SOUNDTRACK VERSUS SUBTITLES:
USE OF INPUT CHANNEL IN INTERMEDIATE AND
ADVANCED L2 LEARNERS OF SPANISH

ANNE VAN SLUIJS
S1777874

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Department of Applied Linguistics
Faculty of Arts
University of Groningen

Supervisor:
Prof.dr. C.L.J. (Kees) de Bot

Second reader:
Dr. S. (Sake) Jager

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0. Abstract

From a second language acquisition (SLA) perspective, an advantage of subtitling is the increase of second language (L2) knowledge. However, to enable SLA, the L2 channel has to be processed. The current study investigates to what extent there is a difference in input channel use between intermediate and advanced Dutch learners of Spanish when watching a subtitled Spanish news broadcast. Moreover, the influence is investigated of the subtitle language (standard – L1 – or intralingual – L2) on input channel use. In the experiment, the L1/L2 subtitles of the news broadcast contained deviating information (‘April’ in audio became ‘May’ in subtitles). A multiple-choice questionnaire was used to determine whether the results were based on the audio or on the subtitles. Only a significant effect was found for the subtitle language: both intermediate and advanced learners used the L1 subtitles significantly more than the L2 subtitles. It is suggested that for future research, the number of participants has to be bigger, and a more sensitive test has to be developed to investigate the effect of L2 proficiency level on input channel use.

Key words: second language acquisition, input channel, intralingual subtitles, L2 proficiency
1. Introduction

In modern society, (multi)media has become one of the main information resources, and it has become a popular means for second language education (Herron, Morris, Secules & Curtis, 1995). Nowadays, television is available worldwide, and internet makes global information transfer more accessible than ever. Still, television programs and other media are not all directly accessible and understandable for everyone around the world: measures have to be taken to overcome language boundaries for distributing the media internationally. The two main methods to overcome the language problem are lip-sync dubbing and subtitling (Koolstra, Peeters & Spinhof, 2002). With the costly measure of dubbing, the original soundtrack of the film is replaced by the soundtrack in the first language (L1) of the audience. Large language communities such as Germany, France or Italy have the financial resources for dubbing. Besides the presence of the financial resources, there may be other reasons for countries to use dubbing, for example to preserve the national language at any cost, e.g., Hungary. Thus, next to the large language communities, also smaller ones might choose for dubbing.

In contrast to the large language communities, in the smaller ones such as the Netherlands, Denmark or Portugal, the much cheaper measure of subtitling is used to overcome the language problem (Koolstra et al., 2002). With this measure, the subtitles are generally provided in the language of the audience, and the original soundtrack is preserved. This is called standard subtitling. On the other hand, subtitles in the same language as the original soundtrack are also used at times. This type of subtitling is also known as intralingual or teletext subtitling, and it is commonly used to make films and TV-programs accessible to the deaf and hearing-impaired community. In addition, intralingual subtitling is sometimes used in the classroom as an aid for learning a second language (L2) (Williams & Thorne, 2000).

Both dubbing and subtitling have several advantages and disadvantages, so it is still a topic of debate (but not within the scope of this thesis) to decide which one could be labelled as the ‘best’ method (see Koolstra et al., 2002 for an extensive review). However, from a second language acquisition (SLA) perspec-
tive there is consensus about the great advantage of subtitling, because this method is assumed to increase the viewer's comprehension and knowledge of a second language. With the soundtrack in a foreign language, and the subtitles in the native language, the viewer has to process a multilingual situation, which has proven to lead to possible foreign language acquisition (d'Ydewalle & Van de Poel, 1999; Koolstra & Beentjes, 1999; Van Lommel, Laenen & d'Ydewalle, 2006).

To enable SLA, it must be certain that the L2 is being processed. Thus, in the standard subtitling situation the L2 soundtrack should be processed in addition to the L1 subtitles.

In addition to the SLA advantage of watching a program with standard subtitling, advanced L2 learners might also profit from watching a program with both soundtrack and subtitles in the L2: providing access to both the soundtrack and the subtitles in the L2, intralingual subtitling may help the viewer map the phonology to the written words (Bird & Williams, 2002; Mitterer & McQueen, 2009). Thus, to enable SLA in the intralingual subtitling situation, both subtitles and soundtrack should be processed. It should be noted that in this situation it is required for the viewer to be proficient enough in the L2, otherwise the fully L2 situation would be beyond the viewer's linguistic competence, and it would be much more difficult for SLA to occur (Krashen, 1985; Neuman & Koskinen, 1992).

In the past few decades, there have been several studies conducted to investigate the influence of watching subtitled television on SLA (d'Ydewalle & Van de Poel, 1999; Koolstra & Beentjes, 1999; Van Lommel et al., 2006). However, not many studies have focussed on the specific contribution of both the speech stream and the subtitles. That is why in the current study the difference in use of audio and subtitles when watching a subtitled program is investigated. In addition, the influence of the L2 proficiency level of the viewer, and the influence of the language of the subtitles are taken into consideration.

In the current report, first several theories of multimodal processing will be discussed. In this case, particularly the processing of sound, moving images and text is of interest, since those are the three channels to be processed when watching a subtitled television program. From the early selection theories of attention (Broadbent, 1958; Treisman, 1964, 1969) the emphasis will move to Pai-
vo’s Dual Coding Theory (1971) and to empirical evidence of the influence of subtitle processing on SLA. Secondly, the role of comprehensible input in SLA will be discussed to get more insight into the use of different forms of subtitles for enabling SLA. Within this subject, the Input Hypothesis of Krashen (1985) and the Zone of Proximal Development (Vygotsky, 1978) will be discussed. In addition, the possible advantages of different subtitling conditions in relation to the L2 proficiency level of the learner will be taken into consideration. Finally, the actual research design of the current study will be discussed in detail, followed by the results, and a discussion and conclusion.
2. Background

2.1. Multimodal Processing

2.1.1. Selective attention theories. In most visual media, there are at least two sources to be processed: image and sound. In many television programmes and films, a third source is added, namely subtitles. Thus, such programmes and films have to be processed through three different, but overlapping channels: the imagery channel, the aural channel, and the textual channel.

For a long time, multimodal processing has been considered a very demanding task that was not possible to execute effectively due to limited cognitive capacity. For example, early-selection theories imply that the attended information is selected at a very early stage of information processing, which would mean that multiple attention shifts between the different forms of input would not be possible (Broadbent, 1958; Treisman, 1964, 1969).

One of the first and leading selective attention models in educational psychology is the Filter Model of Attention (Broadbent, 1958). This model implies that due to a limited cognitive capacity, a selective filter is needed for information processing (figure 1). This selective filter blocks the so-called unattended input based on physical characteristics, such as pitch, direction, colour and loudness. The information that passes the filter would then be available in short-term and working memory, and finally it could become part of long-term memory.

![Figure 1: The Filter Model of Attention (adapted from Farr, 2012)](image)

The Filter Model of Attention was designed to explain the results of Broadbent’s (1958) study on the focus of attention when receiving multiple channels of input. This study included a dichotic listening task, where the
participants received two different numeric codes, one per ear, which served as dual-channel input. The participants were asked to repeat both numeric codes. Two main strategies were identified in repeating the numbers: ear-by-ear (first input from one ear, then input from other ear) or pair-by-pair (repeating digits in pairs according to the moment of presentation). The ear-by-ear strategy appeared to be used the most. Moreover, results showed that the ear-by-ear strategy resulted in the least errors in repeating the numbers. Since most participants chose to attend to the input of one ear before focusing on the other, Broadbent claimed that these results lead to the conclusion that the focus of attended information was selected at a very early stage of processing.

One of the critiques to the Filter Model was that it did not account for the so-called Cocktail Party Effect (Cherry, 1953): although you are in conversation with someone in a noisy place, you are still able to perceive your name consciously when someone on the other side of the room is talking about you. This shows that not all unattended input is entirely blocked, but that the ignored information is still being processed at some level.

As an elaboration of Broadbent’s Filter Model, and to account for the Cocktail Party Effect, Treisman (1964, 1969) claimed that instead of blocking the unattended input entirely, the information would be attenuated. That is, the unattended input would be less prominently present, but not entirely blocked at the beginning. The attenuated information would briefly remain in the short-term memory, which would make unconscious processing of the ignored input possible. After the attenuating filter, there would be an analysis of the input based on its semantic value. That way, attenuated information of high semantic value (like the listener’s own name) could still become part the higher level processing. This theory resulted in the Attenuation Model.
As can be seen in figure 2, the Attenuation Model sticks to Broadbent’s assumption that the attended information is selected at an early stage in the process. This implies that even though the unattended information is able to pass through the first filter, it remains impossible to make attention shifts between the attended and attenuated input at a later stage of the process, due to cognitive capacity limitations. Thus, both Broadbent’s Filter Model and Treisman’s Attenuation Model suggest that multimodal information processing, such as watching a subtitled video, would cause high constraints on cognitive capacity when all input channels are to be processed.

Within the scope of this report it should be noted that the three mentioned input channels (sound, image and text) of subtitled television are not independent from each other: both the audio and the subtitles provide practically the same information, and the images are also complementary in essence. Therefore, it might be suggested that the predictions by the early selection theories are not entirely applicable to the multimodal input of subtitled television. However, it was decided to include the early selection theories in this report, since they were the first and leading theories in educational psychology. Moreover, the different multimodal processing theories could also be interpreted with respect to the situation with subtitled television. Thus, keeping the complementary dimension of the multimodal input of subtitled television in mind, it is argued that the aforementioned multimodal processing theories are to some extent also applicable to the interest of the current study, as well as the upcoming processing theories.
2.1.2. Dual Coding Theory in a bilingual context. The aforementioned early-selection theories of attention mainly concerned information coming from two different sources. If a third channel of complex information were to be added, then the demand on cognitive functions would only increase, also in the situation with more complementary input channels as in the case with subtitled television with sound, image and text. However, the Dual Coding Theory (DCT) of Paivio (1971) suggests the exact opposite. The DCT is based on the assumption that memory and cognition function through two separate symbolic systems, one for processing verbal information, and one for processing nonverbal (imagery) information (figure 3). According to Paivio (1971), the two systems are interconnected, but are also capable of functioning independently. The interconnectedness would imply that representations in one system could activate those in the other system, whereas the independence implies that there would only be additive effects and no inhibition effects if both systems are called upon simultaneously. In other words, if the received input makes an appeal on both the verbal and nonverbal system, the activation of one system would make retrieval of an associative object in the other system easier.

![Dual Coding Model](image)

*Figure 3: The Dual Coding Model (adapted from Paivio, 2010).*

Over the years, many kinds of evidence have supported the DCT and its assumed additive effects that one activated system could have on the other (i.e. Paivio & Csapo, 1973; Paivio & Lambert, 1981). Results of many psycholinguistic
studies in the last couple of years could be explained by the DTC, with an explanatory advantage over single-code theories (see Paivio, 1983, 2010 for reviews).

For example, Paivio and Csapo (1973) investigated the functions of nonverbal and verbal memory representations in the free verbal recall of pictures and nouns. 142 undergraduate students participated in a series of five experiments concerning verbal and image encoding tasks, and a probability learning task. Recall tests following these tasks consistently showed much higher recall for pictures than for words, suggesting an additive contribution of image and verbal memory codes, with a significant bigger contribution of the imagery system to the additive effect than the verbal system. This picture superiority was also found in many other studies by Paivio and colleagues (Paivio, 2010). Thus, the imagery system would serve as a connective link between the visual input and its verbal representation, but the advantages in an opposite situation appeared to be less.

To make the DCT applicable to a bilingual context, Paivio & Desrochers (1980) proposed the Bilingual Dual Coding Model (figure 4). This model is based on the assumption that bilinguals have two separate verbal systems (one per language), and a nonverbal, imagery system shared by languages. In accordance to the original Dual Coding Model, all systems are interconnected and they are also capable of functioning independently.

Figure 4: The Bilingual Dual Coding Model (adapted from Paivio & Desrochers, 1980)
The afore mentioned studies of Paivio and colleagues that found evidence for the DCT are also to some extent applicable to the Bilingual DCT, since the base of both theories is the same. Besides the earlier research, a recent study of Jared, Pei Yun Poh, and Paivio (2013) specifically focussed on the Bilingual Dual Coding Model. Jared et al (2013) examined the nature of bilinguals’ conceptual representations and the links from these representations to words in L1 and L2. Specifically, the study served as a test of the assumption of the Bilingual Dual Coding Theory that conceptual representations include image representations, and that learning two languages in separate contexts could result in differences in referential images for L1 and L2. To do so, 40 Mandarin–English participants completed a picture-naming task. They had to name aloud culturally-biased images and culturally-unbiased images in both Mandarin (L1) and English (L2). Culturally-biased images were images that were represented differently in the Chinese and Canadian/Western culture. For example, in China a dragon is depicted as a serpent-like creature, whereas in the Western culture dragons are depicted more like dinosaurs. On the other hand, culturally-unbiased images were images of common objects, like an apple. Results showed that culturally-biased images were named significantly faster in the culturally-congruent language than in the incongruent language. This suggests that some image representations are more strongly connected to one language than the other, which supports the tested assumption of the Bilingual Dual Coding Theory.

All in all, early-selection theories of attention predict that processing of information coming from multiple sources causes a high cognitive load. Therefore, multimodal processing might cause a trade-off effect between visual processing and subtitle processing. On the other hand, the (bilingual) DCT of Paivio predicts that the different processing systems could enhance each other’s functioning. To get more insight into that discrepancy, Peregro, Del Missier, Porta & Mosconi (2010) investigated whether there would be a trade-off effect between visual (imagery) processing and subtitle (textual) processing by means of eye-movement data, word recognition, and visual scene recognition. Peregro et al. (2010) tested the hypothesis that the processing of subtitled films is cognitively effective, and that it leads to a better understanding of the film without demanding a significant trade-off effect between image processing and text processing.
41 Italian students participated in the experiment. After watching a subtitled video, participants were asked to fill in a gist comprehension questionnaire to assess whether the participants understood the main idea of the film fragment and the dialogue. In addition, participants were asked to fill in a word recognition questionnaire, and to do a computerized scene recognition task. Generally, the results were consistent with the hypothesis: participants showed high levels of performance in both subtitle recognition and scene recognition, which indicate that there was no trade-off effect between image processing and subtitle processing. Also, results showed reasonably high scores on the comprehension questionnaire, which indicates that subtitle processing is actually effective in leading to a better understanding of the film. In addition, a significant difference was observed between the scores on scene recognition and subtitle word recognition, with a higher score on scene recognition. This image-text recall difference could be accounted for by the aforementioned picture superiority, explained by the Dual Coding Theory (Paivio, 1971).

2.1.3. Subtitle processing and its influence on SLA.

**Automatic reading behaviour.** Based on the DCT and the studies supporting it (Paivio & Csapo, 1973; Paivio, 1975; Paivio & Lambert, 1981, Peregro et al., 2010), it could be concluded that the visual element in bimodal input supports information processing, and does not, as suggested by the early-selection theories, cause a cognitive overload. Thus, adding a third, textual input channel (like subtitles) would enhance information processing, and thus SLA, even more (see Jung, 2010 for a review). However, it argued that adding subtitles to a foreign language video could only facilitate SLA if it is certain that the textual input is being processed. Otherwise, adding the subtitle channel would have no value for SLA. To get more insight into the reading behaviour when watching a subtitled program and its possible benefits for SLA, several studies, which will be discussed in the next section, have investigated attention allocation of non-native speakers when watching a subtitled video (De Bot, Jagt, Janssen, Kessels & Schils, 1986; d’Ydewalle, Van Rensbergen & Pollet, 1987; d’Ydewalle & Gielen, 1992; d’Ydewalle & De Bruycker, 2007; Sohl, 1989).
Several eye-tracking studies have investigated reading behaviour when watching a subtitled program, to get more insight into multimodal processing (see d’Ydewalle and Gielen, 1992 for an overview). In the past two decades, d’Ydewalle and colleagues found evidence in several studies that reading subtitles happens effortlessly and almost automatically. For example, d’Ydewalle, Van Rensbergen and Pollet (1987) showed that Dutch-speaking subjects were able to switch effortlessly between the visual image and the subtitles. Moreover, the time spent in processing the subtitles did not change when reading the subtitles was made either more important for understanding (by omitting the audio) or less important (when the subject knows the foreign language very well). From these findings it was concluded that reading the subtitles at its onset presentation happens more or less automatically, and it is unaffected by major contextual factors like the availability of the soundtrack. d’Ydewalle et al. (1987) argued that these findings could be explained by the fact that the Dutch subjects were so familiar with subtitles that it may lead them to reading subtitles even when they know the foreign language very well.

To investigate the influence of familiarity with subtitles on the automatic reading behaviour found by d’Ydewalle et al (1987), d’Ydewalle, Praet, Verfaillie, and Van Rensbergen (1991) conducted an eye-tracking study, and compared the reading behaviour of American subjects with that of Dutch subjects, since the two groups differ in terms of their familiarity with subtitles. More specifically, the American subjects, who had no experience with reading subtitles, watched an American movie with English subtitles. Consequently, the Dutch subjects, who were very familiar with reading subtitles, watched a Dutch movie with Dutch subtitles. Results showed that both the American and the Dutch subjects spent considerable time looking to the subtitle area, showing comparable reading behaviour as in previous research. Thus, it can be concluded that the presence of subtitles elicits automatic reading behaviour, even when both the subtitles and the soundtrack are in the L1 of the subject, and regardless of the familiarity with subtitle reading.

In a more recent eye-tracking study, d’Ydewalle and De Bruycker (2007) investigated the difference in reading behaviour between children and adults. Moreover, d’Ydewalle and De Bruycker (2007) looked at the influence of stand-
ard (L2 audio and L1 subtitles) and reversed (L1 audio and L2 subtitles) subti-
tling on reading behavior. All participants were native Dutch speakers and had
no knowledge of the L2 (Swedish). More specifically, a group of eight children
(age 10-12) and twelve adults (age 19-26) participated in the study. Results
showed no substantial age difference, except that children took longer to shift
attention to the subtitles. However, results did show that even though more reg-
ular reading occurred with standard subtitling, participants also spent some time
looking at the reversed subtitles (despite the presence of L1 in audio). Thus, alt-
ough the L2 subtitles were basically meaningless, d'Ydewalle and De Bruycker
(2007) concluded that participants do seem to process the unknown foreign lan-
guage in the subtitles.

**Simultaneous processing of audio and subtitles.** In short, the aforemen-
tioned studies by d'Ydewalle and colleagues show that subtitles are processed
automatically (d'Ydewalle et al, 1987), even when the subjects are unfamiliar
with subtitle reading and when both audio and subtitles are in L1 (d'Ydewalle et
al, 1991), or when the audio is presented in L1 and the subtitles are in an un-
known L2 (d'Ydewalle and De Bruycker, 2007). These findings might lead to the
question whether the automatic reading behavior prevents the subjects from
processing the audio channel appropriately. However, evidence has been found
that viewers are not fully dependent on subtitles, and that simultaneous pro-
cessing of audio and subtitles can occur (De Bot et al., 1986; Sohl, 1989).

De Bot et al (1986) investigated to what extent television viewers focus
either on L1 subtitles, L2 audio or both, when watching subtitled foreign lan-
guage programmes. Beginning and advanced Dutch learners of English were
shown short items of an English news broadcast in which, at various points, L2
audio and L1 subtitles contained conflicting information. After each new item,
the subjects were asked to answer the corresponding multiple-choice questions,
of which some questions concerned non-deviating information, and some where
the answer options were based on either the information in the subtitles or in
the audio, and with the inclusion of two distractors. In their study, De Bot et al
(1986) included phonological deviations, grammatical deviation, lexical devi-
tions, and omissions. Results showed that in general, the beginning L2 learners
were less oriented towards the audio than the advanced L2 learners, although
both groups appeared to use both the audio and the subtitle channel. Furthermore, results showed that subtitle orientation was most dominant in the beginning L2 learners in phonological and lexical deviations. All in all, it could be concluded that processing of the audio channel takes place for both beginning and advanced L2 learners, but that beginning L2 learners are more L2-subtitle oriented than advanced L2 learners.

Other evidence on the processing of both subtitles and audio comes from Sohl (1989). With a double task technique it was investigated whether children and adults process the L2 audio when watching a movie with L1 subtitles. Sohl (1989) compared three processing situations: one with both subtitles and audio, one with only audio, and one with neither audio nor speech. While watching the movie in one of the three situations, the subjects had to react to flashing light. The reaction times of the flashlights were taken as a measure of processing capacity of the participant. In other words, the slower the reaction times, the more cognitive energy was assumed to be used in processing the movie. Results for both children and adults showed the slowest reaction times in the situation when both audio and subtitles were presented. No significant difference was found between the reaction times of the children and adults. Sohl (1989) thus concluded that both groups were able to process both L1 subtitles and L2 audio simultaneously, indicating that SLA could occur, since the L2 channel is being processed.

**SLA through subtitled television.** In addition to the studies investigating attention allocation, several researches tried to get more insight into possible SLA through watching subtitled programs (d’Ydewalle and Pavakanun, 1995, 1997; Pavakanun and d’Ydewalle, 1992; d’Ydewalle & Van de Poel, 1999; Koolstra & Beentjes, 1999; Van Lommel, Laenen & d’Ydewalle, 2006). For example, in a series of studies by d’Ydewalle and Pavakanun (1992, 1995, 1997) foreign language acquisition through subtitled television was investigated in adolescents and adults. In all three studies, participants were shown a short television program with standard subtitling, reversed subtitling or no subtitling (but with L2 audio). In addition, d’Ydewalle and Pavakanun (1997) also looked at the influence of cross-linguistic similarities on SLA through subtitled television. Directly after watching the video, foreign language acquisition was tested by a vocabulary
test, a morphology test, and a syntax test. Results showed significant vocabulary acquisition effects for both standard and reversed subtitling, but nearly no gains for morphology and syntax acquisition. Also, cross-linguistic similarities did not seem to influence the extent of SLA through watching a subtitled program.

Based on the previous study findings of incidental SLA in adults by watching subtitled television, d'Ydewalle and Van de Poel (1999) and Koolstra and Beentjes (1999) investigated SLA of children in the same conditions. Both studies found evidence for foreign language vocabulary acquisition. In addition, d'Ydewalle and Van de Poel (1999) also investigated possible syntax and morphology acquisition by watching subtitled programs, but no significant acquisition effects were found for those two aspects of language. The findings of both studies are in line with the findings of d'Ydewalle and Pavakanun (1992, 1995, 1997) about SLA through subtitled television in adults. This suggests that there seems to be no age-effect on SLA through the investigated conditions.

All in all, past research had shown considerable foreign vocabulary acquisition through subtitled television, but no indication of grammar acquisition. Therefore, Van Lommel, Laenen and d'Ydewalle (2006) tried to get more insight into the acquisition of foreign grammar in children while watching subtitled television. More specifically, they compared younger children to older children, and they looked at the influence of the presence or absence of explicit grammar instruction before watching the subtitled video. In the experiment, a total of 156 sixth-graders from primary school were compared to 131 sixth-graders from secondary school. The L1 of the participants was Dutch, and the L2 used in the experiment was Esperanto, the language constructed by Zamenhof (1887) known for its simplicity and small number of rules and irregularities. Results showed no rule acquisition through watching the movie only (without explicit grammar instruction). However, a grammar acquisition effect was found for the advance rule presentation condition, particularly for the group of older children. These results led Van Lommel et al (2006) to the conclusion that contrary to vocabulary, grammar may be too complicated to enable acquisition from a rather short movie presentation without explicit grammar instruction on forehand.

To sum up, the early-selection theories of attention (Broadbent, 1958; Treisman, 1964, 1968) have lost their ground to other theories that can account
for the evidence that multimodal processing is in fact possible. Early-selection theories of attention predict that processing of information coming from multiple sources would cause a high cognitive load, whereas the (bilingual) Dual Coding Theory (Paivio, 1971; Paivio and Desrochers, 1980) predicts that the different processing systems could enhance each other's functioning. Several studies over the past few decades have resulted in mounting evidence supporting Paivio's DCT (e.g. Jared et al., 2013; Paivio & Csápo, 1973; Peregro et al., 2010). Based on these findings that prove that bimodal input has an additive effect on information processing, it is suggested that adding a third, textual input channel (such as subtitles in a foreign movie) would enhance information processing, and thus SLA, even more (see Jung, 2010 for a review). To get more insight into this issue, several researchers have conducted experiments through which they found evidence that reading subtitles happens effortlessly and almost automatically (e.g. d'Ydewalle and colleagues, 1987, 1991, 2007), and simultaneously with audio processing (De Bot et al., 1986; Sohl, 1989). Moreover, other findings show considerable SLA through watching subtitled television (d'Ydewalle and colleagues, 1992, 1995, 1997, 1999; Koolstra and Beentjes, 1999; Van Lommel et al., 2006). Thus, multimodal processing is possible and in the case of subtitled television it can lead to SLA. However, this is all dependent of the input conditions: the input has to provide an adequate linguistic context for SLA to occur. Therefore, within the scope of the current study, the role of input in SLA will be discussed in the next section.

2.2. Role of Input in SLA

2.2.1. Input theories. In the previous section research is discussed that has found that SLA can occur through watching subtitled foreign television. However, in practice, SLA is only possible when the topic of the television program, and in that way the difficulty of the used language, suits the proficiency level of the learner. This notion can be generalized to the process of learning in general: if the aspect to be learned is too easy or too difficult, nothing new is expected to be acquired. Several theorists have offered models and theories to account for this issue from everyday experience. For example, a very influential theory in developmental psychology is the notion of the Zone of Proximal Devel-
opment (ZPD) of Vygotsky (1978). The ZPD is the difference between what the learner can do independently, and what the learner cannot do despite any help (figure 5). In other words, the ZPD is that what the learner can do with guidance of a teacher or in collaboration with a peer.

![Representation of Vygotsky's Zone of Proximal Development](image)

*Figure 5: Representation of Vygotsky's Zone of Proximal Development*

Vygotsky's ZPD is also applicable to the field of applied linguistics: SLA can only occur if the input is not too easy, but also not too difficult (Guerra, 1996). Thus, new linguistic items can only be acquired if the learner receives input that is in the learner's ZPD. This assumption is in line with the Input Hypothesis made by Krashen (1985). The Input Hypothesis states that a new language is learned through the process of understanding a message, which is only possible if that message is in the form of comprehensible input. It is suggested that input is ‘comprehensible’ when it contains ‘i+1’, where ‘i’ is the current level of the acquirer and ‘+1’ stands for the to-be-acquired linguistic aspect that is only slightly above the learner’s current proficiency level. In other words, comprehensible input is based on what the learner already knows plus an extra bit of new information. From this view, i+1 can be qualified as the formula for the ZPD. It should be noted, however, that some researchers argue that the ZPD and Krashen’s i+1 cannot be unified without any problem. For example, Dunn and Lantolf (1998) claimed that the ZPD and i+1 are ‘incommensurable’, because the theoretical frameworks on which both constructs are based would differ too
much from each other. However, for the continuation of the present report, it is assumed that the ZPD and Krashen’s $i+1$ are compatible.

Both the ZPD and the Input Hypotheses are very much based on the importance of interaction in SLA (see Gass in Kaplan, 2010 for an overview). As mentioned before, the ZPD is assumed to be what the learner can do with guidance of a teacher or in collaboration with a peer, i.e. what the learner can do with meaningful interaction. Vygotsky states that meaningful interaction stimulates L2 acquisition, because one learner can fill the other one’s gap in knowledge (and vice versa). This way, two learners can stimulate each other to move to the next stage of development. As for the Input Hypothesis, Krashen (1985) stresses that successful communication (and as such, interaction) is the key in creating comprehensible input. Moreover, the importance of so-called teacher talk and foreigner talk are stressed in the Input Hypothesis, since in both cases the teacher and the one who talks to a foreigner adapt their speech to the level of proficiency of the L2 learner to ensure successful communication. So, teacher talk and foreigner talk are seen as examples of comprehensible input.

As Gass (2010) has pointed out, most input theories on SLA are based on an interactionist perspective. However, watching a subtitled foreign program does not involve any interaction or communication at all. Therefore, it might be suggested that the ZPD and the Input Hypothesis would not be as such compatible with the situation of SLA through watching a subtitled program. To solve this initially incompatibility, and bearing the interest of the present study in mind, the aforementioned theories about comprehensible input should be reconsidered to comply with the statement that selecting and presenting visual media for/to L2 learners also depends on the proficiency level of the learner. So for the present study it is suggested to interpret the ZPD and the Input Hypothesis without the interactionist perspective, but with the more general view that the proficiency level of L2 learner is a crucial component in providing an appropriate, comprehensible input.

2.2.2. Experimental evidence on input conditions. Within the more general interpretation of the ZPD and the Input Hypothesis, it is suggested that authentic materials like films or television programs might be useful for ad-
advanced L2 learners. However, those authentic materials might be too difficult for beginning learners (Jung, 2010). More specifically, beginning L2 learners would be able to cope with a foreign film with standard (L1) subtitles, but a foreign film with intralingual subtitles (both audio and subtitles in L2) might prove to be only suitable for advanced (and maybe intermediate) L2 learners. There have been several studies conducted to investigate the influence of different subtitling conditions on information processing, comprehension, and SLA (Bisson, Van Heuven, Conklin, and Tunney, 2012; Mitterer and McQueen, 2009; Neuman and Koskinen, 1992).

In an eye-tracking study, Bisson et al. (2012) investigated viewers’ reading of subtitles while they watched foreign films with standard, reversed, or intralingual subtitling. 36 English native speakers participated in this study, where Dutch was used as the L2 in the presented films. Results showed that the subtitles were read irrespective of the subtitling condition, which is in line with the findings of d’Ydewalle and colleagues about automatic reading behaviour (e.g. d’Ydewalle et al., 1987, 1991). However, more regular reading behaviour was found in the standard and intralingual subtitling conditions as opposed to the reading behaviour found in the reversed subtitling condition. Thus, the L2 subtitles in the intralingual situation are, just like standard subtitles, fully processed. This is supported by previous findings of Mitterer and McQueen (2009) that showed positive effects of intralingual subtitling in foreign speech perception.

In short, Mitterer and McQueen (2009) and Bisson et al. (2010) found supporting evidence for the use of intralingual subtitling. This suggests that besides the earlier discussed standard and reversed subtitling conditions, also intralingual subtitling is of value in creating an adequate context for SLA through multimedia. However, Mitterer and McQueen (2009) and Bisson et al. (2010) did not account for the effects of proficiency level on comprehension of subtitled television. This issue was investigated by Neuman and Koskinen (1992). They looked at whether comprehensible input via television with intralingual subtitles influenced L2 vocabulary acquisition. 129 secondary school pupils participated in the experiment. All participants were L2 learners of English, but had differing native languages. Results showed that subjects more proficient in the L2 learned more words than less proficient subjects. Thus, the positive effects of the differ-
ent subtitling conditions on SLA depend on the proficiency level of the learner. Therefore, it is suggested that comprehensible input may be an important factor in SLA.

2.3. Present Study

In the previous sections, different kinds of research have been discussed that investigated attention allocation when a subtitled video is watched. In addition, research has been discussed that investigated the effects of watching subtitled television on SLA. However, not much is known about the specific contribution of both the audio channel and the subtitle channel. The present study therefore investigates the difference in use of audio and subtitles when watching a subtitled program. In addition, the influence of the L2 proficiency level of the viewer, and the influence of the language of the subtitles (standard or intralingual) are taken into consideration. In the present study, the L1 was Dutch, and the L2 was Spanish.

As was shown in previous research and supported by Vygotsky’s ZPD (1978) and Krashen’s Input Hypothesis (1985), the proficiency level of the viewer is of influence in attention allocation and comprehension of the input (Neuman & Koskinen, 1992). That is why the influence of the L2 proficiency level of the participants was taken into account in the present study. To ensure that all participants were proficient enough to understand at least the main lines of the L2 stimuli, both intermediate and advanced (and no beginning) Dutch learners of Spanish participated in the experiment. In addition, several previously discussed studies showed that the subtitle conditions have an effect on attention allocation and SLA when watching subtitled television (e.g. Bisson et al., 2012; d’Ydewalle & De Bruycker, 2007). Therefore, the influence of the subtitle language was also taken into account in the present study.

To test the use of the audio channel and the subtitle channel, the design of the present study was based on that of De Bot et al. (1986): participants were presented a news broadcast with L2 audio, and L1 subtitles. This was called the standard subtitling condition. For the present study, a condition with L2 subtitles was also added, which was called the intralingual subtitling condition. In order to investigate the difference in use of audio versus subtitles, the subtitles at some
points contained conflicting information. That is, at some points a word in the subtitles was manipulated, so that the audio did not correspond to the subtitles (for example, April in the soundtrack became May in the subtitles). This way, the use of the audio channel and the subtitle channel could be checked with a multiple-choice questionnaire where the possible answers could be based on the information in the audio, the information in the subtitles, or two filler (incorrect) answers. In addition, there were distractor questions, which only concerned non-manipulated information. These distractor questions were used as a measure of comprehension of the news broadcast in general, to test whether the news broadcast and the multiple-choice questionnaire were not too easy or too difficult. In addition, the distractor questions were to distract the participants from the actual goal of the present study.

The first research question in this study is to what extent there is a difference in the use of the input channel (audio versus subtitles) between the intermediate proficiency group and the high proficiency group. It is expected that in general, the intermediate proficiency group uses more information from the subtitle channel than the high proficiency group will. Thus, the audio channel is expected to be used the most by the high proficiency group. These predictions are based on the assumption that due to their lesser proficiency, the intermediate would be more reliant on the subtitle channel to ensure comprehension of the Spanish news items. Moreover, the high proficiency group would be proficient enough to understand most things from just audio. These predictions are in line with the findings of De Bot et al. (1986), who found that beginning L2 learners are more subtitle oriented than advanced learners. The current predictions are also based on the findings of Neuman and Koskinen (1992) and van Lommel et al. (2006), who found that L2 proficiency level affects SLA through subtitled television. Therefore, it is assumed that since SLA requires processing of the L2 channel, advanced learners are assumed to be more oriented towards the audio (L2) channel than intermediate learners.

The second research question is to what extent there is a difference in the use of the input channel between standard (L1) subtitling and intralingual (L2) subtitling. It is expected that in general, the L1 subtitles will be used more than the L2 subtitles, because the L1 subtitles are assumed to be processed easier
than L2 subtitles. This prediction is based on the findings of d’Ydewalle and De Bruycker (2007), who found more regular reading behaviour with standard subtitling than with reversed subtitling. However, reversed subtitling is different from intralingual subtitling, and the latter is used in the current study. Therefore, it might be the case that the difference in input channel use between standard and intralingual subtitles is less present or even absent (Bisson et al., 2012).

The third research question in this study is to what extent there is an interaction between L2 proficiency level and subtitle language. It is expected that the input channel use of the high proficiency group is more influenced by the language of the subtitles than the input channel use of the intermediate proficiency group. More specifically, it is hypothesised that due to the lower L2 proficiency level, the language of the subtitles does not affect audio use much in the intermediate proficiency group, since they are expected to be more dependent on the subtitle channel either way. In contrast, it is expected that the subtitle language affects audio use of the high proficiency group more. This is based on the assumption that with Dutch subtitles, it remains easiest to process L1 subtitles instead of L2 audio. Thus, in the standard subtitling condition the high proficiency group is expected to use more subtitles than audio. In contrast, in the intralingual subtitling condition, both subtitles and audio are in L2, so both channels are assumed to be at least equally processed by the high proficiency group. This leads to the hypothesis that due to their higher L2 proficiency (and so their easier processing of the L2 channel), the high proficiency group will be more affected by the subtitle language than the intermediate proficiency group.

Finally, the distractor questions were used as a measure of comprehension of the news broadcast in general. With regard to the influence of L2 proficiency level, it is expected that the high proficiency group has a better understanding of the Spanish news broadcast than the intermediate proficiency group, due to the higher L2 proficiency level of the high proficiency group. When it comes to the influence of the subtitle language, it is predicted that general comprehension is better with standard subtitles than with intralingual subtitles, because information is assumed to be better processed in L1 than if it is presented in L2 only. As for a possible interaction effect of L2 proficiency level and subtitle language on general comprehension, it is hypothesised that general comprehen-
sion of the intermediate proficiency group is more influenced by the language of the subtitles than that of the high proficiency group. More specifically, it is expected that due to their lower L2 proficiency level, comprehension of the intermediate proficiency group will be more negatively affected by the intralingual subtitling condition than the general comprehension of the high proficiency group will be.
3. Method

3.1. Participants

24 participants took part in this experiment (4 male, 20 female). The participants were Dutch (L1) learners of Spanish (L2) between the age of 19 and 25 years. All participants were students of the University of Groningen in the Netherlands. 12 participants had recently completed a Spanish proficiency program at the University of Groningen. Students who have completed the Spanish proficiency program are assumed to have mastered the language at B1 (intermediate) level, based on the Common European Framework of Reference for Languages (Council of Europe, 2001). Therefore, the first group was defined as the Intermediate Proficiency (IP) group. The other 12 participants were third year or master students of the Roman Languages and Cultures program with Spanish as their major. From the third year on, major students of Spanish are assumed to have mastered Spanish at C1 (advanced) level. Therefore, the second group was categorised as the High Proficiency (HP) group.

All participants had normal or corrected to normal sight and hearing. In addition, none of the participants reported dyslexia or other language impairments. After the experiment, the participants completed a self-reporting language questionnaire (Gullberg and Indefrey, 2003) to verify their language background and to ensure that they were native Dutch speakers. See appendix A for more detailed information about the participants.

3.2. Materials

3.2.1. Proficiency test. The DIALANG-test was used as a measure of general proficiency (Lancaster University, 2006). However, the main goal of providing this proficiency test before the actual experiment was to make the beginning conditions equal for all participants. This was to avoid the influence of the extent to which the participants might have practiced Spanish before participating in the experiment.

DIALANG is a language diagnosis system that reports the level of skill against the CEFR levels for language learning. This testing system consists of five different components: listening, writing, reading, language structures, and vo-
cabulary. In the current study, due to the lengthy size of the complete DIALANG test, only the subtest on Spanish vocabulary was used. The vocabulary test consisted of two parts: a placement test and the actual vocabulary test. The placement test was to determine which test items had to be presented for an assessment on the proficiency level of Spanish. The placement test consisted of 75 verbs of which the participant had to decide whether they were existing verbs or non-existing verbs. After the placement test the actual vocabulary test followed. In this part the questions test the participant’s knowledge of word meaning, semantic relations, word combinations, and general vocabulary. These skills were tested through fill-in-the-gap questions and multiple-choice questions in which the participant had to give a synonym or antonym based on the given context.

3.2.2. Stimuli. For the visual and aural stimuli a Spanish news broadcast was chosen, because the content of such news items is more or less free from slips of the tongue and false starts. Also, a news broadcast contains a lot of concrete information, which makes the multiple-choice testing easier. News items were selected from a Spanish news broadcast of the province of Castilla and Léon (Radio Televisión de Castilla y Léon). In this news broadcast mostly only the newsreader was on the screen without many additional pictures. When there were additional pictures, they were merely illustrative for the background of the news item, but not very informative. This lack of non-verbal information minimized the risk that the pictures might provide clues to answering the questions afterwards. With the same goal, news items were selected that did not concern information that the participants could possibly know from the Dutch news for example. Subsequently, the news broadcast was subtitled. To do so, the Spanish news broadcast was transcribed and translated to Dutch in consultation with a professional Spanish teacher and translator.

Programming of the subtitles was done with free subtitling software called Subs Factory. This software included subtitle constraints based on commonly accepted rules:

- A subtitle should not be more than two lines long
- A subtitle should have at least three characters
• A line of a subtitle should have a maximum of 36 characters (including spaces)
• A subtitle should be displayed at least 1.5 seconds
• A blank space of at least a quarter of a second should separate two subtitles
• A one-line subtitle should be displayed a maximum of 3.5 seconds, and a two-lines subtitle should be displayed six seconds

Sentences longer than the maximum number of characters were shortened by omitting non-essential parts, such as names (and replacing them by pronouns), exclamations, or unimportant adjectives. The subtitling constraints of Subs Factory are more or less in line with the 6-seconds rule for optimal subtitle programming (d’Ydewalle, Van Rensbergen and Pollet; 1987) that implies that a subtitle of the maximum length (64 characters including spaces, spread over two lines) is presented for 6 seconds. The constraints of Subs Factory allow slightly more characters in a shorter period of time, but since the participants in the current study were fully accustomed to watching subtitled programs, this was not expected to be a problem. Moreover, in a pilot test none of the participants had difficulty with the subtitling rate.

For the goal of the current study, subtitles were included in which some lexical items deviated from the spoken text. For example, at some point the soundtrack contained the word April, while it was transcribed in the subtitles as May. The lexical items for the questionnaire were selected based on the audibility of the newsreader and on the possible information the images might provide. This was done to make sure that the questions in the multiple-choice questionnaire were based on information that was not influenced by bad audibility or visual information (other than subtitles). See appendix B for a transcript of the subtitles.

3.2.3. Multiple-choice questionnaire. The multiple-choice test consisted of 40 questions: 20 with, and 20 without deviations. The 20 questions with deviations had four possible answers: one based on the audio, one based on the subtitles, and two fillers (incorrect answers). The 20 questions without deviations between the audio and subtitles also had four possible answers: one correct answer (corresponding to both audio and subtitles), and three fillers. The non-
deviating, distractor questions were added to avoid that the intention of the experiment became clear. In addition, the distractor questions served to find out whether the kind of questions in the test could be answered easily and did not require too much memory capacity. Another measure that was taken to avoid the constraint on memory capacity was the way the questions were presented: the video was divided into short fragments of no longer than 39 seconds. Every time a certain news topic ended or the fragment threatened to become too long, the video would be paused so the participants could answer the corresponding questions. The appropriate length of the separate video fragments (and thus the number of questions per fragment) was tested in a pilot study. Moreover, based on the results of the pilot study and the reactions of the participants of the pilot study, some questions were adjusted to improve readability and comprehension of those questions. To avoid that the participants would read the questions before having watched the corresponding part of the video, the questions were printed per page per video fragment. See appendix C for the complete multiple-choice test.

### 3.2.3. Language history questionnaire

The questionnaire of Gullberg and Indefrey (2003) consisted of questions about the language history of the participant. Besides a couple of general background questions (name, age, sex, place of birth, and so on), most questions concerned a rating of the participant’s knowledge of foreign languages. Also, some questions consisted of ratings of the language use and contact of the listed foreign languages. See appendix D for the complete questionnaire.

### 3.3. Procedures

The participants took part in the experiment individually or at most in a group of two. First, the participants were situated in a quiet room to do the DIALANG proficiency test. The test was set up on a computer. The participants received a brief explanation by the researcher about the placement test and the vocabulary test. In addition, participants could consult the information section of DIALANG on the computer during the test. The participants were able to navigate through the test using the keyboard and the mouse. The DIALANG test took
around 20 minutes to complete. When the participants were finished, the proficiency level based on the CEFR labels was noted down.

After the DIALANG test, the participants were guided to another room free of environment noise. The participants were seated next to the researcher behind a laptop screen of 33cm. The participants were first asked to read the information about the questionnaire and the procedure. The provided information concerned an explanation about the structure of the news broadcast, in that it would start with a short summary of all news items, which would later be discussed in more detail. In addition, it was explained that the language of the subtitles would change halfway through the news broadcast (from Spanish to Dutch subtitles or from Dutch to Spanish subtitles). Finally, the format of the questionnaire was explained, and the participants were urged to wait with turning to the next page with questions until the video was paused by the researcher. This was to avoid that the participants would know the questions before having seen the corresponding part of the news broadcast. Furthermore, the participants were urged not to talk during the experiment, but they had the possibility to ask questions before the actual experiment started. Moreover, the participants had the opportunity to practice the procedure with two distractor questions before starting the actual experiment. When the actual experiment started, the researcher paused the video when it was time to answer the next few questions. The researcher made sure that when the video was paused, there were no subtitles in the screen that would provide information about the answers to the questions in the questionnaire. The participants could answer the questions without time pressure. The researcher let the video continue when the participants were done with answering all the questions on the page. At the end of the multiple-choice questionnaire, a question was included about what the participants expected to be the goal of the study. In addition, a question was included to ask from which question on the participants thought they knew the goal of the study. Watching the news broadcast and answering the questions took about 20 minutes in total.

Finally, after the multiple-choice questionnaire about the news broadcast, the participants were asked to fill in the language history questionnaire. This
final part took about 5-10 minutes. Overall the experiment took around 50-60 minutes.

3.4. Design and Analyses

This study followed a quantitative experimental model, comparable to the study of De Bot et al. (1986). There were two variables, each variable consisting of two levels. The first independent variable was the L2 proficiency level, with an intermediate proficiency (IP) group and a high proficiency (HP) group. The second independent variable was the order of language of the subtitles: both the IP group and the HP group were divided into two groups, with half of the IP group and half of the HP group receiving first Dutch, and then Spanish subtitles. The other half of the IP and HP group received the subtitle languages in reversed order. All in all, there were four experimental situations: an IP group with L1-L2 subtitles, an IP group with L2-L1 subtitles, an HP group with L1-L2 subtitles, and an HP group with L2-L1 subtitles. All four experimental groups consisted of six participants. The total amount of questions was 40, with 20 fillers, so 10 questions concerning manipulated information per subtitle language. The dependent variable in this experiment was the ratio of the use of the input channel (audio / subtitles).

For the analysis, the 40 questions of the multiple-choice questionnaire were divided into Distractor items (D-items) and Channel items (C-items). So, in total there were 20 D-items and 20 C-items. The D-items consisted of the distractor questions about non-deviating information. These D-items were used as a measure of how well the participants had understood the news broadcast in general, based on a correct (1) / incorrect (0) coding. This way, the results could be interpreted as the higher the sum of the results, the better the general comprehension. The C-items consisted of the so-called manipulated questions, concerning deviating information. These C-items were used to measure to what extent which input channel was used. The answers on the C-items were coded as follows: 1 stood for audio-based answers, 0 stood for subtitle-based answers, and 0.5 stood for incorrect answers. This way, the results could be interpreted as the higher the value, the more the audio channel was used.
In the experiment, few subjects participated relative to the number of questions and the number of variables. Therefore, to come to reliable results, the sum of all questions per type per subtitle language was taken. This resulted in four sum variables: D-items 1-10 (first subtitle language), D-items 11-20 (second subtitle language), C-items 1-10 (first subtitle language), and C-items 11-20 (second subtitle language). In the design of the current study, each subject functioned as its own control, since all subjects participated in both subtitle language conditions. So, if there would be an effect of the manipulated questions, it could be measured through the difference between the scores of the first 10 items (i.e. the first subtitle language) and the last 10 items (i.e. the second subtitle language). Therefore, the gain was calculated per type: gain = (sum items 11-20) – (sum items 1-10).

For the analysis, first the normal distribution of the C-items data was checked through a plotted histogram with a distribution curve. In addition, the normal distribution was checked with the Shapiro-Wilk test of normality. After that, a global visualisation of the data is provided through a bar graph based on the mean score of the two halves of the test (first subtitle language and second subtitle language). A more detailed visualisation of the distribution of the data is given through a boxplot. In addition, a profile plot was created to visualize the possible interaction effects. As a test for significance, a 2x2 Univariate ANOVA was applied, with the gains as dependent variable. Results of Levene’s test of equality of error variances showed that the error variances are homogeneous, \( F(3,20)=2.885, p=0.061 \) for the C-items, and \( F(3,20)=0.261, p=0.853 \) for the D-items respectively. So, it is justified to use an ANOVA. Consequently, the same steps were repeated for analysis of the data of the D-items.
4. Results

4.1. C-items: Use of Input Channel

The normal distribution of the data was checked through a plotted histogram with a distribution curve (figure 6).

**Order of subtitle language: Dutch-Spanish (1) or Spanish-Dutch (2)**

![Histogram with distribution curve](image)

*Figure 6: histogram with distribution curve of the gain of the sum of the first part of the C-items compared to the sum of the second part of the C-items; per subtitle language order.*

Inspection of both histograms reveals two bell shaped distribution curves, which indicates that the data is normally distributed (respectively 1: $N=12$, $M=2.792$, $SD=1.157$; 2: $N=12$, $M=-1.583$, $SD=1.893$). This observation is confirmed by the results of a Shapiro-Wilk test of normality (respectively 1: $p=0.469$; 2: $p=0.401$). The $p$-values are above significance level, so the null-hypothesis that the data is normally distributed can be accepted.

A general visualisation of the data is provided through a bar chart based on the mean score of the two halves of the test (first subtitle language and second subtitle language) (figure 7). A boxplot was created for a more detailed visualization of the data distribution (figure 8).
Figure 7: bar chart of the mean sum of the C-items, indicating audio/subtitle use per proficiency level and subtitle language.

Figure 8: boxplot of the sum of the C-items of the first part compared to the sum of the C-items of the second part; per proficiency level and subtitle language.
Inspection of figures 7 and 8 reveals that the HP group with Dutch subtitles first (so the HP Dutch-Spanish group) \((N=6)\) has a higher score on the second part of the test \((M=7.750, SD=0.946)\), compared to the score on the first part \((M=4.500, SD=1.291)\). This indicates more use of the audio channel with Spanish subtitles, compared to the part with Dutch subtitles. The same observation holds for the HP group with Spanish subtitles first (so the HP Spanish-Dutch group) \((N=6)\): the higher score on the first part \((M=8.000, SD=0.957)\) indicates more use of the audio channel with Spanish subtitles, as opposed to the part with Dutch subtitles \((M=5.750, SD=1.250)\). A similar pattern is observed for both IP groups. The IP group with Dutch subtitles first (that is, the IP Dutch-Spanish group) \((N=6)\) scored highest in the part with Spanish subtitles \((M=6.33, SD=1.434)\), compared to the part with Dutch subtitles \((M=4.000, SD=1.354)\). The same holds for the IP group with Spanish subtitles first (i.e. the IP Spanish-Dutch group) \((N=6; \text{Spanish: } M=5.250, SD=1.436; \text{Dutch: } M=4.333, SD=1.179)\). So, also the IP as a whole uses the audio channel more when there are Spanish subtitles, compared to the part with Dutch subtitles. Finally, inspection of figure 7 reveals that overall both HP groups score higher than both IP groups, which indicates that both HP groups appear to use the audio channel more than both IP groups, irrespective of the subtitle language.

For a visualisation of possible interaction effects between proficiency level and order of subtitle language, a profile plot was created (figure 9).
Inspection of figure 9 reveals that the two lines representing the IP and HP groups are not parallel to each other. This indicates that proficiency level and order of subtitle language appear to interact. In addition, the profile plot shows that the difference in gains for the HP groups is bigger than the difference in gains for the IP groups, which suggests that the order of subtitle language has a bigger impact on input channel use for the HP groups than for the IP groups.

Results of the Univariate ANOVA show no significant effect for proficiency level, $F(1,20)=0.113, p=0.741$. In contrast, results show a significant effect for the order of the subtitle language, $F(1,20)=49.617, p<0.001$. Thus, the score for Spanish subtitles is significantly higher than the score for Dutch subtitles. Finally, results of the Univariate ANOVA show no significant interaction effect between proficiency level and order of subtitle language, $F(1,20)=7.594, p=0.085$. So, although the non-parallel lines in the profile plot (figure 9) suggest that proficiency level interacts with order of subtitle language, there is a tendency, but no significant interaction effect.
4.2. D-items: General Comprehension

For analysis of the D-items, the same steps were applied as for the C-items. First the normal distribution of the data was checked through a plotted histogram with a distribution curve (figure 10).

**Figure 10:** histogram with distribution curve of the gain of the sum of the first part of the D-items compared to the sum of the second part of the D-items; per subtitle language order.

Inspection of both histograms reveals two bell shaped distribution curves, which indicates that the data is normally distributed (respectively 1: \( N=12, M=-3.333, SD=1.497 \); 2: \( N=12, M=-0.893, SD=1.893 \)). This observation is confirmed by the results of a Shapiro-Wilk test of normality (respectively 1: \( p=0.513 \); 2: \( p=0.161 \)). The \( p \)-values are above significance level, so the null-hypothesis that the data is normally distributed can be accepted.

A general visualisation of the data is provided through a bar chart based on the mean score of the two halves of the test (first subtitle language and second subtitle language) (figure 11). A boxplot was created for a more detailed visualization of the data distribution (figure 12).
Figure 11: bar chart of the mean sum of the D-items, indicating general comprehension per proficiency level and subtitle language.

Figure 12: boxplot of the sum of the D-items of the first part compared to the sum of the D-items of the second part; per proficiency level and subtitle language.
First of all, inspection of figure 12 reveals that subject 1 is an outlier in the part with Spanish subtitles, and subject 22 is an outlier in the part with Dutch subtitles. Therefore, the datasets of both subjects were examined on other erratic data. However, in general both subjects scored within the range of the other participants. Moreover, the answers of subjects 1 and 22 on the language history questionnaire did not show any notable remarks. Therefore, it was decided to include the data of both participants in the analysis.

Observation of figures 11 and 12 reveals that the HP group with Dutch subtitles first (i.e. the HP Dutch-Spanish group) \((N=6)\), scores higher with Dutch subtitles than with Spanish subtitles (respectively Dutch: \(M=7.333, SD=1.374\); Spanish: \(M=4.167, SD=1.572\)). This indicates that for the HP group with Dutch-Spanish subtitles more information comes across with Dutch subtitles than with Spanish subtitles. For the HP group with Spanish subtitles first (that is, the HP Spanish-Dutch group) \((N=6)\), it is the other way around (respectively Spanish: \(M=7.000, SD=1.528\); Dutch: \(M=5.167, SD=1.067\)). As for the IP groups, it appears that in both groups more information comes across with Dutch subtitles than with Spanish subtitles: the IP group with Dutch subtitles first (so the IP Dutch-Spanish group) \((N=6)\) scored higher with Dutch subtitles \((M=7.000, SD=1.414)\), similar to the IP group with Spanish subtitles first (i.e. the IP Spanish-Dutch group) \((N=6, M=4.833, SD=1.000)\). Finally, inspection of figure 11 reveals that overall both HP groups score slightly higher than both IP groups, which might indicate that both HP groups appear to have a bigger comprehension of the news broadcast than both IP groups, irrespective of the subtitle language.

For a visualisation of possible interaction effects between proficiency level and order of subtitle language, a profile plot was created (figure 13).
Figure 13: profile plot of estimated marginal means for proficiency level and order of subtitle language.

Inspection of figure 13 reveals that the two lines representing the IP and HP groups are not parallel to each other. This indicates that proficiency level and order of subtitle language might interact. In addition, the profile plot shows that the difference in gains for the IP groups is bigger than the difference in gains for the HP groups, which suggests that the order of subtitle language has a bigger impact on general comprehension of the news broadcast for the IP groups than for the HP groups.

Results of the Univariate ANOVA show no significant effect for proficiency level, \( F(1,20)=1.894, p=0.184 \). Thus, the higher score of the HP groups compared to the score of the IP groups is not significant. Thus, the HP groups do not have a significantly better understanding of the news broadcast than the IP groups. On the other hand, results of the Univariate ANOVA do show a significant effect for the order of the subtitle language, \( F(1,20)=17.045, p=0.001 \). Thus, the score for Dutch subtitles is significantly higher than the score for Spanish subtitles. So, with Dutch subtitles the information comes across significantly better than with Spanish subtitles. Finally, results of the Univariate ANOVA show a tendency, but no significant interaction effect between proficiency level and order of subtitle language, \( F(1,20)=8.167, p=0.068 \). Thus, although the non-parallel lines in the
profile plot (figure 13) suggest that proficiency level interacts with order of subtitle language, this effect is not significant.
5. Discussion

5.1. C-items: Use of Input Channel

The present study investigated the difference in the use of input channel (audio versus subtitles) when watching a subtitled television program. More specifically, the influence of the L2 proficiency level of the participants and the influence of the language of the subtitles (standard or intralingual) were taken into consideration. To test the use of the audio channel and the subtitle channel, participants were presented a news broadcast with L2 audio, and L1 or L2 subtitles. At some points, the subtitles contained conflicting lexical information, and through a multiple-choice questionnaire it was tested whether the participants would base their answers on the audio channel or on the subtitle channel.

The first research question concerned the influence of the L2 proficiency level on the use of the input channel. It was hypothesised that in general, the intermediate proficiency group would use more information from the subtitle channel than the high proficiency group would. Thus, the audio channel was expected to be used the most by the high proficiency group. A first analysis of the C-items showed that the advanced L2 learners scored higher than the intermediate L2 learners, irrespective of the subtitle language. This suggests that the advanced L2 learners used the audio channel more than the intermediate learners. However, this difference in input channel use was not significant. Thus, in the present study, no significant effect of L2 proficiency level on the use of the input channel was found. However, results of the present study did show a tendency of more audio use for the advanced learners compared to the intermediate learners.

There are several possibilities that could account for the absence of a significant proficiency effect. A possible explanation for the lack of a significant proficiency effect is that the difference between the intermediate and advanced L2 proficiency level is not big enough to measure a significant difference with a relatively small number of participants. In other words, the extent to which intermediate L2 learners make use of the audio channel or subtitle channel does not differ enough from the input channel use of advanced learners to measure a signifi-
cant effect with a small number of participants. In that case, an increase of the number of participants might solve this issue.

Besides the relatively small number of participants, another possible explanation for the absence of a significant proficiency effect could be that the Spanish news broadcast and the accompanying multiple-choice questionnaire were not sensitive enough to differentiate between the two proficiency levels. That is, there might have been a difference in input channel use between intermediate and advanced L2 learners, if the multiple-choice questionnaire was sensitive enough to differentiate between the L2 proficiency levels. It could be the case that the questionnaire was too easy. However, this suggestion does not hold, since no ceiling-effects were found. Another option could be that the questionnaire was not valid, but results of the Levene test showed that the error variances were homogeneous. However, with \( p=0.061 \) for the C-items, the homogeneity was not very strong. So, the validity of the questionnaire might still have been of influence in investigating a possible L2 proficiency effect. To solve this issue, a more standardised test that is better able to differentiate in L2 proficiency levels has to be developed.

The second research question concerned the influence of the order of the subtitle language on the use of the input channel. It was hypothesised that in general, the L1 subtitles would be used more than the L2 subtitles, because the L1 subtitles were assumed to be processed easier than L2 subtitles. Indeed, results showed that both the intermediate and advanced L2 learners were significantly more subtitle oriented with Dutch subtitles than with Spanish subtitles.

A possible way to account for the difference in channel use between standard and intralingual subtitling could be the direct sound to text mapping in the intralingual condition. That is, in the intralingual condition there is no language difference between the audio and the subtitles, which could make it easier to notice the deviating lexical information, leading to more conscious listening, and consequently leading to more audio channel use. In other words, both intermediate and advanced learners processed both the audio and subtitle channel, and since in the intralingual condition both channels were in L2, audio-subtitle deviations could be noticed quicker than in the standard subtitling condition. As a consequence, participants could become more conscious about the
differing audio and subtitle channel, which would lead to more use of the audio channel. This suggestion is confirmed by the answers of most participants on the question about the goal of the experiment and from which question on they thought they knew: almost all participants had noticed deviations between the audio channel and the subtitle channel. More specifically, the deviations were mostly noticed in the intralingual condition, when there were Spanish subtitles. So, the groups with Spanish-Dutch subtitles noticed the deviations relatively soon in the first part of the news broadcast, whereas the groups with Dutch-Spanish subtitles would only become conscious about the deviations in the second part. All in all, it is suggested that the significant effect of the order of the subtitle language is most probably due to the direct sound to text relation in the intralingual condition, which facilitated noticing the audio-subtitle deviations, which consequently led to more conscious listening and less subtitle reading.

The third and final research question about the use of the input channel concerned a possible interaction effect between proficiency level and subtitle language order. It was hypothesised that input channel use of the advanced learners would be more influenced by the language of the subtitles than the input channel use of the intermediate learners. More specifically, it was hypothesised that due to the lower proficiency, the language of the subtitles would not affect audio use that much in the intermediate learners, since they were expected to be more dependent on the subtitle channel either way. In contrast, it was predicted that the subtitle language would affect audio use of the advanced learners more, due to their higher L2 proficiency. Results were more or less in line with the expectations, in that they showed a clear, yet not significant interaction effect, in which the subtitle language seemed to affect the audio use of the advanced learners more than the intermediate learners. In other words, the difference in input channel use by the advanced learners was bigger between both subtitling conditions than the difference in input channel use for the intermediate learners. The lack of a significant interaction effect is possibly due to the relatively small number of participants, since the results did show a clear interaction between L2 proficiency and subtitle language. In addition, the lack of a significant interaction effect could be due to the multiple-choice questionnaire that
possibly was not sensitive enough. These suggestions correspond to the aforementioned reasons that accounted for the lack of a main effect for L2 proficiency.

5.2. D-items: General Comprehension

The results of the distractor questions were used as a measure of general comprehension, to see whether the basic requirement of general comprehension would be of influence. Concerning the influence of the L2 proficiency level on general comprehension, it was expected that the advanced L2 learners would have a better understanding of the Spanish news broadcast than the intermediate learners, due to the higher L2 proficiency level of the advanced learners. However, results did not show a significant proficiency effect. This indicates that despite the difference in L2 proficiency, both intermediate and advanced learners appear to have comparable general comprehension of the news broadcast. The absence of a proficiency effect in general comprehension could be accounted for by the aforementioned option that the multiple-choice questionnaire might not be sensitive enough to differentiate between intermediate and advanced L2 proficiency level. Moreover, the lack of a proficiency effect on general comprehension supports the reasoning that the absence of a proficiency effect on input channel use could also be due to the fact that the experiment was not sensitive enough to measure the difference between both proficiency levels.

As for the influence of the subtitle language on general comprehension, it was predicted that general comprehension would be better in the standard subtitling condition than in the intralingual subtitling condition. This hypothesis was based on the assumption that information processing would be easier in the L1 than in the L2, irrespective of L2 proficiency level. Indeed, results showed that in general, significantly more information comes across with Dutch subtitles than with Spanish subtitles. Thus, general comprehension of the Spanish news broadcast was significantly better with standard subtitles than with intralingual subtitles. As was mentioned in the expectations, this effect can be accounted for by the assumption that even with a high L2 proficiency level, the L1 remains the easiest to process, which leads to better understanding than with L2 subtitles.

Finally, with respect to a possible interaction effect of L2 proficiency and subtitle language on general comprehension, it was hypothesised that general
comprehension of intermediate L2 learners would be more influenced by the language of the subtitles than that of the advanced learners. More specifically, it was expected that due to their lower L2 proficiency level, comprehension of the intermediate learners would be more negatively affected by the intralingual subtitling condition than the comprehension of the advanced L2 learners. Just like in the findings on the interaction effect on input channel use, results showed a clear tendency of interaction. However, there was no significant interaction effect between L2 proficiency level and subtitle language: general comprehension of the intermediate learners was clearly very negatively affected by intralingual subtitles compared to standard subtitles. On the other hand, the difference in general comprehension for the advanced learners was much less influenced by the language of the subtitles. The lack of significance is most probably due to the fact that there is no main effect of L2 proficiency. Therefore, the same improvements for future research are suggested as with the absence of a proficiency effect: a higher number of participants and a more valid questionnaire might increase the strength of the effect.

Overall, it can be concluded that all participants had a sufficient base of comprehension of the news broadcast. This threshold-comprehension shows that at least the video was not too difficult to understand, and that the participants were not impeded in answering the multiple-choice questions by the difficulty of the test. In addition, this base of general comprehension indicates that the length of the video fragments and the number of questions per fragment did not cause a too high load on short-term and working memory for the participants to be able to answer the questions.
6. Conclusion

The present study investigated the difference in use of the input channel (audio versus subtitles) when watching a subtitled video. More specifically, the influence of the L2 proficiency level of the participants and the influence of the language of the subtitles (standard or intralingual) were taken into consideration. Results indicated that the advanced learners used the audio channel more than the intermediate learners. However, this difference in input channel use was not significant. This outcome is in contrast to the findings of De Bot et al (1986), who found that beginning L2 learners were significantly more subtitle oriented than advanced L2 learners. In addition, the prediction about the influence of L2 proficiency was based on the findings of Neuman and Koskinen (1992) and Van Lommel et al. (2006), who found that L2 proficiency level affects SLA through subtitled television. It was suggested that since SLA requires processing of the L2 channel, advanced learners are expected to be more audio (L2) oriented than intermediate learners. The absence of a significant proficiency effect precludes that this assumption can be accepted in the first place. In other words, it is not certain that more proficient L2 learners have a higher SLA score because of more use of the audio (L2) channel. However, as stated before, results of the present study did show a trend of more audio use for advanced learners compared to intermediate learners. It is possible that the difference between intermediate and advanced L2 proficiency is not big enough to measure a significant effect with a relatively small number of participants. Also, the difficulty of the multiple-choice questionnaire might have been of influence, not being adequate to differentiate between the intermediate and advanced proficiency level. These issues should be taken into account in future research.

As for the influence of the order of the subtitle language on the use of the input channel, results showed that both intermediate and advanced L2 learners were significantly more subtitle oriented in the standard subtitling condition (L1 subtitles) than in the intralingual subtitling condition (L2 audio and subtitles). This is in line with the findings of d’Ydewalle and De Bruycker (2007), who found more regular reading behaviour (and thus better processing) for standard subtitles compared to reversed subtitles. However, reversed subtitling (L1 audio
and L2 subtitles) is different from intralingual subtitling (L2 audio and L2 subtitles) that is used in the current study. So the findings on standard and reversed subtitling cannot be compared without caution to the current findings on standard and intralingual subtitles. Even more, previous research did not find a difference in reading behaviour between standard and intralingual subtitles (Bisson et al., 2012), which is in contrast to the current findings. This contrast leads to the question to what extent reading behaviour can account for information processing. Because of the discrepancy between the current findings and those of Bisson et al. (2012), further research is required to get more insight into the effect of intralingual subtitling on reading behaviour and input channel use. For example, this could be done by combining an eye-tracking experiment to test reading behaviour, and a questionnaire to test input channel use.

With respect to the possible interaction between L2 proficiency and subtitle language, results showed a clear, yet not significant interaction effect: the audio use of the intermediate L2 learners appeared to be less affected by subtitle language than the audio use of advanced L2 learners. The fact that there is no main effect of L2 proficiency plays a role in the lack of a significant interaction effect. As mentioned before, to get more insight into the interaction effect of L2 proficiency and subtitling conditions on input channel use, future research should include a higher number of participants, and an improved test that is able to differentiate between intermediate and advanced L2 learners.

All in all, the present study showed that when there are L1 subtitles available, both intermediate and advanced learners are tempted to use most information from the subtitles instead of listening to the L2 audio. When these findings are applied to the practice of SLA, it is suggested that when subtitled television is used as a resource for SLA, intralingual subtitling would be more effective for SLA than standard subtitling, because with intralingual subtitling the viewer is not tempted to use the L1 channel. However, with reference to the ZPD (Vygotsky, 1978) and the Input Hypothesis (Krashen, 1985), this statement is primarily applicable to L2 learners above a certain threshold proficiency level (i.e. intermediate and advanced learners).
References


Contributions to the Study of Language, Literature and Culture, 1, 125-152.


Appendix A: Participants

*General information and most important results from the language questionnaire.*

<table>
<thead>
<tr>
<th></th>
<th>L1</th>
<th>Spanish proficiency level</th>
<th>Order of subtitle language in this study</th>
<th>Age</th>
<th>Sex</th>
<th>Place of birth</th>
<th>Place of residence other than NLs</th>
<th>Communication language other than L1 (hours/day)</th>
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<td>English (2h/d), Spanish (1h/d)</td>
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<td>Spanish (1h/d)</td>
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<td>Spain (6 months)</td>
<td>English (1h/d), Spanish (1h/d)</td>
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<td>Dutch-Spanish</td>
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<td>F</td>
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<td>Spain (6 months)</td>
<td>Spanish (1h/d)</td>
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<td>Spain (6 months)</td>
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<td>F</td>
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<td>Spain (6 months)</td>
<td>x</td>
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<td>English (2h/d), Spanish (2h/d)</td>
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<td>Level</td>
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<td>English (1h/d), Spanish (1h/d)</td>
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<td>Frisian (1h/d), English (2h/d), Spanish (1h/d)</td>
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</table>
Appendix B: Transcript of the subtitles (Spanish-Dutch)

1 00:00:05,000 --> 00:00:08,750
Un incendio es una desgracia pero en la provincia de León se podría

2 00:00:09,000 --> 00:00:12,750
decir también que es un lujo que los vecinos no se pueden permitir.

3 00:00:13,000 --> 00:00:16,750
Lavan tres incendios que la gente tiene que apagar por su cuenta ante

4 00:00:17,000 --> 00:00:19,250
la ausencia de bomberos que acudan a la llamada.

5 00:00:19,500 --> 00:00:22,000
El problema: una pelea administrativa.

6 00:00:25,500 --> 00:00:29,000
Se pide permiso al cabo y el cabo llama al jefe

7 00:00:29,250 --> 00:00:30,750
y el jefe llama al concejal.

8 00:00:31,000 --> 00:00:34,000
Esto esta haciendo retrasarse mucho tiempo las salidas.

9 00:00:36,000 --> 00:00:37,000
Que tal, buenas noches.

10 00:00:37,250 --> 00:00:38,500
Cuatro grados desaparecen.

11 00:00:38,750 --> 00:00:42,000
El consejero de educación ha confirmado esta mañana el mapa

12 00:00:42,250 --> 00:00:46,000
definitivo de titulaciones en las universidades de Castilla y León.

13 00:00:47,500 --> 00:00:50,000
Pierden un grado, una titulación cada una:

14 00:00:50,250 --> 00:00:52,000
la de Burgos Obras Publicas,

15 00:00:52,250 --> 00:00:54,750
la de Salamanca Diseño Textil en Béjar,

16 00:00:55,000 --> 00:00:57,500
la de Valladolid Ingeniería Agrícola en Soria,

17 00:00:57,750 --> 00:01:00,500
y la de León la Ingeniería Agroalimentaria en Ponferrada.

18 00:01:00,750 --> 00:01:03,750
Los alumnos que las cursan las terminaran,

19 00:01:04,000 --> 00:01:05,250
pero no habrá más titulaciones.

20 00:01:05,500 --> 00:01:07,500
El presidente de la junta, Juan Vicente Herrera,
califica dolorosos los recortes que se han tenido que hacer en sanidad,

pero garantiza que el sistema se mantendrá tal como lo conocemos.

La sanidad pública está en Castilla y León fuera de peligro.

No hemos reducido derechos, no hemos cerrado centros, ni hemos eliminado prestaciones.

Cada enfermedad rara responde a unas determinadas características genéticas que no están aún identificadas.

El centro de ADN de la Salamanca trabaja en un proyecto Europeo que se dedica a diagnosticarlas y para así poder curarlas.

En siete años, esperan tener tratamiento para cien de ellas.

El ministro de Industria ha confirmado que se acaban las ayudas al carbón.

Se venía advirtiendo, se esperaba, pero José Manuel Soria ha despejado definitivamente las dudas.

No habrá más dinero para la quema de carbón a partir de 2014.

El PSOE es crítico al gobierno por arruinar el futuro de comarca.

Mañana habrá pocas nubes en Castilla y León, apenas hay riesgo de lluvias salvo en zonas del noroeste.

Sí habrá ventoleras y bancos de niebla matinales en la comunidad.

Las temperaturas siguen el ligero ascenso en la máxima en torno
a los catorce grados en Salamanca.

El curso que viene en las universidades públicas de Castilla y León dejarán de ofrecer cuatro titulaciones:

una cada universidad.

Obras Publicas en Burgos, Diseño Textil en Béjar,

Agroalimentarias en Ponferrada, y Agrícolas en Soria.

Las otras carreras afectadas por la reorganización,

que son unas cuarenta, tendrán que buscar otras formas,

como las fusiones para seguir adelante.

De las diez a doce que se barajaban para el desaparecer para

el curso que viene, se han quedado en cuatro: Obras Publicas en Burgos,

Agrarias en Soria, Agroalimentarias en Ponferrada,

y Diseño Textil en Béjar.

Los afectados ya han hablado.

Es una supresión de la oferta de la titulación para

alumnos de nuevo ingreso.

Que es un título que seguirá funcionando con

una ocupación de extinción.

Convencional en el cual los alumnos que están matriculados van a poder

terminar de manera habitual.

Desde el de Textil en Béjar ya el año pasado en

la universidad de Salamanca decidió si que hubiera ningún decreto que

no se habría matricular de nuevos estudiantes, de manera que
en este caso para la universidad de Salamanca no hay ninguna novedad.

Confirmadas las supresiones, el consejero también a adelantado que en la comunidad solo habrá un grado en Geografía de los tres que hay ahora y se quedara en Valladolid.

La universidad de León y la de Salamanca tendrán que ver que hacen con su Cartografía. Para eso, tienen un año mas.

Topografía, que ahora se puede estudiar en Ávila y PonfERRADA.

tendrán que hacer lo mismo: ver cual es la mas viable.

De la topografía validada, pues a las ciencias de la tierra y de la construcción y nos ha parecido que una solución
De volksgezondheid wordt gefinancierd door overheids gelden en het valt onder het openbaar beleid en zo zal het blijven.

Het beleid van de gezondheidszorg van Castilla en León is openbaar en dat zal zo blijven.

We hebben een succesvol model en daar willen en kunnen we geen afstand van doen.

Ik wil expliciet iedere onzekerheid hierover wegnemen.

Met een bericht aan de werknemers in de gezondheidszorg om onzekerheden te voorkomen,

neemt de voorzitter afstand van het besluit als dat van Madrid en maakt duidelijk wat het voorgestelde beleid is.

Er zijn echter wel onvermijdelijke aanpassingen om de inkomsten en uitgaven in balans te brengen,

maar ook hier wordt afstand van genomen.

We hebben geen rechten beperkt, we hebben geen centra gesloten, noch hebben we vergoedingen afgeschaft.

Herrera houdt vol dat de bezuinigingen pijnlijk zijn, maar dat ze hun best hebben gedaan om het eerlijk.

Castilla en León is op vijf na de autonome regio die het minst heeft gesneden in de gezondheidszorgkosten in de afgelopen drie jaar.
De deelregieringsraad van de gezondheidszorg blijft de begroting van 2009 handhaven, wanneer de partijen van de rest van de raden zijn teruggekeerd naar het niveau van 2004.

De oppositie blijft het sluiten van de avonddienst de spoedeisende hulp aan de kaak stellen.

Vandaag heeft Oscar Lopez aangekondigd dat er volgende week een voorstel komt voor het parlement van Castilla en León met het verzoek om de spoedeisende hulp ’s nachts open te houden.

Lopez bezocht het gezondheidszorgcentrum van Burgó, een dorp in Avila.

waar volgens zeggen de banen van verschillende artsen en verpleegkundigen gevaar lopen.

Daar zijn de afkickcentra en psychiatrische instellingen een aantal maanden gesloten.

Het bestuur van Castilla en León investeerde 25 miljoen euro om het op halve sterkte te hebben, om hele afdelingen te sluiten, omdat er geen vraag naar zou zijn, terwijl er in deze provincie meer dan drie miljoen mensen op de wachtlijst staan. Daarom is het een leugen.

Veel mensen wachten om behandeld en geopereerd te kunnen worden,
en dus is er wel vraag naar.

Wat er niet is, is toewijding van het bestuur van Castilla en Le\n\nom ervoor te zorgen dat de ziekenhuizen,

zeker een aantal met belangrijke investeringen zoals deze,

functioneren zoals ze moeten functioneren,

omdat er grote bezuinigingen zijn in de gezondheidszorg.

Ook vechten ze tegen de wegbezuiniging van

de nachtelijke spoedeisende hulp in landelijke klinieken

de zorg voor chronische patiënten.

Het is een ambitieus plan dat voor alle niveaus van de gezondheidszorg van invloed zal zijn.

Het zal in 2016 een eerste evaluatie hebben en het is bedoeld

van Pradoluengo tijdens de vergadering van vanavond,

en ook aan vijftien andere dorpen in het gebied die onderzoeken

hoe ze weg kunnen van Burgos en bij Rioja ingelijfd kunnen worden,

waar ze geloven dat er betere behandelingen zijn.

Het voorstel heeft geen enkele wettelijke achtergrond.

De werknemers in de gezondheidszorg hebben vandaag de details van het beleid te horen gekregen

voor de zorg voor chronische patiënten.

Het is een ambitieus plan dat voor alle niveaus van de gezondheidszorg van invloed zal zijn.

Het zal in 2016 een eerste evaluatie hebben en het is bedoeld

154  
00:07:41,750 --> 00:07:45,000  
om de patiënten bij hun eigen zorg te betrekken.

155  
00:07:45,250 --> 00:07:48,500  
Het beleid wordt al toegepast in Baskenland met goede resultaten.

156  
00:07:48,750 --> 00:07:51,250  
Dat is wat de oud-minister van de gezondheidszorg heeft uitgelegd,

157  
00:07:51,500 --> 00:07:53,750  
die nu notaris van Obama is.

158  
00:07:54,000 --> 00:07:57,000  
Rafael Bengoa zegt dat alleen bezuinighingen niet helpen,

159  
00:07:57,250 --> 00:08:00,500  
dat de zorg veranderd moet worden om de gezondheidszorg te garanderen

160  
00:08:00,750 --> 00:08:02,250  
in de toekomst.

161  
00:08:05,250 --> 00:08:09,750  
Het is belangrijk om een strategie uit te zetten door een regering.

162  
00:08:10,750 --> 00:08:15,000  
omdat het een verhaal is dat niet alleen over kostenbesparing gaat.

163  
00:08:15,250 --> 00:08:18,250  
Het is een verhaal dat het hier nodig is.

164  
00:08:18,500 --> 00:08:21,500  
En het is een verhaal dat ik geïnteresseerd ben in de patiënten.

165  
00:08:21,750 --> 00:08:24,750  
En ik ben hier niet alleen om de kosten te beperken.

166  
00:08:26,250 --> 00:08:29,250  
We kennen het fundamenteelste en het zichtbaarste van het systeem,

167  
00:08:29,500 --> 00:08:32,250  
zoals de ziekenhuizen of de eerstelijnszorg,

168  
00:08:32,500 --> 00:08:35,250  
maar er zijn diensten in bedrijf die de behoeftes behandelen

169  
00:08:35,500 --> 00:08:38,000  
van een aantal speciale groepen patiënten.

170  
00:08:38,250 --> 00:08:41,500  
Bijvoorbeeld de diensten van de palliatieve thuiszorg

171  
00:08:41,750 --> 00:08:43,750  
voor de ernstig zieken die zich niet kunnen verplaatsen

172  
00:08:44,000 --> 00:08:45,500  
naar het ziekenhuis.

173  
00:08:45,750 --> 00:08:48,750  
In 2011 hebben bijna drie miljoen mensen en hun familie

174  
00:08:49,000 --> 00:08:51,500  
thuishulp ontvangen.
Appendix C: Multiple-choice questionnaire

The continued line stands for a page break.

VRAGENLIJST VIDEO

Naam: ..............................................................................................................

Ik doe de ...

☐ minor Spaans
☐ studie Spaans

(kruis aan wat van toepassing is)


(omcirkel wat van toepassing is)

Je krijgt zo meteen een Spaanse nieuwsuitzending te zien met Spaanse of Nederlandse ondertiteling. Halverwege het filmpje verandert de taal van de ondertiteling (van Nederlands naar Spaans of van Spaans naar Nederlands). De nieuwsuitzending is zo opgebouwd dat eerst alle items kort worden gepresenteerd en daarna worden enkele van die items uitgebreider besproken.

Het filmpje wordt af en toe wordt stopgezet. Als het filmpje is stopgezet, mag je de vragen op de eerstvolgende pagina beantwoorden. Denk eraan dat je de pagina pas mag omslaan als de video stop wordt gezet. Pas dan mag je alleen de vragen op de eerstvolgende pagina beantwoorden.

De vragen bestaan uit zinnen die letterlijk in het filmpje voorkomen, maar er mist een woord. Kies het juiste antwoord om de zin weer volledig te maken.

Liever niet overleggen tijdens het onderzoek. Vooraf en achteraf is er de mogelijkheid om vragen te stellen.
Je gaat zo eerst beginnen met een oefenfilmpje met vragen.

OEFENVRAGEN

*Omcirkel de letter van het juiste antwoord.*

1. Onthoud dat we jullie om ........ uur een samenvatting aanbieden van het Spaanse kampioenschap van de jacht met hazewindhonden.
   
   A negen
   B tien
   C elf
   D twaalf

2. Het kampioenschap dat ze ........ Medina del Campo hebben gehouden.
   
   A naast
   B in
   C buiten
   D bij

*Denk eraan dat je de pagina pas mag omslaan als de video stop wordt gezet. Pas dan mag je *alleen de vragen op de eerstvolgende pagina* beantwoorden.*

*Omcirkel de letter van het juiste antwoord.*

1. Een brand is een ongeluk, ........ in de provincie León zou je kunnen zeggen dat het een luxe is die de mensen zich niet kunnen permitteren.
   
   A maar
   B ondertussen
   C en
   D want

2. ........ branden hebben de omstanders moeten doven.
A drie
B vier
C zes
D zeven

3. De brigadier belt de chef en de chef belt ..........

A de president
B de minister
C het bestuur
D de wethouder

4. De minister van Onderwijs heeft .......... de definitieve lijst van opleidingen van de universiteiten van Castilla en León bevestigd.

A vanmiddag
B deze week
C vanmorgen
D vandaag

5. Iedere universiteit .......... een opleiding.

A behoudt
B verliest
C sluit
D schrapt


A opleidingen
B studenten
C lichtingen
D vakken

7. Juan Vicente Herrera erkent dat de bezuinigingen die ze hebben moeten doorvoeren .......... zijn.

A overdreven
8. Elke zeldzame ziekte wordt veroorzaakt door specifieke genetische ........ die nog niet zijn geïdentificeerd.

   A aandoeningen
   B afwijkingen
   C kenmerken
   D omstandigheden

9. Het DNA-centrum ........ Salamanca werkt aan een Europees project.

   A voor
   B in
   C van
   D bij

10. Over zeven jaar hopen ze een behandeling te hebben voor ........ genetische ziektes.

    A tachtig
    B honderd
    C tweehonderd
    D driehonderd

11. Er zal geen geld meer zijn voor de verbranding van kolen ........ 2014.

    A vanaf
    B tot
    C na
    D voor

12. 's Ochtends zullen er ........ en mistbanken zijn.

    A windvlagen
    B wolken
A veertien
B elf
C vijftien
D twaalf

14. ........ studies die worden getroffen door de reorganisatie zullen andere manieren, zoals fusies, moeten vinden om verder te kunnen.
A De andere
B De rest van de
C De ongeschonden
D De behouden

A docenten
B raadsleden
C betrokkenen
D studenten

16. Javier Lopez: “Het is een opleiding die zal blijven bestaan, maar met een afbouwend(e) ........ .”
A programma
B procedure
C bezetting
D beleid

17. Daniel Hernandez Ruiperez (Universidad de Salamanca): “Wat dat betreft is er ........ nieuws voor de universiteit van Salamanca.”
A niet veel
B veel
C nauwelijks
D niets

18. De universiteiten van León en Salamanca zullen moeten zien wat ze doen met de opleiding .......

A Topografie
B Geografie
C Cartografie
D Fysiotherapie

19. ......., wat nu gestudeerd kan worden in Ávila en Ponferrada, zal hetzelfde moeten doen: zien wat het meest haalbare is.

A Topografie
B Geografie
C Cartografie
D Fysiotherapie

20. Juan Jose Mateos: “Beide universiteiten hebben toegezegd dat ze over een jaar een ....... hebben.”

A reorganisatie
B verbetering
C oplossing
D compromis

21. De rest van de getroffen opleidingen gaan kijken hoe de structuur aangepast kan worden, maar ze zullen niet .......

A afgeschaft worden
B blijven
C verdwijnen
D overleven

22. Over de nieuwe opleidingen zal men niets weten tot de maand ........, wanneer het ministerie meer kan vertellen.

A mei
B februari
C juni
23. De voorzitter van het bestuur van Castilla en León wilde vanochtend alle …….. wegnemen.

A twijfels  
B onzekerheden  
C vooroordelen  
D ongelijkheden

24. Om onzekerheden te voorkomen, neemt de voorzitter afstand van …….. zoals die/dat in Madrid.

A het model  
B het besluit  
C het beleid  
D de raad

25. Er …….. echter wel onvermijdbare aanpassingen om de inkomsten en uitgaven in balans te brengen.

A kwamen  
B komen  
C zijn  
D waren


A veranderingen  
B bezuinigingen  
C maatregelen  
D aanpassingen

27. Castilla en León is op vijf na de autonome regio die het …….. heeft gesneden in de gezondheidszorgkosten.

A meest  
B minst  
C vaakst  
D vroegst
28. De raad van de gezondheidszorg zal de begroting van 2009 blijven handhaven, tot de rest van de raden zijn teruggekeerd naar het niveau van .......... 

A 2004  
B 2005  
C 2006  
D 2007

29. ....... heeft Oscar Lopez aangekondigd dat er volgende week een voorstel komt voor het parlement. 

A Vandaag  
B Vanochtend  
C Gisteren  
D Laatst

30. In de hoofdstad is het het provinciale ziekenhuis dat de ........ zorgen baart. 

A republikeinen  
B nationalisten  
C liberalen  
D socialisten

31. Oscar Lopez: “Het bestuur van Castilla en León ........ 25 miljoen euro om hele afdelingen te sluiten.” 

A hoopte op  
B zocht  
C investeerde  
D kreeg

32. Oscar Lopez: “Wat er niet is, is ...(32)..... van het bestuur van Castilla en León om ervoor te zorgen dat ziekenhuizen, zeker een aantal ...(33)...... belangrijke investeringen zoals deze, functioneren zoals ze moeten functioneren.” 

A de intentie  
B bereidheid  
C macht
D toewijding

33. Oscar Lopez: “Wat er niet is, is ...(32)..... van het bestuur van Castilla en León om ervoor te zorgen dat ziekenhuizen, zeker een aantal ...(33)..... belangrijke investeringen zoals deze, functioneren zoals ze moeten functioneren.”

A zonder
B door
C dankzij
D met

34. Ook vechten ze tegen ....... van de nachtelijke spoedeisende hulp in landelijke klinieken.

A de aanpassing
B de sluiting
C de wegbezuiniging
D de vermindering

35. Het voorstel wordt ook gedaan aan vijftien andere .......... die onderzoeken ze hoe ze weg kunnen van Burgos en bij Rioja ingelijfd kunnen worden.

A dorpen
B steden
C gemeentes
D gebieden

36. Het voorstel heeft geen enkel(e) .........

A wettelijke steun
B wettelijke achtergrond
C rechtsgrond
D wettelijke goedkeuring


A tweede
B nieuwe
C volgende
D eerste
38. Dat is wat de oud-minister van de gezondheidszorg heeft uitgelegd, die nu .......... is van Obama.

A adviseur
B notaris
C een collega
D een commissaris

39. Rafael Bengoa: “Het is belangrijk om een strategie uit te zetten door een regering, .......... het een verhaal is dat niet alleen over kostenbesparing gaat.”

A waardoor
B omdat
C zodat
D terwijl

40. We kennen het .......... en het zichtbaarste van het systeem, zoals de ziekenhuizen of de eerstelijnszorg.

A bekendste
B fundamenteelste
C popularste
D essentieelste

Wat denk je dat het doel is van dit onderzoek?

Vanaf welke vraag dacht je dat te weten?
Appendix D: Language history questionnaire
Language History Questionnaire

Sbj: Date:

Below are questions about your education, profession, and language use. Please answer these questions as completely as possible.

Background:

Age:
Sex:

What is your level of education (high school, university degree):
What is your profession (e.g., student, lawyer):

Were you born in the Netherlands? Yes No

If yes:
  Have you lived in the Netherlands since birth? Yes No
  If no, where else have you lived?

If no:
  How old were you when you came to the Netherlands?
  How long have you been living in the Netherlands?
  Have you returned to the country of your birth for longer than 6 months (if yes, how long)? Yes No

Language History:

What is your native language?

Please list any other languages that you know below. For each, rate how well you can use the language on the following scale:

<table>
<thead>
<tr>
<th>Not Good</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Very Good</th>
</tr>
</thead>
</table>

For the languages you listed, please indicate below the place and age at which you learned them, and if applicable, whether you learned them by formal
lessons (e.g., at school or a course), or by informal learning (e.g., at home, at work, from friends).

<table>
<thead>
<tr>
<th>Language</th>
<th>Country</th>
<th>Age</th>
<th>Lessons (yes/no)</th>
<th>Duration of lessons</th>
<th>Informal (yes/no)</th>
<th>Duration of informal learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the languages you listed, rate how well you agree with the following statements using the scale:

<table>
<thead>
<tr>
<th>Language</th>
<th>I like to speak this language</th>
<th>I feel confident using this language</th>
<th>I think it is important to be good at this language</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the languages you listed, which do you use with the following people, for how many hours per day, on what kind of topic and in which place (home, work, etc):

<table>
<thead>
<tr>
<th>Language</th>
<th>Hours per day</th>
<th>Topic</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Older brother/sister</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Younger brother/sister</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other family members</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housemates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friends</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colleagues</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
For the languages you listed, which to you use for the following activities and for how many hours per day?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Language</th>
<th>Hours per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watching TV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listening to the radio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email, internet</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In general, how well do you like to learn new languages?

Dislike 1 2 3 4 5 Like

In general, how easy do you find learning new languages?

Difficult 1 2 3 4 5 Easy

If you have any other remarks about your language history that you think may be important for your ability to use these languages, please feel free to write them here: