Dubbing versus Subtitling

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Samenvatting
Dit onderzoek probeert een antwoord te vinden op de vraag welke methode, nasynchronisatie of ondertiteling, “beter” is. Om deze vraag te kunnen beantwoorden is het geoperationaliseerd in de volgende onderzoeksvraag: “Welke methode is beter in het opslaan van informatie van een getoond fragment?” Het resultaat van dit onderzoek is dat de participanten van beide methodes ongeveer evenveel informatie opsloegen.

Het experiment maakte gebruik van een relatief klein aantal participanten, maar geeft een goede indicatie voor mensen welke leven in een “ondertiteling-land”, een land dat gebruik maakt van ondertiteling, zoals Nederland. Aan de andere kant is het waarschijnlijk een bepaalde situatie: landen welke gewend zijn aan nasynchronisatie zullen gebruik blijven maken van nasynchronisatie en landen welke gebruik maken van ondertiteling zullen ook in de toekomst gebruik maken van ondertiteling.

Abstract
This research tries to find an answer which method, dubbing or subtitling, is “better”. To answer this question, it is operationalised into the following research question: “Which method is better in storing information of a showed fragment?” The result of this research is that participants of both methods store as even much information.

This experiment used a small number of participants, but still gives a good indication for people that live in a “subtitling-country”, a country that is used to subtitling as the Netherlands. The results could differ for “dubbing-countries”. On the other hand, it is probably an already determined situation; the countries that are used to dubbing keeps using this method and countries that are used to subtitling will keep using subtitling.
Introduction

A large amount of television programs in the EU are imported from foreign countries (Luyken, Herbst, Langham-Brown, Reid, & Spinhof, 1991; Spinhof & Peeters, 1999). Two methods are most popular in the EU to make these programs available for the home country: dubbing and subtitling (Kilborn, 1993). Subtitling exists of a maximum of two lines of text which are projected on the screen with a certain speed. In the Netherlands and most other countries in the EU that use subtitling the six-second rule is used: a full two lined subtitle with a maximum 64 characters long, is visible on the screen for maximally six seconds before a new subtitle occurs (Gielen & d'Ydewalle, 1989). Shorter subtitles are proportionally shorter visible on the screen. This rule offers sufficient text information according to the television programmers to represent the spoken message, while there is still enough time to observe images on the screen beside the reading task. In case of dubbing there is a sound recording together with the imaging, which makes it seem that the actor speaks another language.

Typical “dubbing-countries” are Germany, France, Italy, Austria and Spain; typical “subtitling-countries” are Belgium, Denmark, Finland, Greece, Ireland, Luxembourg, the Netherlands, Portugal and Sweden (Koolstra, Peeters & Spinhof, 2002). Both methods seem to be useful; not only the translators, but also the viewers are used to the working method used by their own country. In “dubbing-countries” as in “subtitling-countries”, people are convinced that their own method is the best method to use (Bruls & Kerkman, 1989; Kilborn, 1993; Luyken et al., 1991; Spinhof & Peeters, 1999). However, it is not clear which method is the “best”. This study is trying to unravel that question.

An important question that needs to be asked is how it could be determined to state that one method is better than the other. For many people it could mean that one method is better when the viewer likes the program more with the method, finds it more interesting or finds it better. This article will be written from another starting-point. Besides foreign amusement programs there are also much foreign educational programs broadcasted on television. These educational programs attain the purpose of sharing knowledge. For these educational programs, but maybe even more for people in general, it is important to know which method, dubbing or subtitling, contributes in storing more information. That is why the following question was formulated:

“With which method, dubbing or subtitling, will the viewer store more information while watching a foreign program?
Studies about the possible effects and/or consequences of both methods are scarce at this moment. Koolstra, Peeters and Spinhof (2002) wrote an article in which they described the pros and cons of both. The article of Koolstra, Peeters and Spinhof will be used in this study to show some differences between the methods. These differences show up in information transfer, special groups, aesthetics and learning effects. Below a small enumeration of some ideas of the authors.

Information transfer

Subtitled television programs can be processed well by viewers. Most likely, the necessary text condensation involved in the adaption to subtitles does not lead to information loss and subtitles do not distract the viewer’s attention from the images. Even when the sound of the television is drowned out by other noises in the room, subtitled programs can still be paid attention to. Because reading is faster than listening, the processing of information while watching subtitled programs will also be more efficient. Dubbed programs too can be processed well by viewers. Listening to spoken texts is evidently not very demanding mentally, because viewers do not need to be reading at the same time. Especially when watching television is a secondary activity, dubbed programs are easy to follow. When the dubbing method is used, the original soundtrack is completely removed. In this way dialogues can be easily adapted, with the disadvantage that viewers are more vulnerable to manipulation and censorship.

Aesthetics

Dubbed programs have the advantage that no text is projected on the images. In dubbing the unity of picture and sound is maintained. Another advantage is that viewers may experience dubbed programs as familiar, because they hear their own language. Disadvantages are that the voices of the original actors cannot be heard and therefore viewers may experience unnaturalness when the lip-synchronicity is inadequate. In subtitled programs, on the other hand, the original voices can be heard, but the screen is ‘polluted’ with text lines.

Learning effects

Dubbed television programs as well as subtitled ones may facilitate language acquisition. Through watching dubbed programs (and original programs spoken in their own language) children learn the meaning of words in the context of spoken words
supported by images on screen. Subtitled television programs provide inexperienced readers with the opportunity to practice reading words that are presented in the subtitles, which results in development of their decoding skills. Subtitled programs offer young and adult viewers the possibility of learning the meaning of words of foreign languages, because the spoken words are accompanied by their translations in the subtitles and supported by pictorial information. A disadvantage of subtitling, however, is that the own language may be polluted by the foreign languages heard on television.

Goal of the study

The goal of this study is, as mentioned, to investigate with which method the viewer stores the most information while watching a foreign program. This will be determined by measuring through which method Dutch participants remember more of a foreign fragment. This study will use an English fragment. There will be a group of participants that will watch a fragment that has been dubbed and a group of participants will watch the same fragment, in the same setting, only this time with subtitles and spoken in a foreign language. In the end the participants have to answer some questions about the fragment that has been shown to them and the answers can only be right or wrong. The results will be compared.

The amount of information that will be stored, is strongly correlated with the efficiency of processing information (d’Ydewalle et al., 1991). d’Ydewalle states that it is “smarter” to read subtitles, because reading is in the most cases faster than listening. Moreover the viewers have the possibility to read to subtitle “forward” and “backward” as long as it is visible on screen. Two studies about subtitling have given evidence that subtitles are processed efficiently. A study of Gielen (1988) measured the recognition of subtitles directly after watching a subtitled program. This was measured with the help of multiple choice questions for every subtitle, there were three (not strongly deflected) distracted answers and of course the right subtitle. In 97% of the cases the subjects selected the right alternative. So subtitles are processed efficiently, but is the processing of dubbing efficient as well?

The Dual Code Theory (Paivio, 1971, 1986; Clark & Paivio, 1991) describes mental processes of human beings and applies this to the process of learning a new language. The theory noticed two systems in the brain; the verbal and the non-verbal system. The
systems work independently, but are connected. The verbal system consists of linguistic items and the non-verbal system consists of visualizations and mental images, also known as the imagery system.

The verbal process is the use of words as representations. The word “church” for example, represents a certain building. With the imagery system it is possible to “see” images and pictures. Thinking of a church, a person could picture the image of a big building with high towers. The Dual Code Theory now states that there are connections between the two systems and these systems are connected in such a way that it creates new associations or even new feelings. By the word church could for example arise a feeling of peace and happiness, while another person could see a dark building and experience fear or unhappiness. To make a connection between the two processes it is necessary that both representations are available in the working memory at the same time (Paivio, 2008). The most important conclusions of the Dual Code Theory are:
- When two processes are used, for example visual and textual, the storing of information will be more effective than the use of one process.
- A concrete word is visually better reproducible and therefore better to store than an abstract word.

Craik and Lockhart conclude that a set of processes ensures that information is understood and eventually remembered (1972). The more features a word, image or sound takes into account, the more information could be analyzed and stored. This is also known as “Depth of Processing”. Input that is known and has some kind of meaning is easier to analyze on a deeper level than abstract input. For this reason the first kind of input can be stored better. The first kind of input could also be images and sentences. The input in this theory is not specifically linguistic, but it can be applied to words and sentences. Danan (2004) concludes that subtitling increases comprehension and leads to additional cognitive benefits, such as the greater depth of processing.

When the Dual Code Theory of Pavio and the and the Depth of Processing of Craik and Lockhart are applied to storing information, the hypothesis could be formed that the offering of words with multiple features, like visual and textual, could stimulate neural processes in the brain and these stimulation could ensure a better and longer process of storing information. Both children (d’Ydewalle & Van de Poel, 1999; Koolstra & Beentjes, 1999) and adults (d’Ydewalle & Pavakanun, 1995; d’Ydewalle & Pavakanun, 1997; Pavakanun & d’Ydewalle, 1992) are able to learn words of another language while looking
at a subtitled program. For these reasons it is expected that people will store more information while looking at the fragment with the help of subtitling. The hypothesis:

Hypothesis A

Participants who watch the subtitled fragment will store more information than participants who watch the dubbed fragment.

In the description of the pros and cons of dubbing Koolstra, Peeters & Spinhof (2002) already came to notice that dubbing could have the advance that there is not a projection of sentences and therefore the images and sound are not interrupted. However, this phenomenon is barely proved in research. There is more reason to assume that the attention alternately to the screen and the subtitles occurs automatically and without effort. An eye movement experiment of Van Gielen (1988) pointed out that people use a “look strategy” while looking at a subtitled program; people look especially to the area directly above the subtitle and are therefore able to see the most important events on the screen as well as the subtitles. For this reason it is expected that participants will store more information about both the shown images and the spoken text. The following hypotheses are therefore also formulated:

Hypothesis B

Participants who watch the subtitled fragment will store more information about the shown images than participants who watch the dubbed fragment.

Hypothesis C

Participants who watch the subtitled fragment will store more information about the spoken text than participants who watch the dubbed fragment.

Mangnus, Hoeken & Van Driel (1994) investigated if information is better stored with a program that is dubbed or with a program that uses subtitles. In contrast to the expectation the participants stored the same amount of information.

The present study also investigates if there is a difference in storing information, but there are some differences compared to the research of Mangnus, Hoeken & Van Driel. Firstly, the used method of dubbing is not the same as the method of today: it made use of a “voice-over” in which the commentator had read the subtitle text of the subtitled version
aloud. Moreover, in the present-day a lot of attention went out to the quality of both dubbing and subtitling. The mentioned article is not representative for today’s practice.

When there will be a significant difference in the results of this study, the use of dubbing or subtitling will be important. Gielen and d'Ydewalle (1989) pointed out that viewers can barely extract themselves of subtitles and read these subtitles automatically.

**Method**

**Material**

The fragment that participants got to watch had to meet certain criteria. First of all, the fragment had to be available in a dubbed as well as a subtitled version. It was decided to use existing footage, because the quality level would be higher due the experience of producers adding dubbing and subtitling to such fragments. Secondly, the fragment needed to be recent, because it is plausible that the quality of dubbing and subtitling has been improved in time. Moreover, the fragment can not be to well known, because it could form a bias when a participant already saw the fragment. The fragment also had to contain a certain amount of spoken words and images to generate questions. Finally, the fragment should not be animation or cartoon, because then the results could be less generalizable for most programs.

The first fifteen minutes of the movie Charlotte’s Web matches all the criteria and was chosen as the fragment to use. Moreover, the movie is designed to appeal to a variety of all age groups and is highly valued on two frequently visited websites that rate various movies (www.imdb.com and www.moviemeter.nl). This way, the movie is suitable to watch for most people. There is a possibility that the respondent already viewed this movie and for this reason respondents were asked if he/she already saw the movie. The subtitling version was compared with the spoken text of the dubbed one and these versions were almost identical. The questions were asked in such a way that all respondents could give the right answer.

**Dependent measures**

A questionnaire was designed to measure storage of information from the fragment. As already mentioned, the questions in this questionnaire were formulated in a way so all respondents for both dubbing and subtitling, could give the right answer. The right answers were decided before the start of the experiment to ensure a consistent and righteous
judgment of the given answers from the respondents. The answers could only be right or wrong (see the Appendix for all the questions and the answers). The questionnaire consisted of fifteen questions about the spoken text and ten questions about the visual images on the screen.

Also the SAM (the Self-Assessment Manikin) is added to measure valence, presence and arousal, which is a self-report scale (Bradley & Lang, 1994). The SAM is added to detect if there are differences in the valence, presence and arousal for the two methods and only requires three simple judgments. These concepts are associated with a person’s affective reaction. Also some general questions about gender, age and education were asked (see Appendix), also to detect differences between the methods.

Respondents

There are a total of 50 respondents, separated into two groups that with the two different conditions (dubbing versus subtitling). The respondents are 17 till 64 years of age, a heterogenous sample, because the results should be generalizable for a large group of televisionviewers. The starting age of 17 is chosen, because children require more mental effort while reading subtitles than adults (De Jager et al, 2005). There is also a maximum age of 64 to exclude possible negative influences that come with aging.

The respondents are questioned during prime-time, because in this timeframe most people watch the most television.

Experimental design

Respondents were randomly assigned to two conditions: 25 respondents watched the dubbed fragment and 25 respondents watched the subtitled fragment.

On entry the respondents were asked to sit down behind a desk with only a laptop in front of them in an empty space. Only the first fifteen minutes of the movie were shown, after which the respondents had to answer the given questions. The answering of the questions had to be done in the right order.

Before starting the experiment, the expectation was that two variables could make a difference in the results, namely the age and the level of education of the participants. The participants were randomly selected to watch the fragment with the help of dubbing of subtitling, but still the mean in age and educational level where pretty much the same. The following tables represents these numbers. The educational level is calculated as follows; the participants attended a VWO, HBO or MBO education with corresponding standards.
VWO is the highest level of while MBO is the lowest. The grade 3 was assigned to VWO, grade 2 to HBO and grade 1 to MBO. The averages of both age and educational level of both the levels were nearly the same and could not make a difference in the results.

Table 1
Average age of both methods.

<table>
<thead>
<tr>
<th>Average age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtitling</td>
</tr>
<tr>
<td>Dubbing</td>
</tr>
</tbody>
</table>

Table 2
Average educational level of both methods.

<table>
<thead>
<tr>
<th>Average educational level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtitling</td>
</tr>
<tr>
<td>Dubbing</td>
</tr>
</tbody>
</table>

Also the number of women and men that participated on this research, where almost the same (subtitling had 12 women, 13 men and dubbing 13 women and 12 men). The last variables that are measured are the valence, presence and arousal of the participants after watching the fragment. This measurement was gauged to see if people would score low or high if they really liked or disliked the fragment. However, nobody disliked the fragment and nobody was completely enthusiastic; all the three measurements did not differ much from each participant, so it would not have an influence in the results.

Results
Hypothesis A
The first hypothesis predicted that the participants who watched the subtitled fragment would store more information than participants who watched the dubbed version. Table 3 includes the results. The results of the table shows that participants of the subtitled version did not score significant higher than participants of the dubbed version (t(24)=1.30, p > 0.1). This is the result of an one-tailed test, which is used for all the three hypothesis, to detect if the scores are higher for the subtitling method. There is a small difference in favor of the subtitling version, but it is not significant, so hypothesis A is rejected.
Table 3
The mean score and standard deviation of both methods of all the questions.

<table>
<thead>
<tr>
<th>Method</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtitling</td>
<td>19.36</td>
<td>4.47</td>
<td>25</td>
</tr>
<tr>
<td>Dubbing</td>
<td>17.84</td>
<td>3.79</td>
<td>25</td>
</tr>
</tbody>
</table>

Hypothesis B
The second hypothesis predicted that the participants that watched the fragment with help of subtitling would store more information of the shown images than participants who watched the fragment with the help of dubbing. The following table shows the results. Again, the participants of the subtitled version did score slightly higher, but not they did not score significant higher concerned the questions about the shown images than the participants of the dubbed version (t(24)=0.96, p>0.15). Hypothesis B is for this reason rejected.

Table 4
The mean score and standard deviation of both methods of the questions about the shown images.

<table>
<thead>
<tr>
<th>Method</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtitling</td>
<td>9.36</td>
<td>1.78</td>
<td>25</td>
</tr>
<tr>
<td>Dubbing</td>
<td>8.84</td>
<td>2.01</td>
<td>25</td>
</tr>
</tbody>
</table>

Hypothesis C
The last hypothesis predicted that participants that have watched the fragment with the help of subtitling would store more information concerning the spoken words of the fragment than participants that have watched the fragment with help of dubbing. The participants of the subtitled version did not score significant higher concerned the questions about the spoken words than the participants of the dubbed version (t(24)=1.12, p>0.1). So also the last hypothesis is rejected.
Table 5
The mean sore and standard deviation of both methods of the questions about the spoken words.

<table>
<thead>
<tr>
<th>Method</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtitling</td>
<td>10</td>
<td>3.24</td>
<td>25</td>
</tr>
<tr>
<td>Dubbing</td>
<td>9</td>
<td>3.07</td>
<td>25</td>
</tr>
</tbody>
</table>

Additional analyses
Some additional analyses are added to detect differences between the two methods concerning this analyses. The analyses are the SAM, educational differences, age differences and gender differences.

Self Assessment Mannekin
The Self Assessment Mannekin (SAM) measures the valence, arousal and presence, which are a person’s affective reactions directly after watching the fragment. This additional analysis compares the reports of the participants of the two methods, where a two-tailed test is used to detect a difference. Below are the tables with the results of the SAM, what includes the valence, arousal and presence.

Table 6 shows the scores concerning the valence. The results show that there is no difference in valence between the two methods (t(24)=0.09, p>0.25). The difference is also very small. Not only the difference for the valence is small, also the differences in arousal and presence are small; no difference in arousal (t(24)=0.08, p>0.25), and no difference in presence between the two methods (t(24)=0.53, p>0.25). So in sum, the participants reported the same affective reactions after watching the fragment.

Table 6
The mean sore and standard deviation of both methods of the valence

<table>
<thead>
<tr>
<th>Method</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtitling</td>
<td>7</td>
<td>1.68</td>
<td>25</td>
</tr>
<tr>
<td>Dubbing</td>
<td>6.96</td>
<td>1.37</td>
<td>25</td>
</tr>
</tbody>
</table>
Table 7
The mean score and standard deviation of both methods of the arousal

<table>
<thead>
<tr>
<th>Method</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtitling</td>
<td>4.56</td>
<td>1.83</td>
<td>25</td>
</tr>
<tr>
<td>Dubbing</td>
<td>4.60</td>
<td>1.78</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 8
The mean score and standard deviation of both methods of the presence

<table>
<thead>
<tr>
<th>Method</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtitling</td>
<td>6.04</td>
<td>1.40</td>
<td>25</td>
</tr>
<tr>
<td>Dubbing</td>
<td>5.84</td>
<td>1.28</td>
<td>25</td>
</tr>
</tbody>
</table>

Education

There are three educational levels between the participants; VWO, HBO and MBO. In the experimental design is already described that the average educational level was almost the same, but it is still interesting to compare the results of the three levels. The following table shows the results of the participants of the three levels.

Table 9
The mean score and standard deviation of each educational level

<table>
<thead>
<tr>
<th>Education</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>VWO</td>
<td>20.43</td>
<td>3.41</td>
<td>7</td>
</tr>
<tr>
<td>HBO</td>
<td>19.50</td>
<td>3.64</td>
<td>30</td>
</tr>
<tr>
<td>MBO</td>
<td>15.54</td>
<td>4.39</td>
<td>13</td>
</tr>
</tbody>
</table>

The one-way ANOVA shows that the means of the different educational levels are not the same (F(2/47)=5.81, p<0.01). That is why the different educational levels are also compared with each other. There is no difference between educational level VWO and HBO (t(47)=0.58, p<0.25). Between VWO and MBO there is a significant difference (t(47) =2.73, p<0.005) and between HBO and MBO there is also a significant difference (t(47) =3.12, p<0.0025). So in this experiment, the participants with a educational level of MBO score significantly lower than participants with educational levels VWO and HBO. There
were six persons that watched the dubbed version and seven persons watched the subtitled version.

**Age**

As the educational level, also the age of the participants of both methods were almost the same. Still the results are interesting to compare. The participants are divided in two groups of age; the group of participants that is younger than 50 is labeled as “<50” and the group of participants that is 50 or older than 50 is labeled as “≥ 50”. The results of both groups are visible in the table below. The expectation was that people who are younger than 50 years score significant higher than people who are older than 50 years, so an one-tailed test is used. The result is that indeed participants younger than 50 score higher than participants older than 50 years. (t(18)=3.10, p<0.0005). Ten “≥50” participants watched the dubbed version and nine “≥50” participants watched the subtitled version.

**Table 10**

The mean score and standard deviation of both ages

<table>
<thead>
<tr>
<th>Age</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 50</td>
<td>19.87</td>
<td>3.63</td>
<td>31</td>
</tr>
<tr>
<td>≥ 50</td>
<td>16.37</td>
<td>4.02</td>
<td>19</td>
</tr>
</tbody>
</table>

**Gender**

The difference in scores of the genders are also compared as additional analyse. The scores were almost the same for both genders (t(24)=0.13, p>0.25) in a two-tailed test, so there was not a difference in scores. The following table shows the results.

**Table 11**

The mean score and standard deviation of both genders.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>18.68</td>
<td>3.76</td>
<td>25</td>
</tr>
<tr>
<td>Women</td>
<td>18.52</td>
<td>4.63</td>
<td>25</td>
</tr>
</tbody>
</table>
Conclusion and discussion

It was expected was that participants would store more information while watching the fragment with the help of subtitling. However, the participants of the subtitled version did not score significantly higher than the participants of the dubbed version and therefore it can be concluded that people store as much information of a subtitled fragment as a dubbed fragment. At least, for a subtitling-country; all participants of this research are living in the Netherlands, a subtitling-country. It can not be excluded that the results of people who live in dubbing-countries who take a similar test turn out to be different.

What needs to be asked, is if there were enough participants that took part in this research. It is always difficult to know when there are enough participants to be representative, but 25 may be a quantity that is too limited. On the other hand, all the other variables were fairly good covered in this research. For example, the age and the educational level turned out to be important variables, but both the variables were almost the same for both the methods.

As shown in the results all the three hypotheses are rejected. The participants of the subtitled version did score higher, but not significant higher than the participants of the dubbed version. The literature, for example the Dual Code Theory of Pavio and the Depth of Processing of Craik and Lockhart, gave the expectation that due the multiple features of the subtitling the participants of the subtitled method would score higher than the dubbed version. Maybe the advantages of the multiple features of subtitling are not really coming forward while watching a fragment to make a difference in results. Compared to dubbing, the possibility of the participants to read the words is the major advantage, but maybe it is enough to only watch an listen to the fragment.

In total, was the effort for this research worth it? The participants of the subtitled version scored slightly higher, but the difference is not high enough to be appealing to retake the experiment with a larger group of participants in again a subtitling-country and/ or an experiment in a dubbing-country. Moreover, when for example the results would verify that dubbing is better for storing information, most programs probably still would not transform into dubbing as for the Netherlands, mostly because countries are used to the method in that particularly country. This will also stands for dubbing-countries. When a dubbing-country, like Germany, would retake this experiment and the results would verify that subtitling is better for storing information, still it is very likely that Germany will stay a dubbing-country. The country is used to this method, the switch to dubbing will take a great effort and because of the deep implementation of dubbing it will also be a financial issue.
Moreover, the results of the SAM shows that there is no difference in valence, arousal and presence for the watcher. That is why it is very likely that countries will stay dubbing- or subtitling countries in the future.

Still, this research gives a good argument to conclude that younger people store more information in the short term and also gives a good direction to predict that people with a MBO education store less information in the short term than people with an educational level HBO or VWO. Moreover, the results of the SAM showed that people feel the same level of valence, arousal and presence directly after watching a subtitled fragment or a dubbed fragment.

References


Appendix

Vragenlijst + Juiste antwoorden

Dit bestand bevat de vragen die gesteld zijn en de enige juiste antwoorden die bij deze vragen horen. Deze antwoorden zijn al bepaald voordat ik aan het experiment begon om op deze manier een consistente en eerlijke beoordeling te kunnen geven over de gegeven antwoorden van de respondenten.

1. Hoe heet de stad waarin het verhaal zich afspeelt? (Tekstvraag)
Summerset County is het juiste antwoord.

2. Waarom moest de big volgens de vader afgemaakt worden? (Tekstvraag)
Omdat er maar 10 spenen waren (en er waren 11 biggen) is het juiste antwoord.

3. Wat bakte moeder in de pan bij het ontbijt? (Beeldvraag)
Spek is het juiste antwoord.

4. Waarom corrigeerde de moeder het jongetje bij het ontbijt? Wat mocht hij niet doen? (Tekstvraag)
Wijzen is het juiste antwoord.

5. Wat moest het jongetje bij de moeder inleveren nadat hij beneden was? (Beeldvraag)
Zo’n (schiet)ding (met elastiek) en/of een katapult zijn de juiste antwoorden.

6. Waarom mocht volgens de vader het meisje wel een biggetje en de jongen niet? (Tekstvraag)
Omdat zij een vroege vogel is (en hij niet) en/of vroeg opstaat (en hij niet) zijn de juiste antwoorden.

7. Wat vergat Fiona op het moment dat ze naar school wilde gaan? (Beeldvraag)
(Haar) boeken is het juiste antwoord.

8. Wat voerde Fiona de big in de klas? (Beeldvraag)
Flesje (met melk) of fles of melk zijn de juiste antwoorden.
9. Wat was de naam van de directrice van de school? (Tekstvraag)
(Mevrouw/juffrouw) Kremer voor de nasynchronisatie versie en (mevrouw/juffrouw)
Annabelle/Annabel voor de ondertiteling versie.

10. Wat lag er naast de big in de kinderwagen? (Beeldvraag)
(Een) pop is het juiste antwoord.

11. Welke kleur heeft de kinderwagen? (Beeldvraag)
Rood is het juiste antwoord.

12. Waar was Fiona mee bezig op het moment dat haar vader vertelde dat de big niet in
het huis kon blijven?
De big / het biggetje / het varken(tje) wassen/schoonmaken/badderen/een bad geven zijn
de juiste antwoorden.

13. Hoeveel pond schatte de vader dat de de big uiteindelijk zou gaan worden als varken?
(Tekstvraag)
300 pond(eren) is het juiste antwoord.

14. Waarom moest de vader van Fiona dieren verkopen? (Tekstvraag)
Om machines te (kunnen) kopen is het juiste antwoord.

15. Hoe heet de big? (Tekstvraag)
Wilbur(t) is het juiste antwoord.

16. Hoe heet de oom? (Tekstvraag)
Robbert / Robert zijn de juiste antwoorden voor de nasynchronisatie versie en Homer is
het juiste antwoord voor de ondertiteling versie zijn de juiste antwoorden.

17. Fiona zong een liedje voor het biggetje toen ze samen in bed lagen. Van wie had ze
dat liedje geleerd? (Tekstvraag)
(Van de) moeder is het juiste antwoord.

18. Welke kleur heeft de schuur van de oom? (Beeldvraag)
Rood is het juiste antwoord.

19. Wat wist je volgens de stem die je af en toe hoort, als je een keer goed in de stal van de oom snoof? (Tekstvraag)
Door te zeggen dat de schuur eigenlijk bijzonder gewoon was.

20. Wat wisten de dieren volgens de stem nog niet? (Tekstvraag)
Dat het/de schuur vol levende wezens zat/zat is het juiste antwoord.

21. Wat zei het meisje vlak voordat ze naar de bus rende tegen de big? (Tekstvraag)
(Ik) hou van je en/of dat ze hem houdt zijn de juiste antwoorden.

22. Welke kleur heeft het huis van het gezin? (Beeldvraag)
Wit is het juiste antwoord.

23. Wat vroeg de moeder op het moment dat het jongetje naar de bus rende? (Tekstvraag)
Of hij zijn boterhammen/lunch/eten niet was vergeten en/of ("Ben je je boterhammen/lunch/eten niet vergeten?") zijn de juiste antwoorden.

24. Het biggetje probeerde op een gegeven moment door het hek heen te breken. Welk ander dier in de stal zag je als eerste nadat dit voor de eerste keer mislukt was? (Beeldvraag)
(Een/het) paard is het juiste antwoord.

25. Welk dier opperde dat varkens net zo slim zijn als dolfijnen? (Beeldvraag)
(Een/het) schaap is het juiste antwoord.

26. Hoeveel koeien waren er in de stal? (Beeldvraag)
2 is het juiste antwoord.

27. Hoeveel pogingen had de big nodig om door het hek te breken? (Beeldvraag)
3 is het juiste antwoord.
28. Waar moest de big volgens de andere dieren niet naartoe gaan nadat hij vrij was?
(Tekstvraag)
(Naar) (het/een) rookhok is het juiste antwoord.

29. Hoe lokte de oom de big naar zich toe? (Beeldvraag)
Door op een emmer te slaan/een emmer slaan of met eten lokken zijn de juiste antwoorden.

30. Er werden twee brievenbussen getoond. Wat stond er op de rechter brievenbus?
(Beeldvraag)
Arable/Arabel is het juiste antwoord.

31. Wat vroeg de big nadat hij zich had voorgesteld aan de dieren? (Tekstvraag)
Of er iemand wilde spelen of ("Wil er iemand spelen?") zijn de juiste antwoorden.

32. Wat moet er volgens het paard gedaan worden in een stal? (Tekstvraag)
Gewerkt (worden) of werken zijn de juiste antwoorden

33. Welke scheldwoord gebruikte de koe tegen het schaap? (Tekstvraag)
(Vieze) haarbal is het juiste antwoord.

34. Wat is volgens de big het leukste aan modder? (Tekstvraag)
Dat het glibberig is of glibber(ig) zijn de juiste antwoorden.

35. Hoe heet de gans? (Tekstvraag)
Greta is het juiste antwoord.
De vragenlijst voor de respondenten

Geslacht: Man ................ Vrouw .................

Leeftijd: ........................................

Opleiding of hoogst genoten opleiding: ........................................

Had u de film al gezien? ........................................

Voelt u zich positief of negatief na het zien van het fragment? Zet een kruis op de plek wat het beste overeen komt met uw gevoel. Zoals u ziet kunt u ook een kruis zetten tussen de blokken.

Wat is de intensiteit van uw gevoel na het zien van het fragment? Zet een kruis op de plek wat het beste overeen komt met uw gevoel. Zoals u ziet kunt u ook een kruis zetten tussen de blokken.

In hoeverre leefde u mee met het verhaal? Zet een kruis op de plek wat het beste overeen komt met uw gevoel. Zoals u ziet kunt u ook een kruis zetten tussen de blokken.

22
1. Hoe heet de stad waarin het verhaal zich afspeelt?
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2. Waarom moest de big volgens de vader afgemaakt worden?
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3. Wat bakte moeder in de pan bij het ontbijt?
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4. Waarom corrigeerde de moeder het jongetje bij het ontbijt? Wat mocht hij niet doen?
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5. Wat moest het jongetje bij de moeder inleveren nadat hij beneden was?
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6. Waarom mocht volgens de vader het meisje wel een biggetje en de jongen niet?
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7. Wat vergat Fiona op het moment dat ze naar school wilde gaan?
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8. Wat voerde Fiona de big in de klas?
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9. Wat was de naam van de directrice van de school?
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10. Wat lag er naast de big in de kinderwagen?
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11. Welke kleur heeft de kinderwagen?
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12. Waar was Fiona mee bezig op het moment dat haar vader vertelde dat de big niet in het huis kon blijven?
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13. Hoeveel pond schatte de vader dat de big uiteindelijk zou gaan worden als varken?


14. Waarom moest de vader van Fiona dieren verkopen?


15. Hoe heet de big?


16. Hoe heet de oom?


17. Fiona zong een liedje voor het biggetje toen ze samen in bed lagen. Van wie had ze dat liedje geleerd?


18. Welke kleur heeft de schuur van de oom?


19. Wat wist je volgens de stem die je af en toe hoort, als je een keer goed in de stal van de oom snoof?


20. Wat wisten de dieren volgens de stem nog niet?


21. Wat zei het meisje vlak voordat ze naar de bus rende tegen de big?


22. Welke kleur heeft het huis van het gezin?


23. Wat vroeg de moeder aan het jongetje op het moment dat hij naar de bus rende?
24. Het biggetje probeerde op een gegeven moment door het hek heen te breken. Welk ander dier in de stal zag je als eerste nadat dit voor de eerste keer mislukt was?

25. Welk dier opperde dat varkens net zo slim zijn als dolfijnen?

26. Hoeveel koeien waren er in de stal?

27. Hoeveel pogingen had de big nodig om door het hek te breken?

28. Waar moest de big volgens de andere dieren niet naartoe gaan nadat hij vrij was?

29. Hoe lokte de oom de big naar zich toe?

30. Er werden twee brievenbussen getoond. Wat stond er op de rechter brievenbus?

31. Wat vroeg de big nadat hij zich had voorgesteld aan de dieren?

32. Wat moet er volgens het paard gedaan worden in een stal?

33. Welk scheldwoord gebruikte de koe tegen het schaap?

34. Wat is volgens de big het leukste aan modder?

35. Hoe heet de gans?