focusing effect that, rather than distancing the audience from the fictional reality and the characters, allows them to gain a stronger connection with the story.

1.2. Measuring immersion

Media immersion, or immersion in mediated environments like film, television, fiction, and virtual reality is typically measured through subjective self-report scales on dimensions including presence, transportation, identification and perceived realism. In this study we used the dimensions of presence, transportation, character identification, and perceived realism thus removing the confound of interlingual translation, which is a rich and complex psycholinguistic and sociocultural process.

Originally termed "telepresence" in reference to the feeling that users of technical devices have of being located in physically remote places, presence is used to describe the feeling experienced by media users that that they are spatially located in a mediated environment (Wissmath & al., 2009). As such, it involves the sense of "being there", having departed or faded from the proximal environment and having arrived or self-located in the mediated environment. The perception of presence in a mediated environment can refer to a spatial sense of being located in a fictional reality, or to a social sense of being located in the presence of fictional characters.

According to Wissmath & al. (2009), technological aspects have been overemphasized in presence research, resulting in a shift of emphasis to the inclusion of user characteristics in transportation theory. Transportation denotes that the reader is plunged into the fictional world by suspending real-world facts (Green & Brock, 2000). It can also be defined as "the experience of cognitive, affective and imagery involvement in a narrative" (Green & al., 2004: 11), with the viewer forgetting about their immediate surroundings. Green and Brock's (2000) focus was mainly on testing transportation in the reading of fiction, although they also extend this to film viewing. In the opinion of Wissmath & al., (2009), transportation overlaps conceptually with the willing suspension of disbelief (i.e. the viewer or reader allowing themselves to suppress the awareness that what they are reading or watching is not real).

Tal-Or and Cohen (2010) adapted the items used by Green and Brock to measure the self-reported transportation of film viewers in particular. They also added items to measure character identification. We use these scales in the current study as measures of transportation and character identification. Character identification is important in that it makes it possible for viewers to experience the fictional reality from the perspective of a character in that

reality. According to Cohen (2001), character identification is a key aspect in the understanding of media entertainment and its effects, particularly due to its influence on narrative enjoyment (Igartua, 2010; Soto-Sanfiel & al., 2010).

The phenomenon of identification relates to the affinity with characters experienced by viewers (Cohen, 2001), making it possible for viewers to put themselves in the shoes of a character. Character identification is measured by means of a number of scales such as that developed by Igartua & Páez (1998) and refined by subsequent works (Igartua, 2010; Soto-Sanfiel & al., 2010). The other scale was proposed by Cohen (2001). All of these works characterize identification as a multidimensional concept formed by a cognitive empathy, an emotional empathy, and the ability to fantasize, imagine or merge.

Both presence and transportation concern the degree to which an audience becomes less aware of its immediate surroundings. Another dimension that is relevant to media immersion is the extent to which the audience believes the mediated environment or film is realistic. This has been termed "perceived realism" (Cho & al., 2014) and establishes the impact of a narrative in relation to persuasion, looking at dimensions of audience involvement. Cho & al. (2014) identify five sub-dimensions of perceived realism, namely:

1) Plausibility (could the presented behavior and events occur in the real world?).

2) Typicality (are narrative portrayals within the parameters of the audience's past and present experiences?).

3) Factuality (does the narrative seem to portray a specific individual or event in the real world?).

4) Narrative consistency (are the story and its elements congruent and coherent, without contradictions?).

5) Perceptual quality (do audio, visual and other manufactured elements comprise a convincing and compelling portrayal of reality?).

In using the dimensions of presence, transportation, character identification and the subsets of perceived realism as different but related dimensions of psychological immersion, we believe that we can achieve a nuanced description of the impact of subtitles on the audience's immersion in the fictional world.

1.3. Hypothesis

Based on the review of literature and the study's overarching research questions, we propose the following hypotheses:

• H1. There are significant positive correlations between all of the immersion scales: transportation; character identification; presence; and perceived realism.

• H2. The Subtitled condition does not result in significantly lower scores on any of the immersion scales than the Unsubtitled.

• H3. The English group does not result in significantly higher scores on any of the immersion scales than do the other language groups: Chinese; Korean; and Spanish.

• H4. There are no significant interactions between condition and language on any of the immersion scales.

• H5. A significant predictor of enjoyment can be identified from the immersion scales.

2. Method
2.1. Participants

A convenience, self-selecting sampling method was chosen to gather data for English native speakers and those with English as a foreign language all of whom were university students at the institutions mentioned below. This method was mirrored at each institution to include a variety of languages: two universities in Sydney, Australia (Macquarie University and The University of New South Wales), and one in Barcelona, Spain (Universitat Autònoma de Barcelona). We did not put an initial restriction on language and obtained sufficient numbers to include them all. The total sample contained 173 valid responses, aged between 18 and 49 (M=25.79, SD=5.84) and distributed across 101 females and 74 males. Participants were assigned randomly to the Subtitled or Unsubtitled condition. The Subtitled (n=81) contained: 23 English; 19 Chinese; 13 Korean; and 26 Spanish, and the Unsubtitled (n=92) contained 24 English; 22 Chinese; 13 Korean: and 33 Spanish. Subjects in the Subtitled condition saw the episode in English with English same-language subtitles, and participants in the Unsubtitled saw the episode without any subtitles.

Ethics clearance for research involving human participants was approved at each of the author's institutions. All of them were recruited via anonymous course e-mail lists and printed posters at the author's home institutions. Participation was voluntary and not remunerated in any way. The data collection was performed between January and March of 2015.

2.2. Materials

As stimulus, we used a video from the eighth season of the American investigative medical drama series, House, MD (2011). In order to preserve cohesion and authenticity, we used the full-length fourth episode (Risky Business, 44 minutes). It has fast-paced editing, a high volume of dialogue that contains some specialized terminology, and a strong narrative structure, thus making it an ideal test-bed for subtitles and immersion. Participants watched the episode in groups in a small lecture theatre on a large screen with excellent sound quality and high-definition video quality. The lights were dimmed and participants were asked to refrain from using mobile devices and from interacting with other participants. The experiment took approximately 90 minutes.

After watching the film, participants completed three sets of questionnaires: biographical, language, and immersion. Biographical data were obtained through a biographical questionnaire. The Language Experience and Proficiency Questionnaire (LEAP-Q) proposed by Marian, Blumenfeld, & Kaushanskaya (2007) captured language data. A 44-item immersion questionnaire measured immersion using 7-point Likert scales (see Appendix for questionnaires). For transportation, 10 items were used scaled from "not at all" to "very much" and for character identification 4 items were scaled similarly, both adapted from Tal-Or & Cohen (2010), who, in turn, adapted the transportation scales from Green & Brock (2000). Presence was measured by means of 8 items (adapted from Kim & Biocca, 1997), scaled from "never" to "always". Perceived realism (adapted from Cho & al., 2014) was measured with 21 items scaled from "not at all" to "very much", including subscales: plausibility (5), typicality (3), factuality (3), narrative consistency (5), and perceptual quality (5). A number of items were reverse-scored. Finally, enjoyment was measured with a single item following studies relating presence and transportation with enjoyment (Green & Brock, 2000; Tal-Or & Cohen, 2010; Wissmath & al., 2009).

2.3. Procedure

A 2x4 factorial design was used wherein condition (Subtitled, Unsubtitled) and language (English, Chinese, Korean, Spanish) were tested against each of the individual immersion scales (Transportation, Character identification, Presence, Perceived realism, Enjoyment) using ANCOVAs. In all cases, included covariates were: months spent in an English-speaking country in the last ten years, average TV viewing per day, and subtitle usage in English and other languages.

All continuous variables were tested using Shapiro-Wilk's test and visual inspection to verify normal distribution. Months in an English speaking-country, average TV viewing per day, and both subtitle usage variables were not normally distributed ($p > .05$) and were logarithmically transformed to meet this criterion. Reliability of all scales ranged from acceptable to good: transportation ($\alpha = .69$), character identification ($\alpha = .77$), presence ($\alpha = .71$), and perceived realism ($\alpha = .89$).

3. Results

3.1. Correlational Analysis

Significant positive correlations were found between all scales with insufficient evidence to assume multicollinearity. As each of the immersion scales shows a significant positive correlation with all of the others, H1 is supported. However, some of these correlations are weak, especially between presence and the other scales (table 1).

3.2. Transportation

The scale has a possible range of 10-70 in total. A two-way ANCOVA found no

Table 1. Correlation coefficients for immersion scales (r)					
	Transportation	**Character identification**	**Presence**	**Perceived realism**	**Enjoyment**
Transportation	-	.518**	.454**	.421**	.339**
Character identification	.518**	-	.209**	.457**	.157*
Presence	.454**	.209**	-	.260**	.286**
Perceived realism	.421**	.457**	.260**	-	.177**
Enjoyment	.339*	.157**	.286**	.177**	-

* p < .05, ** p < .01.

significant interaction between condition and language on transportation [$F(3, 160) = .654$, $p = .582$, $\eta p2 = .012$]. A significant main effect was found for condition [$F(1, 160) = 8.550$, $p = .004$, $\eta p2 = .051$], where the Subtitled condition was higher, but not for language [$F(3, 160) = 2.431$, $p = .065$, $\eta p2 = .044$] as shown in table 2.

3.3. Character identification

The scale has a possible range of 4-28 in total. A two-way ANCOVA found no significant interaction between condition and language on character identification [$F_{(3, 160)}$=.299, p=.826, η_{p2}=.006]. However, main effects for condition [$F_{(1, 160)}$=11.896, p=.001, η_{p2}=.069] and language [$F_{(3, 160)}$=4.065, p=.008, η_{p2}=.071] were both found to be significant, where the Subtitled condition was higher

Table 2. Character identification and Transportation by condition and language											
	Character identification						Transportation					
Language	Subtitled		Unsubtitled		Total		Subtitled		Unsubtitled		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
English	19.52	2.54	17.42	3.11	18.45	3.01	42.65	4.03	41.50	5.19	42.06	4.65
Chinese	16.79	4.06	14.32	2.66	15.46	3.56	40.63	5.62	35.73	5.09	38.00	5.83
Korean	14.46	2.37	14.50	2.02	14.48	2.16	36.69	5.04	33.75	5.29	35.28	5.27
Spanish	14.96	4.33	12.69	4.02	13.69	4.28	37.88	5.14	35.39	9.52	36.49	7.94
Total	16.60	4.03	14.57	3.72	15.53	3.99	39.69	5.37	36.87	7.53	38.19	6.74

(table 2). For language, a post-hoc Tukey test with Bonferroni adjustments for multiple comparisons shows the English group's character identification was significantly higher than the Korean (p=.008), and Spanish (p=.013).

3.4. Presence

The scale has a possible range of 8-56 in total. A two-way ANCOVA found no significant interaction between condition and language on presence [$F_{(3, 160)}$=1.532, p=.208, η_{p2}=.028] (table 3). This was also the case for main effects of condition [$F_{(1, 160)}$=1.330, p=250, η_{p2}=.008] and language [$F_{(3, 160)}$=2.699, p=.051, η_{p2}=.048].

3.5. Perceived realism

The scale has a possible range of 21-147 in total. A two-way ANCOVA found a significant interaction between condition and language on perceived realism [$F_{(3, 160)}$=3.782, p=.012, η_{p2}=.066], where the Subtitled condition scored higher (table 3). Significant main effects were also found for average TV viewing per day [$F_{(1,160)}$=4.003, p=.047, η_{p2}=.024] and subtitle usage in other languages [$F_{(1, 160)}$=6.361, p=.013, η_{p2}=.038]. For language, a post-hoc Tukey test with Bonferroni adjustments for multiple comparisons shows significance with: English greater than Chinese (p=.009), Korean (p<.001), and Spanish (p<.001), as well as Chinese greater than Korean (p=.007), and Spanish (p=.02).

3.6. Enjoyment

The scale ranges from 1-7 in total as it is just one item. A two-way ANCOVA found no significant interaction between condition and language on perceived realism [$F_{(3, 160)}$=.654, p=.582, η_{p2}=.012 (table 3]. Main effects for condition [$F_{(1, 160)}$=2.086, p=.151, η_{p2} =.013] and language were also not significant [$F_{(3, 160)}$=2.214, p=.458, η_{p2}=.016].

In conclusion, we find sufficient evidence to show that the Subtitled condition does not result in lower levels of immersion, thus supporting Hypothesis II. Contrary to expectation, the Subtitled condition results in higher levels of transportation and character identification. We also find differences in immersion between language groups which reject Hypothesis III in that the English group reported significantly higher levels of character identification and perceived realism than the other languages. We note however that transportation, presence, and enjoyment were similar for all language groups. Lastly, we also reject Hypothesis IV given that that the English and Chinese groups reported significantly higher levels of perceived realism while all other immersion scales were similar.

3.7. Predicting enjoyment

Finally, a multiple regression analysis using the Enter method was run in order to identify significant predictors of enjoyment taking into account the previously identified

Table 3. Enjoyment by condition and language						
	Subtitled		Unsubtitled		Total	
Language	Mean	SD	Mean	SD	Mean	SD
English	6.43	0.58	5.90	0.99	6.27	0.76
Chinese	5.52	1.12	5.11	1.38	5.25	1.38
Korean	4.53	1.61	4.07	1.11	4.30	1.37
Spanish	4.80	1.81	4.84	1.76	4.83	1.77
Total	5.39	1.53	4.95	1.52	5.16	1.53

covariates of: months in an English-speaking country, average TV viewing per day, and subtitle usage in English and other languages. There was independence of residuals, as assessed by a Durbin-Watson value of 1.623. Assumptions of linearity, homoscedasticity, and normality were met, and no evidence of multicollinearity, high leverage or influence points was identified.

The model [$F_{(8, 163)}=4.772$, $p<.000$, adj. $R^2=.15$] found transportation to be the only significant predictor of enjoyment (table 4), accounting for a greater amount of the variance in enjoyment than any of the other scales of immersion. As the multiple regression analysis identified only transportation as being a significant predictor of enjoyment, this provides sufficient evidence to support Hypothesis V, but raises questions about the relationship between enjoyment and the other measures of immersion.

Table 4. Summary of multiple regression analysis			
Immersion variable	B	SE$_B$	β
Intercept	-.870	1.086	
Transportation	.065	.022	.278*
Character identification	.015	.037	.037
Presence	.037	.020	.147
Perceived realism	.016	.010	.155
Note. * p<.05, B=unstandardized regression coefficient; SE$_B$=standard error of the coefficient; β=standardized coefficient.			

4. Discussion and conclusions

This study contributes to the understanding of the role that subtitles play in the processes related to psychological immersion in film narratives. In particular, this study adds information about the relationship between the language of the subtitles and the receiver in predicting immersion and enjoyment, which had not been observed before.

Our results show that the subtitled condition did not result in significantly lower immersion on any of the scales either for the group as a whole or for any of the languages. This provides evidence for the argument that subtitles do not act as a distraction to viewers, even when in the same language. Adding subtitles therefore does not make it more difficult for the audience to become immersed in fictional reality. Viewers could be said to process subtitles as part of the story world as dialogue in a way similar to the processing of the auditory dialogue rather than as an extra-diegetic element.

On examination of the immersion scales, it is interesting to note that subtitles resulted in significantly higher transportation, character identification and perceived realism. This provides evidence that subtitles facilitate the audience's ability to feel involved in the story world and to put themselves in the position of characters.

We were also interested in the role of the language of the audience in the impact of subtitles on immersion. We found no interaction between condition and language on the scales of transportation, character identification or presence, although in the case of character identification, the English group did perceive a significantly higher degree of identification than the Korean and Spanish groups. This difference will have to be investigated further with the aid of language history data. There was, however, a significant interaction between language and condition in the perceived realism scale.

We were further interested in the relation between the different scales in the measurement of immersion. Transportation had the highest correlation with all the other scales, which seems to suggest that this set could be of particular value in the measurement of immersion in the context of audiovisual translation. The strongest correlation was found between transportation and character identification.

Although there was no interaction between language and condition in terms of enjoyment, transportation was found to be the only predictor of enjoyment.

All of these findings would seem to suggest that the combination of transportation and character identification provides the most insightful post-hoc measurement of immersion in the context of AVT. Tal-Or & Cohen (2010) defined identification and transportation as two of the major concepts used to describe viewer involvement in entertainment, and establish that they are distinct processes. As such, the fact that subtitles resulted in increased identification with characters as well as transportation indicates that subtitles fulfil a focusing effect that, rather than distancing the audience from the fictional reality and the characters, allows them to gain a stronger connection with the story.

Additionally, we expected the identified covariates to play a more marked role in the process of immersion. Only in perceived realism did average TV viewing and usage of subtitles have a significant impact, although the presence of covariates, especially the number of months in English speaking countries, was necessary in order to avoid confounds in the above analyses.

To conclude, in the context of this particular dialogue-driven medical drama characterized by fast speech, medical terminology and a strong, contained narrative, same-language English subtitles resulted in increased immersion. This was the case particularly in the key dimensions of identification and transportation, which dispels concerns about subtitles distracting the audience. In this context, subtitles seem to focus attention, making it possible for the audience to confirm complicated auditory dialogue visually.

4.1. Limitations

The study is limited by the number of languages covered and by the rather superficial measurements of language proficiency available. Testing on additional language groups and using more in-depth linguistic information on competency and the nature of language and cultural distance could provide further insight. Additionally, testing across genres is also required to make our findings more generalizable. It might very well be that the strong effects found in the case of transportation and character identification will be less marked in genres that rely more on visual effects and action and where the division of attention between the dialogue and fast-moving visuals may come with some costs in terms of immersion.

Finally, it is necessary to take into account participants' own individual interaction with immersion. The use of the Immersive Tendencies Questionnaire would effectively account for this. In the current study, however, it would have added a further 13 items and as the focus was on the various scales of immersion, these were prioritized. Future studies could make use of the Immersive Tendencies Questionnaire in tandem with scales of, based on our findings, transportation and enjoyment depending of course on the research questions and context.

References

Bilandzic, H., & Busselle, R.W. (2011). Disfrute of Films as a Function of Narrative Experience, Perceived Realism and Transportability. *Communications*, 36(1), 29-50. (http://goo.gl/zSFKs7) (2016-05-31).

Cho, H., Shen, L., & Wilson, K. (2014). Perceived Realism: Dimensions and Roles in Narrative Persuasion. *Communication Research*, 41(6), 828-851. https://doi.org/10.1177/0093650212450585

Cohen, J. (2001). Defining Identification: A Theoretical Look at the Identification of Audiences with Media Characters. *Mass Communication Society*, 4(3), 245-264. https://doi.org/10.1207/S15327825MCS0403_01

D'Ydewalle, G., Praet, C., Verfaillie, K., & Van Rensbergen, J. (1991). Watching Subtitled Television: Automatic Reading Behavior. *Communication Research*, 18, 650-66. https://doi.org/10.1177/0267323102017003694

Danan, M. (2004). Captioning and Subtitling: Undervalued Idioma Learning Strategies. *Meta*, 49, 67-77. https://doi.org/10.7202/009021ar

Diao, Y., Chandler, P., & Sweller, J. (2007). The Effect of Written Text on Comprehension of Spoken Inglés as a Foreign Idioma. *The American Journal of Psychology*, 120(2), 237-261. (http://goo.gl/v3QhbZ) (2016-05-31).

Garza, T.J. (1991). Evaluating the Use of Captioned Video Materials in Advanced Foreign Idioma Learning. *Foreign Idioma Annuals*, 24(3), 239-258. https://doi.org/10.1111/j.1944-9720.1991.tb00469.x

Green, M. C., & Brock, T.C. (2013). *Transport Narrative Questionnaire. Measurement Instrument Database for the Social Science.* (http://goo.gl/2REoeG) (2016-05-31).

Green, M.C., Brock, T.C., & Kaufman, G.F. (2004). Understanding Media Disfrute: the Role of Transportation into Narrative Worlds. *Communication Theory*, 14(4), 311-327. https://doi.org/10.1111/j.1468-2885.2004.tb00317.x

Igartua, J.J. (2010). Identification with Characters and Narrative Persuasion through Fictional Feature Films. Communications. The *European Journal of Communication Research*, 35(4), 347-373. https://doi.org/10.1515/comm.2010.019

Igartua, J.J., & Páez, D. (1998). Validez y fiabilidad de una escala de empatía e identificación con los personajes. *Psicothema*, 10(2), 423-436. (http://goo.gl/W3vssl) (2016-05-31).

Kim, T., & Biocca, F. (1997). Telepresence via Television: Two Dimensions of Telepresence may have different Connections to Memory and Persuasion. *Journal of Computer-Mediated Communication*, 3(2). https://doi.org/10.1111/j.1083-6101.1997.tb00073.x

Kruger, J-L., Soto-Sanfiel, M.T., Doherty, S., & Ibrahim, R. (forthcoming). Towards a Cognitive Audiovisual Translatology: Subtitles and Embodied Cognition. In R. Muñoz-Martìn (Ed.), *Reembedding Translation Process Research* (pp. 171-194). Amsterdam: John Benjamins.

Lavaur, J.M., & Bairstow, D. (2011). Idiomas on the Screen: Is Film Comprehension related to Viewers' Fluency Level and to the Idioma in the Subtitles? *International Journal of Psychology*, 46(6), 455-462. https://doi.org/10.1080/00207594.2011.565343

Lee, M., Roskos, B., & Ewoldsen, D.R. (2013). The Impact of Subtitles on Comprehension of Narrative Film. *Media Psychology*, 16(4), 412-440. https://doi.org/10.1080/15213269.2013.826119

McQuail, D., Blumler, J.G., & Brown, J.R. (1972). The Television Audience: A Revised Perspective. In D. McQuail (Ed.), *Sociology of Mass Communication* (pp. 135-165). Middlesex, UK: Penguin.

Perego, E., Del-Missier, F., Porta, M., & Mosconi, M. (2010). The Cognitive Effectiveness of Subtitle Processing. *Media Psychology*, 13(3), 243-272. https://doi.org/10.1080/15213269.2010.502873

Perego, E., Del-Missier, F., & Bottiroli, S. (2014). Dubbing versus Subtitling in Young and Older adults: Cognitive and Evaluative Aspects. *Perspectives: Studies in Translatology*, 23(1), 1-21. https://doi.org/10.1080/0907676X.2014.912343

Remington, R.W., Johnston, J.C., & Yantis, S. (1992). Involuntary Attentional Capture by Abrupt Onsets. *Perception and Psychophysics*, 51(3), 279-290. (http://goo.gl/5KRgy0) (2016-05-31).

Sasamoto, R., & Doherty, S. (2015). Towards the Optimal Use of Impact Captions on TV Programmes. In M. O'Hagan, & Q. Zhang (Eds.), *Conflict and Communication: A Changing Asia in a Globalising World* (pp. 210-247) Bremen, Germany: EHV Academic Press.

Soto-Sanfiel, M.T. (2015). Engagement and Mobile Listening. *International Journal of Mobile Communication*, 13(1), 29-50. https://doi.org/10.1504/ijmc.2015.065889.

Soto-Sanfiel, M.T., Aymerich-Franch, L., & Ribes, F.X. (2010). Impacto de la interactividad en la identificación con los personajes. *Psicothema*, 22(4), 822-827. (http://goo.gl/kvrJzc) (2016-08-11).

Tal-Or, N., & Cohen, J. (2010). Understanding Audience Involvement: Conceptualizing and Manipulating Identification and Transportation. *Poetics*, 38: 402-418. https://doi.org/10.1016/j.poetic.2010.05.004

Vanderplank, R. (1988). The Value of Teletext Sub-titles in Idioma Learning. *ELT Journal*, 42(4), 272-281. https://doi.org/10.1093/elt/42.4.272

Vanderplank, R. (1990). Paying Attention to the Words: Practical and Theoretical Problems in Watching Television Programmes with Uni-lingual (CEEFAX) Sub-titles. *System*, 18(2), 221-234.

Vorderer, P., Klimmt, C., & Ritterfeld, U. (2004). Disfrute: At the Heart of Media Entertainment. *Communication Theory*, 14(2), 388-408. https://doi.org/10.1111/j.1468-2885.2004.tb00321.x

Winke, P., Gass, S., & Syderenko, T. (2013). Factors Influencing the Use of Captions by Foreign Idioma Learners: An Eye Tracking Study. *The Modern Idioma Journal*, 97(1), 254-275. https://doi.org/10.1111/j.1540-4781.2013.01432.x

Wissmath, B., Weibel, D., & Groner, R. (2009). Dubbing or Subtitling? Effects on Presence, Transportation, Flow, and Disfrute. *Journal of Media Psychology*, 21(3), 114-125. https://doi.org/10.1027/1864-1105.21.3.114