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Exploring the Role of Agency in the Production of Easy Subtitles

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Abstract

This study investigates the role of human agency in creating easy subtitles, or subtitles written in Easy-to-Read language (E2R) for audiences with reading difficulties. Grounded in media accessibility and cognitive psychology, it explores the audience interaction with easy subtitles and whether their comprehension is affected by the source language of the audiovisual material. To do so, a case study was conducted involving five trained validators with intellectual disabilities, who assessed t wo short documentaries—one in Italian and one in English—subtitled into E2R Italian. The study reveals that users generally welcome easy subtitles. It also shows that users fully comprehend E2R subtitles, regardless of the source language, with interesting behavioural patterns. Dealing with underexplored key editorial and technical parameters, such as font type, contrast, reading speed, and so forth, findings challenge assumptions about the accessibility limitations of subtitled content for this audience and further emphasise the importance of involving them in the validation process. Additionally, the study identifies issues such as confusion from similar letterforms (e.g., Arial font) and misunderstanding about colour coding. Finally, the research advocates for inclusive production practices and suggests future research avenues in this field.

Key words: Easy-to-Read Language, reading difficulties, easy subtitles, validators, media accessibility.

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Introduction

Cognitive psychology describes cognitive load as the mental effort put on a person's working memory when they engage in a cognitive task, for instance, reading (Sweller, 1994). The reading task encompasses recognising written graphemes and translating them into sounds and words to create meaning. Kruger and Kruger (2017) studied the processes involved in reading, viewing, or listening to translated products. The authors suggested that two main cognitive processes are involved: one pertains to translation production, and the second to the creation of meaning during text consumption.

Following this hermeneutical line of thought, which poses that the meaning of a translation does not inherently reside within the translation itself, but emerges during the interaction with the reader, it seems necessary to assess or validate the success of the interaction between reader and translation. The assessment of the translation function has been a central focus of reception studies, extending to the domain of audiovisual translation (Cattrysse, 2001; Eugeni, 2008b; Gambier, 2013; Pérez González, 2014; Romero-Fresco, 2015; Szarkowska et al., 2016) and related fields, such as web/digital accessibility (World Wide Web Consortium, 2021), usability (Kafle & Huenerfauth, 2020) or user experience (Crabb et al., 2015).

In the field of Easy-to-Read (E2R), assessment processes are called "validations" (Inclusion Europe, 2009; International Federation of Library Associations and Institutions [IFLA], 2010; Una Norma Española [UNE], 2018). The term describes a process conducted by trained end-users coordinated by a facilitator to determine whether a text is comprehensible for the end-users in general and the text complies with the E2R guidelines (Inclusion Europe, 2009; IFLA, 2010; Plena Inclusión Madrid, 2018; UNE, 2018; Bernabé, 2020; Train2Validate, 2020).

Knowledge from end users combined with contributions from the industry and academia—such as standards and reception studies—has led to the development of various products, technologies, software, or guidelines. For example, subtitling standards and software have significantly enhanced accessibility and improved viewer experience on streaming platforms (Díaz Cintas & Remael, 2007). These advancements have also improved content accessibility for a diverse range of audiences, including second-language learners and persons who are deaf or hard-of-hearing. However, persons with reading difficulties have received comparably less attention in audiovisual translation studies, regardless of the mode (Bernabé & Orero, 2019; Perego, 2020; Bernabé & Cavallo, 2021).

To fill the gap for audiences with reading difficulties in the case of audiovisual content in general and of subtitling specifically, Bernabé (2019) proposed blending established guidelines to produce audiovisual content that is easy to read and to understand, for instance, easy subtitles or easy audio descriptions. In the case of easy subtitles, the scholar suggested blending the guidelines *Information for All* (Inclusion Europe, 2009), subtitling guidelines for individuals with hearing difficulties, and the Web Content Accessibility Guidelines. The scholar based the proposal on the idea that E2R content can be considered a form of translation (Gottlieb, 2005; Bernabé, 2019; Eugeni, 2019). This

methodology was effectively tested for interlingual subtitles in opera (Oncins et al., 2020; Bernabé et al., 2020), and it forms the basis of the current study. By exploring the validation of easy subtitles, this research aims to provide valuable insights into accessibility for individuals with reading difficulties.

This article examines the role of human agents in the production of easy subtitles. To shed light in this field, the article presents the findings of an exploratory study focused on the involvement of people with intellectual disabilities, as persons with reading difficulties (Inclusion Europe, 2009), in the validation of easy subtitles of a documentary. Specifically, the study seeks answers related to how people with intellectual disabilities access easy subtitles, whether the subtitles are understood, and if the source language influences comprehension.

To do so, Section 1 will introduce the notion of easy subtitles, specifically outlining the workflow and the editorial and technical parameters to follow. Section 2 will illustrate the methodology used in the case study, including research questions, methods, participants, and stimuli, while Section 3 will present the findings of the study. Section 4 provides a discussion and conclusions, raising new questions about subtitling practices, readability, and inclusive filmmaking.

1. Easy Subtitles

Easy subtitles can be defined within Media Accessibility (MA) according to the taxonomy of easy-to-understand access services proposed by Bernabé (2019, 2020). The taxonomy extends Gottlieb's (2005) established semiotically-based classification of translation, while incorporating elements from prior definitions, such as the human-centred approach. This taxonomy operates on the premise that the characteristics of conventional media accessibility services, such as subtitles or audio descriptions, can be adapted to fit other needs. This distinctive feature holds the potential for enhancing cognitive accessibility when adhering to established guidelines, such as the WCAGs (Johansson, 2016), or to subtitling guidelines for the Deaf and Hard-of-Hearing. Furthermore, it aligns with experientially based guidelines already in use in the field of E2R studies (Inclusion Europe, 2009).

According to this taxonomy of easy-to-understand services, easy subtitles can be characterised as a translation mode that:

- uses simplification methods;
- is inspirational, for it is less predictable or “more free”;
- functions primarily as a text enhancer, improving comprehension of the source text to make it more comprehensible to the intended audience;
- can be intrasemiotic, e.g., interlingual, intralingual, or using addition or elaboration;
- can be intersemiotic, e.g., verbalising, deverbalising, or using addition or elaboration.

While this taxonomy helps us characterise easy subtitles, it does not provide editorial or subtitling parameters. To bridge this gap, the role of human agents in the process of creating easy subtitles will

be illustrated (1.1), followed by an examination of the editorial (1.2) and technical (1.3) parameters of easy subtitles.

1.1. Easy Subtitling Agents

Before discussing the editorial and technical parameters of easy subtitling, it is important to discuss the role of human agents in this emerging audiovisual translation mode. Any audiovisual product is produced by a filmmaking team or an individual, and then distributed to its target audience. Subtitles are typically added during post-production to make content accessible to a wider audience. Sometimes, however, an accessible filmmaking approach is adopted (Romero-Fresco, 2019), producing clips that include subtitles or any other audiovisual translation mode whose design is thought of before production starts.

Consequently, two types of processes leading to videos accessible to people with reading difficulties can be envisaged: either by adapting existing videos during post-production or at a later point in time (made-accessible videos), or by considering the target users' needs before and during production (born-accessible videos). In both cases, the resulting videos can be labelled as easy to read and to understand, i.e., easy videos.

In the case of a made-accessible easy video, changes are made to the video to meet the needs of an audience with reading difficulties. This approach requires the involvement of one or more human agents who decide how long the easy video should be, analyse the source video, spot challenges, and trim the source video if necessary. Then, the video should be subtitled according to the editorial and technical guidelines adopted (see 1.2 and 1.3), and then follow the user-centred approach adopted in the Train2Validate project[1], in line with Inclusion Europe's (2009) guidelines on Easy-to-Read writing, and Bernabé's (2019) proposal. This means that the video should be submitted to a validation team, which watches the video and provides useful feedback for the post-production team in charge of delivering the final product. The adaptation team then produces the final product that is finally distributed to the target audience.

The process of an easy subtitled (made-accessible) video can be summed up as follows, according to the process followed in this and previous experiments:

- Filmmaking team
- Post-production team
    - Video editor
    - Subtitler
- Validation team
    - Validators

[1] For more information about the project see https://plenainclusionmadrid.org/train2validate/ (last accessed 10/07/2025).

    - Facilitator
- Post-production team
    - Video editor
    - Subtitler
- Distributor
- Target Audience

1.2. Easy Subtitling Editorial Parameters

Editorial recommendations provide specific guidelines and advice to content creators, editors, or writers to improve the quality, consistency, and effectiveness of written or multimedia content. They typically pertain to aspects related to style, formatting, and content presentation. Evidence-based editorial recommendations are readily available for interlingual and intralingual subtitles (Díaz Cintas & Remael, 2007; Romero-Fresco, 2015; Szarkowska, 2013) as well as for subtitles for the Deaf and Hard-of-Hearing (Arnáiz-Uzquiza, 2012; Tamayo & Chaume, 2017). In contrast, established editorial recommendations for subtitles for people with reading difficulties are scarce.

In 2012, García (2012) described a general lack of consolidated editorial guidelines for E2R content. This observation was confirmed by two Europe-wide online surveys conducted during the Erasmus+ projects EASIT (2020), which focused on the training of creators of easy audiovisual content, and Train2Validate (2020), which concentrated on the training of facilitators and validators of E2R written content. Data from EASIT revealed that the editorial guidelines titled *Information for All* (Inclusion Europe, 2009) and localised versions thereof are the most used ones in training (41% of the mentions) and practice (56% of the mentions). Data from Train2Validate show a different outcome in terms of use of guidelines in training, with 82% of facilitators stating that they did not receive or use any guidelines when trained to validate written texts. However, among the 18% having been given guidelines in training, the ones by Inclusion Europe received the most mentions. As for validators, data indicate that 71.6% use guidelines in their daily work, with a preference for guidelines in the working language. While participants in both surveys did not state the reasons for their preferred choice, this preference for the guidelines by Inclusion Europe may be ascribed to two factors. On the one hand, the user-centred nature of the guidelines and, on the other hand, their larger scope that ranges from paratextual, language-independent and dependent guidelines, to recommendations for multimedia and web formats.

In this landscape of limited available evidence-based editorial guidelines, knowledge from related fields can contribute to their development. Some examples are national standards like the Spanish standard on the creation and validation of E2R content issued in 2018 and the German standard by the Deutsches Institut für Normung (2023). Another resource stems from the field of web accessibility, namely the Web Content Accessibility Guidelines (WCAG), first published in 1999. The current version (WCAG 2.2) and previous ones provide success criteria for making web and multimedia content perceivable, operable and understandable for persons with disabilities, including

persons with reading difficulties (World Wide Web Consortium, 2023). While the WCAG success criteria do not specifically dictate a target reading or literacy level, in an explorative study carried out by Koehler and Bernabé (2023), persons with reading difficulties evaluated 78 success criteria from the WCAG 2.1. and rated 62 as supporting this target group (World Wide Web Consortium, 2021). The study followed a user-centred approach, involving two end-users of E2R language in identifying WCAG criteria relevant to this group, as well as an evaluation team composed of experts from various accessibility user groups. The team assessed the criteria in expert discussion sessions, which included a facilitator and six users with diverse challenges such as speech difficulties, tetraparesis, learning disabilities, dysarthria, dystonia, and vision impairments. Using a questionnaire, the group provided recommendations on whether each criterion was: (a) relevant for E2R language users, (b) relevant but requiring additional information, (c) not applicable to the user group, or (d) not identified as relevant. The results indicated that 68 criteria were applicable to users with reading difficulties. These criteria encompass technical, textual, and non-textual recommendations, underscoring that making information accessible to persons with reading difficulties involves more than just linguistic aspects.

1.3. Easy Subtitling Technical Parameters

Research on easy subtitles for persons with reading difficulties is particularly limited in terms of available evidence-based parameters. One notable pioneering case study which investigates this access service was carried out by Alba Rodríguez, who explored how subtitles could be adapted to persons with intellectual disabilities (2014). The creation parameters used were based on Díaz Cintas' proposal (2003) with slight variations, as shown in Table 1.

Table 1

Subtitling Parameters

Type	Parameter	Setting
Visual	On-Screen Placement	Always on the lower bottom.
Visual	Number of Subtitling Lines	Maximum 2 monolinear subtitles placed on the lower subtitle line to conceal as little of the image as possible.
Visual	Characters Per Line	Longer than 28–40, where necessary.
Visual	Font Type	MS Sans Serif, white.
Visual	Contrast: Box Text	White font over black background.
Temporal	On-Screen Time	Longer than 6 seconds, where necessary.
Temporal	Synchrony	Longer, where possible, but in synchrony with speech. Synchrony with shot changes not necessary since subtitles only appear in case of lack of comprehension.

Type	Parameter	Setting
Editorial	Repetitions	Repetitions prioritised even in subsequent subtitles.

Source. Alba Rodríguez, 2014.

The findings highlighted the need for further user-centred research and the establishment of specific parameters for this mode. Furthermore, the study revealed a positive attitude of the participants towards subtitles. This preference was based on their belief that understanding the whole content would enable autonomous viewing without depending on someone else's explanations (Alba Rodríguez, 2014). Bernabé and García (2019) capitalised on this study and developed guidelines for easy subtitles by merging the Spanish standard UNE 153010:2012 for subtitling for the Deaf and Hard-of-Hearing (SDH) and the writing guidelines from Inclusion Europe (2009). The comparison revealed 16 parameters shared by both guidelines and identified three additional ones from the E2R guidelines (i.e., Customisation, Text alignment, and Sentences per line). The set of parameters considers visual, temporal, and editorial choices, and identifies background voices (Bernabé & García, 2019). Table 2 shows the visual and temporal parameters.

Table 2

Easy Subtitling Parameters

Type	Parameter	Setting
Visual	On-Screen Placement	Always on the lower bottom
Visual	Number of Subtitling Lines	2 lines maximum
Visual	Characters Per Line	37 characters max
Visual	Font Type	Arial (study 1) – Roboto bold (study 2)
Visual	Font Size	Larger than the standard, allowing for 37-character lines
Visual	Contrast: Background Text	Minimum of 4.5:1
Temporal	On-Screen Time	Can be longer than 6 seconds
Temporal	Synchrony	In synchrony with spoken text throughout the whole performance

Source. Bernabé & García, 2019.

Several case studies were then conducted to collect empirical evidence using this methodology. In particular, two studies investigated the use of interlingual easy subtitles for opera. One was conducted in a non-immersive environment with persons with intellectual disabilities (Bernabé et al., 2020), while the other study was conducted in an immersive environment with elderly viewers

(Oncins et al., 2020). In both studies, participants approved the improved readability, the greater linguistic reduction, and the enhanced understandability of easy subtitles.

One main difference between the approach by Alba Rodríguez (2014) and Bernabé and García (2019) relates to the extent and nature of the subtitled content. While Alba Rodriguez suggests providing subtitles only when comprehension difficulties are presumed or have been previously identified by the target audience, Bernabé and García propose a more comprehensive approach, providing easy subtitles for the entire content. This approach aligns with the introduction of the novel parameter "Customisation options" (Bernabé & García, 2019), allowing viewers to turn on/off subtitles at any time. While this parameter was not considered in the Spanish standard for subtitling for the Deaf and Hard-of-Hearing at the time, it resonates with findings from previous research in subtitling that advocate for customisation options of font size, font type or colour (Díaz Cintas & Remael, 2007; Romero-Fresco, 2019).

Bernabé and Cavallo (2021) expanded on Bernabé and García's parameters and incorporated recommendations for on-screen times and characters per line from best practices for subtitling for the web, and subtitling for children with hearing impairments (see 2.4).

2. Methodology

The goal of this study, conducted within the framework of the Train2Validate project, was to explore the role of agency in easy subtitling, and particularly how persons with intellectual disabilities access easy subtitles, how much they understand the content, and whether the source language of the audiovisual product influences reception and perception. To account for a controlled process, this study was designed as a case study, with the data collection being carried out during a validation session moderated by a trained facilitator of E2R content. The next sections describe the details of this study, i.e., research questions, methods, participants, and stimuli.

2.1 Research Questions

Drawing on the first exploratory studies in this field, and particularly the parameters provided by Bernabé and García (2019), and the guidelines by Bernabé and Cavallo (2021), this study tried to answer the following research questions:

- How do people with intellectual disabilities access easy subtitles? Because Easy-to-Read content is still a poorly investigated research field (Bernabé & Orero, 2019), most of the reception studies conducted so far have focused on written texts. However, little is known about audiovisual materials translated into E2R, particularly subtitled documentaries, which have the double challenge of simultaneously providing differing information (acoustic information in standard language and written information as easy subtitles) and of making it hard for users to control the reading speed autonomously. The hypothesis is that people with intellectual disabilities are disturbed by the double input and that they may decide on coping strategies, like pausing the video to allow themselves more reading time.

- How much do people with intellectual disabilities understand of a documentary subtitled using easy subtitles? Among all audiovisual products, similar short documentaries were selected to reduce variables (e.g., information provided by action, scenery, plot, etc.) that could influence results. The purpose of this study was not specifically to investigate documentaries, but to understand how people with intellectual disabilities react to a type of text they might not be used to accessing. The hypothesis is that they understand less information than in static written texts due to the challenges mentioned above.
- Does the source language of the audiovisual product influence reception and comprehension? This is the main question of the study, as it has important implications on the effort of making audiovisual materials accessible to people with intellectual disabilities. In particular, will people with intellectual disabilities be likely to use both interlingual and intralingual subtitling in the future, or is one of the two going to be prevalent or preferred? Here, the hypotheses contradict, depending on the theory one refers to:
    - Intralingual subtitles are easier to read than interlingual subtitles and allow a better understanding of the subtitled document, in line with the Dual Coding Theory, according to which exposure to the same information (orally and visually through subtitles) reinforces understanding (Paivio, 1986).
    - Interlingual subtitles are easier to read than intralingual subtitles and allow a better understanding of the subtitled document, as spoken English is not understood by the respondents, who are then not disturbed and can focus on subtitles only. This would be a consequence of the Cognitive Theory of Multimedia Learning (Mayer, 2002), according to which the redundancy implied in the process of listening and reading the same information can overload the users' processing system (Rop et al., 2018).

2.2 Methods

After having subtitled an English documentary and an Italian documentary into E2R Italian, the method adopted in this study mirrors that of reception and perception studies conducted with E2R written texts and the user-centred assessment conducted in the Train2Validate project. In particular, the subtitled videos were submitted to a validation team composed of one trained facilitator coordinating five trained validators with cognitive disabilities. The purpose of their involvement was twofold, as it certifies that the subtitles are written in E2R Italian, in line with the guidelines provided by Inclusion Europe (2009), and that study data are collected in a professional environment. The videos were reproduced individually on a big screen in one of the partner organisation's premises, in line with their procedure. Participants were asked to see the videos and to answer questions related to this experience. Because they had never watched an audiovisual product with easy subtitles, they were instructed not to pause the videos, just to play them, watch them, and read the subtitles. On top of the facilitation notes (the notes taken by the facilitator during the validation session), four questionnaires were administered to the validation team:

- A demographic questionnaire was given to validators to understand their background (age, education, reading habits, watching habits, familiarity with subtitles, familiarity with spoken English) and to make sure variables were reduced to a minimum.
- Two reception questionnaires, containing five questions each about the main ideas of the video, were given to validators to check how much they understood about each documentary.
- A perception questionnaire was given to validators about their viewing experience (reading speed, use of colours, difficulty of words, preference for this or that video, viewing experience, other) to check if understanding was coupled with ease of use.
- A retrospective Think-Aloud-Protocol (TAP) was administered to the facilitator by the authors and prompted by the facilitation notes.

Operationally, the facilitator met with every validator individually and administered the demographic questionnaire before they watched the videos, the two reception questionnaires after each video, and the perception questionnaire at the end of the validation session. During the whole process, the facilitator took notes, which provided information about how to improve the quality of the easy subtitles, as well as helpful feedback for this study. The retrospective TAP was administered by the authors of this article to the facilitator once the session was over. The questions of the TAP were based on the facilitation notes taken during the validation session, and concerned informed opinions and minor aspects of the viewing experience that were not made clear during the sessions, but were still relevant to the purpose of this study, such as:

- Did you or the participants stop the videos to facilitate their reading?
- Did you or the participants lower the volume of the videos to facilitate their reading?
- Did they read the subtitles out loud or subvocalise?
- Did you notice any difference in the two viewing experiences?

2.3 Participants

Thanks to the Train2Validate project's network of stakeholders and partners, this study could count on the collaboration of Comunità La Torre[2], whose foundation manages all services to local people with intellectual disabilities on behalf of the National Association of Families and People with Intellectual Disabilities and Neurodevelopmental Disorders ANFFAS[3]. One trained facilitator and five validators were recruited for the purpose of this study. As for the ethical aspects, the ethical procedure of the organisation was followed, i.e. participants or their legal representatives were asked to sign an informed consent translated into E2R Italian. The consent concerned the experiment, their

[2] For more information about Comunità La Torre see www.latorreonlus.net (in Italian only) (last accessed 10/07/2025).
[3] For more information about ANFFAS see www.anffas.net (in Italian only) (last accessed 10/07/2025).

attendance to it, the use of the facilitation notes, the questionnaires, and their pictures to be shown during a conference[4].

Answers to the demographic questionnaire show that they are all Italian native speakers based in Italy. The five validators are four men and a woman, who have a moderate intellectual disability, with or without a comorbidity (one also has a behavioural disorder, and another one also has spastic tetraparesis). They were aged 23, 32, 41, 46, and 60 (mean age 40.4 years) at the time of the study (2023), and had eight to 13 years of education. Three of them were experienced validators with more than 10 years of experience, while two had two years of experience at the time of the experiment and were considered beginners. For this study, the participants were also asked if they were used to watching subtitled audiovisual materials and if they understood spoken English. All of them admitted they did not understand spoken English, and four never watched subtitled audiovisual materials. However, they all read every day, and their reading skills were considered good enough to work as validators.

2.4 Stimuli

To answer the three research questions above, two documentaries considered appropriate for the participants were selected by the research team. The post-production team made sure that the two videos shared as many features as possible to reduce variables. In particular, the two videos, one in standard Italian and one in standard American English, belong to the same genre, an interview with a professional talking about their job, and share the same informative function. Both videos deal with a lesser-known profession in the arts field: the Italian video features an art curator, and the English one a stage manager. Semiotically, both videos are characterised by in- and off-camera interviewees, some action mainly involving the interviewees in their work environment, and on-screen text to facilitate understanding of the main ideas. To facilitate a comparison of results, the two videos were trimmed so that they had a similar length (2:51'' and 2:53'') and featured similar content. On top of the source language, the only difference between the two videos is the speech rate: the Italian video is spoken at 136 words per minute (or 11.3 characters per second), and the English video at 176 words per minute (or 14.7 characters per second).[5]

The easy subtitles were created following the editorial guidelines provided by Inclusion Europe (2009) and the subtitling guidelines provided by Bernabé and Cavallo (2021), with a few adjustments (see Table 3). The most relevant one is the specification of not having a minimum gap between subtitles,

[4] Media for All 10 held in Antwerp on 5–7 July 2023.

[5] The two videos used for the project can be found at https://youtu.be/d8-LqiKQluo ("the art curator" in Italian), and at https://youtu.be/qUA6HuUSfjc ("the stage manager" in English). Subtitles in Easy English of "the stage manager" can be found at https://www.youtube.com/watch?v=RbfFJY89aaA (last accessed 10/07/2025).

following the recommendation of the facilitator who anticipated that people with intellectual disabilities tend to have a linear reading pattern and do not need a gap alerting them about the presence of a new subtitle. Interestingly, this is also in line with the guidelines still used by the subtitles offered by the Italian teletext (Rai, 2021, p. 4–5). Another adjustment is a maximum rate of 12 characters per second (CPS), as recommended for deaf children (Tamayo, 2016; Tamayo & Chaume, 2017). The font chosen was Arial. The minimum subtitle duration was set at 2 seconds, but given that easy subtitles translate at least a sentence, by applying the maximum CPS rule of 12 CPS, a subtitle is easily longer than 2 seconds. Table 3 shows the parameters used.

Table 3

Easy Subtitling Parameters For An Informative Video

Type	Parameter	Bernabé & Cavallo	Final Settings For This Study
Visual	On-Screen Placement	Always on the bottom	Always on the bottom
Visual	Number of Subtitling Lines	2 lines maximum	2 lines maximum
Visual	Characters Per Line	32 characters max	32 characters max
Visual	Font Type	Sans Serif	Arial
Visual	Font Size	Larger than standard allowing 32 characters	Larger than standard
Visual	Contrast	Minimum of 4.5:1	White and yellow on a black box, with a 4.5:1 min. contrast
Visual	Minimum Gap	–	No gap between subtitles
Temporal	On-Screen Time	Can be longer than 6 seconds (12 CPS)	Can be longer than 6 seconds. Minimum 2 seconds.
Temporal	Synchrony	In synchrony with spoken text throughout the entire performance.	Start/end in synchrony with start/end of related sentence(s) / shot changes if these occur less than a second before / after.
Editorial	Sentences Per Subtitle	1	1

Source. Bernabé & Cavallo, 2021.

The resulting subtitles of both videos have a similar reading speed, accommodating the users' needs, as per the editorial guidelines. The Italian video contains 35 subtitles (11 one-line subtitles, 24 two-

line subtitles), accounting for an average reading speed of 8.1 characters per second, and quantitatively reducing the source text by 28.3%; the English video contains 41 subtitles (17 one-line subtitles, 24 two-line subtitles), accounting for an average reading speed of 8.7 characters per second, and quantitatively reducing the source text by 40.8%.

3. Results

To facilitate the reading of the results, they will be grouped in three subparagraphs based on their relevance for each research question: 3.1. will provide useful data to answer the first research question (How do people with intellectual disabilities access easy subtitles?), 3.2. will provide useful data to answer the second research question (How much do people with intellectual disabilities understand a documentary with easy subtitles?), and 3.3. will provide useful data to answer the third research question (Does the source language of the audiovisual product influence reception and comprehension?). A fourth subparagraph is added to provide other data not pertaining to the three research questions. Data will be discussed in the last section.

3.1. Research Question Number 1 – How Are Easy Subtitles Accessed?

To answer the first research question, special attention was dedicated to the whole workflow. Before answering this research question, it is important to remember that the participants involved in this experiment had never watched an audiovisual product with easy subtitles, which is apparently also the case throughout the world[6]. Despite the excitement caused by this novelty (in line with findings by Alba Rodríguez, 2014), data may have been biased precisely because the participants were not used to watching a video with easy subtitles, and they may have reacted to them by reproducing the same reading habits they used to apply when reading a static written document.

As for the access during the validation session, four participants accessed the video and read the subtitles autonomously, while one needed the facilitator to play and pause each video and read the subtitles aloud. Of the four validators who accessed the videos autonomously, three paused the video one to five times (each time with the subtitles displayed on two lines), and two read the subtitles aloud. The remaining validator, who said he sometimes watches standard videos with standard subtitles, never paused the video and did not read the subtitles aloud. He subvocalised, though. Two

[6] Evidence of people with intellectual disabilities not knowing of easy subtitles or not reading easy subtitles is based on Bernabé et al. (2020) and the authors' personal and non-systematic investigation carried out informally during conferences, validation sessions and meetings, during which colleagues, associations of people with intellectual disabilities, facilitators, validators, and other stakeholders were randomly interviewed and asked about this. They all confirm that easy subtitles are something that they have never seen or heard about, except for fixed-term projects.

respondents turned the volume of the Italian video off as they were disturbed by the interference caused by the spoken Italian using different words than those they could read in the subtitles.

3.2. Research Question Number 2 – How Much Are Easy Subtitles Understood?

If a new type of text caused excitement among participants, data about comprehension caused excitement among the researchers. All five participants managed to correctly answer all the questions in both questionnaires. The first three questions were content-related and multiple-choice. The first question was accompanied by a picture of the professional featured in the documentary, and it was aimed at finding out if the main topic of the video was clear. The second and third questions targeted subtopics. The fourth question was an open question: participants could add anything they remembered from the video. The fifth question was also an open question, and it was aimed at finding out why participants liked or disliked the video. These two open questions allowed us to understand the amount of detail validators could pick out from the videos, and how they perceived them. Overall, all participants managed to remember all the main ideas (as per the correct answers to the first three questions), as well as ideas not covered by the content questions, even minor ones. Interestingly, there is one minor idea, covered by a single subtitle, that all validators remembered, and this is that the job of the stage manager requires being meticulous. The memory of some dynamic and static images, related or not to the content of the video, was also consistent.

As far as comprehension of the easy subtitles is concerned, all validators understood all subtitles without having to re-read them. This does not mean they were happy with all the words in the subtitles. In particular, one validator mentioned in the perception questionnaire that they did not understand a word: “competenze” (literally “competences”), used to mean “skills”, as they all generally use the word “capacità” (literally “capacities”).

3.3. Research Question Number 3 – What Is The Role Of The Source Language?

The answer to this question is a very relevant one, as cognitive theories contradict. As briefly touched upon above, Paivio’s Dual Coding Theory claims that access to the same information on two channels reinforces understanding. However, this only looks to be true when the spoken input exactly mirrors the same information being written down. As Mayer’s Cognitive Theory of Multimedia Learning shows, the more the spoken input differs from the written one, the less is the capacity of users to process information (Rop et al., 2018). In this experiment, easy subtitles were produced to make a video in standard Italian and a video in standard English accessible to Italian people with intellectual disabilities. This means that the text in the easy subtitles was not only quantitatively different than that in the source videos (subtitles contained 28.3% to 40.8% less words than the source videos), but also qualitatively different, as easy subtitling guidelines impose a substantial amount of simplification and reformulation of the source text, the use of other subtitling settings, such as lower reading speed or fewer characters per line, and the consideration of the WCAG guidelines, such as providing viewers

with options to control viewing settings. As the facilitation notes show, two validators even had to turn the volume of the Italian video off as this prevented them from focusing on the content of the subtitles. This means that hypothesis number 1 ("Intralingual subtitles are easier to read than interlingual subtitles") cannot be confirmed when it comes to subtitles that do not read every single word of the speech, and if the original sound is on.

Hypothesis number 2 ("Interlingual subtitles are easier to read than intralingual subtitles as they do not understand spoken English and so they can focus on the subtitles only") could not be confirmed either because the limited number of participants does not allow for confirming or rejecting a hypothesis in a statistically relevant manner. However, we can still conclude that none of the participants was influenced by the English source language, as confirmed by the facilitation notes, the retrospective TAP, and the perception questionnaire, which confirm that all validators focused on subtitles only. The fact that in two cases, the source language of the video bothers the user because it is in the same language as the subtitles, but does not make the subtitles more difficult to read or the video more difficult to understand, should also be noted. Furthermore, the answers to the perception questionnaire interestingly show that a preference for one or the other video is not based on comprehension or ease of access. Rather, it is based on interests, as they express their preference for one of the two topics or for one of the two professionals, in line with the research conducted by Tarchi et al. (2021) on students without disabilities.

3.4. Other Results

Other interesting results emerged from the research. The first interesting piece of data that can contribute to further research in the field is the use of colours to identify characters. One of the two videos contained the use of white characters to refer to the words of the professional being interviewed, and yellow characters to refer to the words of the interviewer. None of the answers to the question about this aspect ("Some subtitles are white and some subtitles are yellow. Do you find this useful?") managed to demonstrate that respondents understood the use of colours. This corroborates findings by Bernabé et al. (2020) and Bernabé and Cavallo (2021). Again, the reason may lie in their not being used to watching videos with subtitles.

Another interesting piece of data concerns synonyms. On the one side, research shows that people with intellectual disabilities tend to prefer words they are used to and do not like synonyms to mean the same word (Inclusion Europe, 2009; IFLA, 2010; UNE, 2018; Alba Rodríguez, 2014; Plain Language Action and Information Network, 2011; Saggion, 2017). This is partly substantiated by the case of "competenze" vs. "capacità" mentioned above. However, this may only be true for that specific validator or that specific validation team. In fact, no specific data are available about the other validators' understanding of this word. This means it can only be assumed that they did understand it, as they claim to have understood all words in the subtitles; or that they did not, but this did not influence their overall understanding of the videos. Finally, evidence from the facilitation notes shows that they all like the word "validazione" used in the questionnaires to mean "validation", and

are positive about using it as an alternative to “lettura di prova” (literally “test reading”), which they normally use.

A last aspect which is interesting for this study concerns the use of fonts. The guidelines, in line with research in this field, suggest that using a sans serif font for the subtitles is preferred. For this study, Arial was used. The facilitation notes and the retrospective TAP, however, have provided a clear example that the use of Arial is to be avoided. One of the subtitles read “Io devo fare quello che il regista ha scritto” (literally “I must do what the director has written”). Now, the first-person subject pronoun “io” at the beginning of the sentence was audibly read by three validators as the definite, singular, masculine pronoun “lo”). Because Arial does not make an easily perceivable difference between uppercase i (I) and lowercase el (l), the confusion led to a plausible false start in reading. The facilitation notes show that validators asked the subtitling team to change the font to one that is less problematic. These findings are in line with the findings by Bernabé et al. (2020).

4. Discussion and Conclusions

This article intended to discuss the role of agency related to audiovisual products subtitled in E2R language for people with intellectual difficulties. As happens with all translated audiovisual products, this implies not just the filmmaker and their staff (when present), but also the post-production team in charge of linguistic or sensory accessibility (when present). In the case of audiovisual products for people with intellectual disabilities as the target audience, the subtitling team is responsible not only for translating the original text into easy subtitles, but also for trimming the original video where necessary to make it easier to watch. Furthermore, because the E2R language guidelines used in this study require that the target audience be involved in the validation of any E2R text, an audiovisual product to be subtitled into E2R language also needs a validation team to be included among the agents. This means a trained facilitator and a group of trained validators with intellectual disabilities or other persons with reading difficulties.

This is the starting point of this case study, which has tried to answer three research questions while making the most of the few studies in the field. Before discussing them, it is important to remind ourselves that the limited number of individuals tested does not allow us to make any statistically meaningful claims, despite the relevance of these findings for reflection and future research.

The first question is how people with intellectual disabilities access an audiovisual product with easy subtitles. As seen from the case study, three things happen in the process of accessing a video with easy subtitles, which are not common to viewers of standard subtitles. The first is that some users either subvocalise, or read the subtitles out loud, or need the facilitator to read for them. Although subvocalising is not a new phenomenon (Eugeni, 2008a), reading the subtitles out loud implies a second phenomenon: the audience may turn the volume of the video off to read the subtitles without being distracted by the audio of the video. And when the text of the subtitles is distributed on two lines, a third phenomenon occurs: they may pause the video to read at their own pace. This brings

us to a further question that needs to be addressed in future investigations about easy subtitles: shall guidelines discourage the use of two-line subtitles, or should they allow two-line subtitles more reading time than what is allowed for one-line subtitles? Given that an average of 8.1–8.7 characters per second was adopted, and this proved acceptable for one-line subtitles, future guidelines may propose nine characters per second for one-line subtitles, and seven for two-line subtitles, to be used only when a sentence cannot be split in two or included in a one-line subtitle.

The second question is if and how much people with intellectual disabilities understand easy subtitles, given that this is an activity that is cognitively more demanding than reading static text. The results of this case study were encouraging, as it appears that this activity is welcomed very positively by people with intellectual disabilities. Furthermore, they answered all the comprehension questions correctly and declared that they all understood all the words in the subtitles, except for one respondent who had an issue with just one word. This can mark a turning point in easy subtitling, as, so far, easy subtitles have not been produced, because research has always proven that this is too hard an experience for audiences with intellectual disabilities. This case study suggests that there is a market, at least for informative audiovisual products, and provided that E2R guidelines and workflow are followed.

The third question concerns the role of the source language. Apparently, there is no difference between accessing a video with interlingual easy subtitles and accessing a video with intralingual easy subtitles, as the people with intellectual disabilities involved in this study either turned the volume of the video off or only focused on reading the subtitles and disregarded the source language. The results have proven very positive in both cases, and preferences for one or the other video were merely subjective. This brings to a further question that aligns with the current discussion about accessible filmmaking (Romero-Fresco, 2019) and E2R translation (Dejica et al., 2021): would it be possible at all to go for "easy filmmaking", i.e., producing audiovisual products (informative to begin with) with characteristics similar to those of these videos and where the source text is in E2R? They would be original productions designed to be easy to watch, as in the informative videos produced during the Begripligtext project[7]. It may not be perceived as sustainable in the media industry, but with the right legislative tools and ad hoc advocacy, things can change, as has happened in the field of subtitles for deaf audiences.

Finally, this case study also brought to light some results that provide food for thought. The first one is that sans serif fonts are not without problems. When asked to change Arial as the font for the subtitles, the post-production team realised that other sans serif fonts (Helvetica, Calibri, Calibri Light) have the same problem. We suggest Verdana, as despite not being 100% sans serif, it is still very legible and differentiates between uppercase i (I) and lowercase el (l) in an intelligible manner.

[7] More information about the Begripligtext project is available (in Swedish only) at https://projektbegripligtext.se/aktuellt (last accessed 10/07/2025).

Moreover, it has wider letter spacing and taller x-heights compared to other sans serif fonts. This can make Verdana appear slightly bulkier or more spaced out. Verdana is, however, just one possibility that aligns with Bernabé and Cavallo's findings (Bernabé & Cavallo, 2021). Other options are Roboto, used as a default font for YouTube videos, or Consolas, the default font for Netflix.

Another piece of evidence to consider in future guidelines and experiments is that the use of colours is not understood. Again, this is in line with the findings by Bernabé et al. (2020) and Bernabé and Cavallo, who found that some participants in their studies preferred name tags (Bernabé & Cavallo, 2021). This may not necessarily lead to future guidelines and experiments to get rid of colours. A reason why the respondents in this study may not understand their use, may be because they are not used to them. At the same time, because easy subtitles should avoid containing two sentences in the same subtitle, and, ideally, avoid containing two lines in the same subtitle, the use of colours is not deemed particularly useful, especially in the context of a documentary similar to the ones used in this study.

A last result that needs further investigation concerns synonyms. If guidelines require that synonyms are avoided in the same text, our findings suggest that the consistent use in a text of alternative words to the ones validators are used to is sometimes welcome. This opens new lines of research, mainly focused on how much a trained E2R translator should stick to specific vocabulary when producing a text, especially if the text is aimed at an audience that is not only that of the specific validation team.

All in all, while exploring the role of "agency" in the production of easy subtitles, we think that with this case study, we managed to confirm trends in easy subtitling research and added more details. Furthermore, we hope to encourage practice in this field, which is not just scarcely investigated but also widely ignored in the audiovisual translation industry.

References

Alba Rodríguez, T. (2014). Traducción audiovisual accesible a personas con discapacidad intelectual mediante el uso de subtítulos adaptados [Accessible audiovisual translation for people with intellectual disability by using adapted subtitles]. *Estudios de Traducción,* 4, 199–209. https://doi.org/10.5209/rev_ESTR.2014.v4.45376

Arnáiz-Uzquiza, V. (2012). Los parámetros que identifican el subtitulado para sordos. Análisis y clasificación [The parameters that define subtitling for the deaf: Analysis and classification]. In R. Agost Canós, P. Orero Clavero, & E. D. Giovanni (Eds.). *Multidisciplinarietat en traducció audiovisual* [Multidisciplinarity in Audiovisual Translation] (pp. 103–132). Universitat d'Alacant.

Bernabé, R. (2019, June 17-19). Easy accessibility services: Parameters of a new taxonomy [Poster presentation]. *The 8th Media for All Conference – Complex Understandings*, Stockholm, Sweden. https://shorturl.at/bfvzW

Bernabé, R. (2020). New taxonomy of easy-to-understand access services. In M. Richart-Marset & F. Calamita (Eds.), Traducción y accesibilidad en los medios de comunicación: De la teoría a la práctica [Translation and media accessibility: From theory to practice] [Special issue]. *MonTI*, 12. https://doi.org/10.6035/MonTI.2020.12

Bernabé, R., & Cavallo, P. (2021). Easy-to-understand access services: Easy subtitles. In M. Antona & C. Stephanidis (Eds.), *Universal access in human-computer interaction. Access to media, learning and assistive environments (HCII 2021)* (Lecture Notes in Computer Science, Vol. 12769, pp. 241–254). Springer.

Bernabé, R., & García, Ó. (2019). Identifying parameters for easy-to-read subtitles. *CoMe: Communication & Media.* https://comejournal.com/1941-2/

Bernabé, R., & Orero, P. (2019). Easy to read as multimode accessibility service. *Hermeneus*, 21, 53–74. https://doi.org/10.24197/her.21.2019

Bernabé, R., Orero, P., García, Ó., & Oncins, E. (2020). Validation of easy-to-read subtitles. In D. Dejica, C. Eugeni, & A. Dejica-Cartis (Eds.), *Translation studies and information technology: New pathways for researchers, teachers and professionals* (pp. 162–175). Editura Politehnica.

Cattrysse, P. (2001). Multimedia and translation: Methodological considerations. In Y. Gambier, & H. Gottlieb (Eds.), *(Multi) media translation: Concepts, practices and research* (pp. 1–12). John Benjamins.

Crabb, M., Jone, R., & Armstrong, M. (2015). The development of a framework for understanding the UX of subtitles. In *Proceedings of the 17th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '15)* (pp. 347–348). ACM. https://doi.org/10.1145/2700648.2811372

Dejica, D., Simon, S., Farcasiu, M., & Kilyeni, A. (2021). *Report 1: Common methodological framework and best practices in validation across Europe*. https://plenainclusionmadrid.org/train2validate/result-1-the-current-training-of-facilitators-and-validators/

Deutsches Institut für Normung. (2023). *DIN SPEC 33429:2023-04 Empfehlungen für Deutsche Leichte Sprache* [Recommendations for German easy language]. Deutsches Institut für Normung. https://www.din.de/de/mitwirken/normenausschuesse/naerg/e-din-spec-33429-2023-04-empfehlungen-fuer-deutsche-leichte-sprache--901210

Díaz Cintas, J. (2003). *Teoría y práctica de la subtitulación: Inglés/español* [Subtitling theory and praxis: English/Spanish]. Ariel.

Díaz Cintas, J., & Remael, A. (Eds.). (2007). *Audiovisual translation: Subtitling.* Routledge.

Easy Access for Social Inclusion Training. (2020). *Intellectual Report 1 – Final Report.* https://ddd.uab.cat/pub/infpro/2019/203967/EASIT_IO1_Report_v7_13092020.pdf

Eugeni, C. (2008a). *Le sous-titrage en direct: Aspects théoriques, professionnels et didactiques* [Live subtitling: Theoretical, professional and didactic aspects]. CEUM.

Eugeni, C. (2008b). Respeaking the news for the deaf: For a real special needs-oriented subtitling. *Studies in English Language and Literature*, *21*. National Taiwan University of Science and Technology. https://ltaproject.eu/wp-content/uploads/2019/06/Eugeni_C.-2008_Respeaking-the-TV-for-the-Deaf-For-a-Real-Special-Needs-Oriented-Subtitling.pdf

Eugeni, C. (2019). Human-computer interaction in diamesic translation: Multilingual live subtitling. In D. Dejica, C. Eugeni, & A. Dejica-Cartis (Eds.), *Translation studies and information technology: New pathways for researchers, teachers and professionals* (pp. 19–31). Editura Politehnica. https://www.researchgate.net/publication/345803837_Human-Computer_Interaction_in_Diamesic_Translation_Multilingual_Live_Subtitling

Gambier, Y. (2013). The position of audiovisual translation studies. In C. Millán-Varela, & F. Bartrina (Eds.), *The Routledge handbook of translation studies* (pp. 45–59). Routledge.

García, Ó. (2012). *Lectura fácil: métodos de redacción y evaluación* [Easy language: Writing and validation methods]. Plena Inclusión. https://www.plenainclusion.org/sites/default/files/lectura-facil-metodos.pdf

Gottlieb, H. (2005). Multidimensional translation: Semantics turned semiotics. In H. Gerzymisch-Arbogast, & S. Nauert (Eds.), *Proceedings of the Marie Curie Euroconferences MuTra: Challenges of multidimensional translation* (pp. 33–61). https://euroconferences.info/proceedings/2005_Proceedings/2005_Gottlieb_Henrik.pdf

International Federation of Library Associations and Institutions. (2010). *Guidelines for easy-to-read materials*. https://www.ifla.org/

Inclusion Europe. (2009). *Information for all: European standards for making information easy to read and understand*. https://www.inclusion-europe.eu/easy-to-read-standards-guidelines/

Johansson, S. (2016). *Towards a framework to understand mental and cognitive accessibility in a digital context* [Unpublished doctoral dissertation]. KTH Royal Institute of Technology. http://kth.diva-portal.org/smash/record.jsf?pid=diva2%3A908641&dswid=318

Kafle, S., & Huenerfauth, M. (2020). Usability evaluation of captions for people who are deaf or hard of hearing. *SIGACCESS Accessibility and Computing, 1*(122), 1. https://doi.org/10.1145/3386410.3386411

Koehler, S., & Bernabé, R. (2023). *Deutsche Leichte Sprache für öffentliche Stellen* [German easy language in public institutions]. Frank & Timme. https://doi.org/10.57088/978-3-7329-9034-4

Kruger, H., & Kruger, J. L. (2017). Cognition and reception. In W. Schwieter & A. Ferreira (Eds.), *The handbook of translation and cognition* (1st ed., pp. 71–89). John Wiley.

Mayer, R. E. (2002). Multimedia learning. *Psychology of Learning and Motivation,* 41, 85–139. https://doi.org/10.1016/S0079-7421(02)80005-6

Oncins, E., Bernabé, R., Montagud, M., & Arnáiz Uzquiza, V. (2020). Accessible scenic arts and virtual reality: A pilot study with aged people about user preferences when reading subtitles in immersive environments. In M. Richart-Marset & F. Calamita (Eds.), *Traducción y accesibilidad en los medios de comunicación: De la teoría a la práctica* [*Translation and media accessibility: From theory to practice*] [Special issue]. *MonTI*, 12. https://doi.org/10.6035/MonTI.2020.12.07

Paivio, A. (1986). *Mental representations: A dual coding approach*. Oxford University Press.

Perego, E. (2020). *Accessible communication: A cross-country journey.* Frank & Timme.

Pérez-González, L. (2014). Multimodality in translation and interpreting studies: Theoretical and methodological perspectives. In S. Bermann & C. Porter (Eds.), *A companion to translation studies* (pp. 119–131). John Wiley. http://eu.wiley.com/WileyCDA/WileyTitle/productCd-0470671890.htm

Plain Language Action and Information Network. (2011). *Federal plain language guidelines*. https://www.plainlanguage.gov/guidelines/

Plena Inclusión Madrid. (2018). *Validación de textos en lectura fácil: Aspectos prácticos y socio-laborales* [Validation of easy-to-read texts: Social and pratical aspects]. https://shorturl.at/qtB15

Rai. (2021). *Norme e convenzioni editoriali essenziali per i sottotitoli televisivi per spettatori sordi e con difficoltà uditive* [Editorial norms and conventions essential to subtitles for deaf and hard-of-hearing audiences]. https://www.rai.it/dl/doc/2020/10/19/1603121663902_PREREGISTR_22_feb_2016_-_Norme_e__Convenzioni_essenziali_per_la_composiz...%20-%20Copia.pdf

Romero-Fresco, P. (2015). *The reception of subtitles for the deaf and hard of hearing in Europe*. Peter Lang.

Romero-Fresco, P. (2019). *Accessible filmmaking: Integrating translation and accessibility into the filmmaking process*. Routledge. https://doi.org/10.4324/9780429053771

Rop, G., Schüler, A., Verkoeijen, P. P. J. L., Scheiter, K., & van Gog, T. (2018). The effect of layout and pacing on learning from diagrams with unnecessary text. *Applied Cognitive Psychology, 32,* 610–621. https://doi.org/10.1002/acp.3445

Saggion, H. (2017). *Automatic text simplification* (*Synthesis Lectures on Human Language Technologies*). Morgan & Claypool.

Sweller, J. (1994). Cognitive load theory, learning difficulty and instruction design. *Learning and Instruction,* 4, 296–312. https://doi.org/10.1016/0959-4752(94)90003-5

Szarkowska, A. (2013). Towards interlingual subtitling for the deaf and the hard of hearing. *Perspectives: Studies in Translatology, 21*(1), 68–81. https://doi.org/10.1080/0907676X.2012.722650

Szarkowska, A., Krejtz, I., Pilipczuk, O., Dutka, L., & Kruger, J. L. (2016). The effects of text editing and subtitle presentation rate on the comprehension and reading patterns of interlingual and intralingual subtitles among Deaf, Hard-of-Hearing and Hearing viewers. *Across Languages and Cultures, 17*(2), 183–204. https://doi.org/10.1556/084.2016.17.2.3

Tamayo, A. (2016). Reading speed in subtitling for hearing impaired children: An analysis in Spanish television. *The Journal of Specialised Translation,* 26, 275–294. https://doi.org/10.26034/cm.jostrans.2016.288

Tamayo, A., & Chaume, F. (2017). Subtitling for d/Deaf and Hard-of-Hearing children: Current practices and new possibilities to enhance language development. *Brain Sciences, 7*(12), 75. https://doi.org/10.3390/brainsci7070075

Tarchi, C., Zaccoletti, S., & Mason, L. (2021). Learning from text, video, or subtitles: A comparative analysis. *Computers & Education*, *160*. https://www.sciencedirect.com/science/article/abs/pii/S0360131520302323

Train2Validate. (2020). *The project.* https://plenainclusionmadrid.org/train2validate/project/

Una Norma Española. (2018). *Easy to read: Guidelines and recommendations for the elaboration of documents* (UNE 153101:2018 EX). AENOR. https://www.une.org/

World Wide Web Consortium. (2021, November 29). *Making audio and video media accessible*. https://www.w3.org/WAI/media/av/

World Wide Web Consortium. (2023, October 5). *Web Content Accessibility Guidelines (WCAG) 2.2.* https://www.w3.org/TR/WCAG22/