The Invisible Text

A report on subtitling for Norwegian television

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Abstract

The Invisible Text is an investigation into television subtitling on the most viewed channels in Norway. As the first broadly quantitative study of this phenomenon in the Norwegian television world, this report focuses on daily exposure to subtitling – in other words how much text a viewer can read on their screen on an average day. The study shows that the volume of subtitles we are exposed to equates to approximately 17-18 novels each year, if the viewer were to actually read all of the words that appear on their screen. The proportion of subtitles actually read by viewers lies outside of the scope of this study. If we assume that a viewer reads at most half of the subtitles they are exposed to, only newspaper reading represents a larger proportion of written material read by the average Norwegian – we actually read more subtitles than books.

The study makes it clear that the reading of subtitles on television is more evenly spread across the population (in terms of gender and age groups) than both the reading of books and reading online. It is reasonable to assume that television subtitling is not only the second most important source of written Norwegian for viewers, but also reaches a broader audience than other written media (with the exception of newspapers).

Television subtitling seems to be especially important as a source of written Norwegian for the proportion of the population that is hearing impaired, as well as for children and young people. While the former group has been the topic of cultural political evaluations of television subtitling, the latter has had less focus. This study shows that children and young people of reading age are on average exposed to more subtitling than the national average. At the same time, the genres and channels watched most by children and young people are the ones that utilise poorer quality translation techniques (machine translation and second language translation). The study of the scope of subtitling on Norwegian television screens highlights the need to ensure good quality both in the translation and the use of Norwegian, as well as increasing the focus on subtitling both as a subject for research and for cultural political debates.

The Invisible Text

> An hour's worth of television footage is generally assumed to equate to around 30 pages of subtitle text. If we extend this theory and assume that an adult watches one hour of subtitled television each week in ten of the twelve months of the year, this would equate to around 1200 pages of text (40 films over 30 pages). This number of pages is equivalent to three or four novels – substantially more fiction than the average adult reads each year. (Lomheim, 1998)

This extract from Lomheim's book *The Writing on the Screen* (1998) illustrates the volume of text that subtitling represents and why the quality of translation is important. This report investigates television subtitling in Norway, with a primary focus on quantity and how much subtitling we are exposed to when watching television.

Television subtitling is invisible in several ways. Subtitles in television and cinema are not noticed until there is a problem with them. Viewers find it irritating when the translation is poor and contains numerous errors. Subtitles can also have an aesthetic impact, taking up too much of the screen. These are the situations in which subtitles are noticed. It could be argued that the aim of the subtitler is for their work to be invisible. Good subtitles are those that pass unnoticed by the audience – they are present on the screen without causing an impact.

Television subtitling in Norway has until now also remained largely invisible from a cultural and political point of view. The same can be said of media and public debate in general. Apart from a few editorials and letters in newspapers, we find next to no debate on the subject. There has been no systematic calculation of the volume of text in television subtitling in any analysis of media consumption statistics.

The primary aim of this report is therefore to make a quantitative calculation of the volume of Norwegian subtitling, which has been a large and demanding empirical task. The report uses existing media statistics as a starting point to calculate television subtitling's role in the daily consumption of Norwegian media. The report also includes a quantitative content analysis of the Norwegian television channels' time slots and viewer ratings in order to chart the scope of the subtitling. The channels in question include NRK1 and NRK2, TV 2, TV3 and TVNorge. These have been chosen because they have the highest ratings and account for the majority of television subtitling in Norway. In addition to discussing the average viewer's access to subtitling, this report explores the relationship between children and young people's media use in relation to the invisible text on television and at the cinema.

The two lines at the bottom of the screen

Where this report mentions television subtitling it refers to two types of translation. The text

on the screen can be the translation of Norwegian speech to text (intralingual) or of foreign language speech to Norwegian text (interlingual) (see also Gottlieb 1996). These two alternatives are both considered language translations. Translation from a foreign language to the language of the majority is the most common form of television subtitling in Norway. This subtitling aims to build a bridge from the foreign languages to written Norwegian, whether Nynorsk or Bokmål. The translation is 'diagonal', traversing both language and form.

The translation of Norwegian speech is about the conversion of speech to writing, primarily aimed at hearing impaired audiences. There are approximately 600,000 people in Norway with hearing impairments,[1] who benefit from subtitling in order to follow television content. This large group is a desirable target audience for television channels. It is not only the hearing impaired that benefit from these subtitles – when a large group is gathered in front of a television, people with perfect hearing may benefit from the subtitles to help them follow what has been said. Translation aimed at a hearing impaired audience includes elements above and beyond the dialogue that are necessary in order to follow the plot. This type of subtitling is not included in this report.

'Open' subtitling appears on the screen automatically whether you choose to see it or not. Conversely, 'closed' subtitling has to be enabled by the viewer using tele-text before it can be read. This report focuses on open subtitling that cannot be hidden by the viewer.

The relationship to dubbing

There are alternatives to translating using text displayed on the screen. Dubbing, which is translating with speech, is at least equally popular globally. Broadly speaking, it is the largest, most globalised linguistic communities that choose to dub instead of subtitling films and television programmes, while the smaller linguistic communities subtitle (Gottlieb 1996, Luyken 1991). Dubbing, or the synchronisation of speech translations, is expensive – one of the main reasons it is only common practice in countries such as Germany, France, Italy and Spain. A simpler, but less common, form of dubbing is to add a voiceover to the images on screen. Voiceover means that one or multiple people have recorded new voices over the original, but without focusing on synchronising the speech to the image, as is the case with dubbing.[2] This form is common in Norway for children's programmes. Children who cannot read need the voiceover to follow the action on screen. This is cheaper than normal dubbing, where characters in the plot are allocated a voice each. This report will not give an in-depth analysis of the relationship between subtitling and dubbing. Simply put, the most important benefit of subtitling is that it is a cheaper form of translation. The disadvantages can be said to be related to aesthetics and information dissemination. Subtitles truncate the dialogue and cover part of the image on the screen. They can distract the viewers and often cannot keep up word for word.[3]

[1] According to the Norwegian National Association for the Hearing Impaired

[2] See also Maasø (2002) for a closer examination of different types of dubbing

[3] Sylfest Lomheim *The Writing on the Screen* (1998). For an in-depth discussion of the relationship between dubbing and subtitling: Henrik Gottlieb (1996) and Maasø (2000).

How are subtitles written?

The aim here is to understand how subtitling works in practice. There are three ways the translations can be made:

1) **First language translation**

This is the translation of speech from the original language to written Norwegian or Nynorsk. First language translations can be both intralingual and interlingual.

2) **Second language translation**

This means that the initial translation from the original was to a language closely related to Norwegian, such as Danish or Swedish, in order to then translate or 'clone' the translation to Norwegian. The translation takes place twice, starting with a first language translation, followed by a subsequent interlingual translation. This type of translation is used to save time spent on translation.

3) **Machine translation**

When the translation is performed by a machine rather than a human translator, this is called machine translation or computer-aided translation. This type of translation can be based on first or second language translation. Machine translations are not completely without human input – once the computer has completed its task, the text is reviewed by a translator to correct any errors. These changes consist primarily of mistaken words and syntactic structures. The aim of this type of translation is to save time.[4]

None of these three types of translation can guarantee error-free translation. Nevertheless, there's no doubt which approach is best for securing the highest possible quality. Both second language translation and machine translation leave the door open for more inaccuracies in subtitling than first language translation. Second language translation leaves room for errors because a translation has already been completed, meaning that potential errors can be repeated or made worse. When computers translate, the error ratio depends on the software used. At the time of writing, the software available is not of adequate quality. For example, computers will struggle to translate words with multiple meanings depending on context. Arguably, second language and machine translations *can* achieve equal quality to first language translations if the translator completing the final review is alert and is given enough time to do a thorough job. The question is whether these requirements – language skills and time allocated – are satisfactorily maintained in modern translation. Competition between subtitling agencies places high demands on the efficiency of the translators. The focus on efficiency means that errors which are common in second language and machine translations are less likely to be caught by the translators. Studies have also shown that the error ratio in machine translations is large – up to a staggering 80% linguistic error.[5]

[4] Whether machine translations actually save time is debatable. Conversations with different subtitling agencies and translators at NRK have shown varying opinions about whether use of computers saves time. Essentially, the level of quality required will define how much time is saved.

[5] According to Sylfest Lomheim, reiterated by FBO (the interest group for Danish translators).

Reading speed

The text on the screen is fleeting. It appears on the screen for a set time and then disappears. According to NRK's subtitling department, two complete lines of text (60 characters) should be shown on the screen for six seconds. The practice varies between Scandinavian countries – while in Norway the norm is six seconds, Denmark and Sweden show the same number of characters for five and seven seconds respectively.

> *«When it comes to exposure times, it is the lack of regulation that is most striking. The natural tendency is that longer subtitles are shown for longer than shorter subtitles; that single lines are shown for less time than double lines. We can surmise that the exposure time in practice for the majority of texts is between three and eight seconds […] The conclusion seems to be that the dialogue tempo and the time the subtitler has available determines whether text is shown for two, three, four or five seconds.»*
> *(Lomheim 1998 p.124)*

The point here is not to criticise the fact that the text disappears too quickly, but rather to highlight that to comprehend the text on the screen, reading skills in terms of reading speed must be relatively high. Even lines of text shown for the normalised time of six seconds require a good reading speed. If the time coding for the subtitles has a higher frequency than this, it will be even more demanding to the viewer. For children, this means not only learning to read, but mastering a certain reading speed.

Subtitle-related research

As mentioned, there is no existing calculation using a review of media consumption statistics of the volume of text that television subtitling accounts for. A range of research has been completed internationally into various aspects of subtitling, but cannot be linked directly to the calculation of text volume, which is the focus of this report. This research will therefore not be presented further. In a Norwegian context, Sylfest Lomheim's book *The Writing on the Screen* is the most important contribution, although he does not carry out a thorough calculation of the volume of text on Norwegian screens. Lomheim undertakes an illustrative calculation of the volume of texts one can consume when watching films on television, to highlight the amount of television subtitling an average viewer reads. Lomheim also investigates the quality of NRK's subtitling, giving NRK good marks. There is also some international research on the subject. In Denmark there is a solid area of study that focuses on translations for television. In this report we will look closer at the work of the Danish translator and researcher, Henrik Gottlieb, who has developed a method for calculating the duration of exposure to subtitle for a viewer when watching television. This forms the basis for the calculation method in this report. Gottlieb claims that television subtitling is the most read text in Denmark, with approximately 31 minutes of daily exposure to subtitling for the average television viewer. This claim will be discussed further in relation to calculations completed from materials for our own investigation. In addition to the named research, we will also draw on general investigations into media use and reading skills in Norway.

Television subtitling's role has not yet been researched from a purely pedagogical viewpoint. This makes it difficult to determine whether television subtitles have an educational effect on children and young people. This report uses research regarding the general reading level in the country. However, two assumptions seem reasonable: that television subtitling offers children reading practice and that subtitling can enable a better understanding of other languages.

Television subtitling in Norway

As mentioned, there has been little debate about television subtitling in Norway. This silence is reflected in legal guidelines on the topic, such as the broadcasting law and licensing framework. In recent years, authorities have begun to consider television subtitling more closely. The main concern has been to get a larger proportion of the broadcast content subtitled and offer more live subtitling in order to better include hearing impaired viewers.[6] The Council for Public Broadcasting has repeatedly emphasised that NRK and TV 2 should take subtitling more seriously. The council's main concern with television subtitling relates to accessibility for hearing impaired viewers to public broadcasters. This has been mentioned in multiple annual reports from the council:

> *«Television is the only broadcast media for the hearing impaired. There is therefore a specific need to be able to follow live news and current affairs programmes on the television. When large groups such as this are excluded from public debate, democracy has a problem.»* ***(2002, p.55)***

It is primarily news and debate programmes the council wants subtitles for, based on democratic values. The Council for Public Broadcasting has therefore focused on developing technology for the simultaneous translation of programmes. This technology has been a long time coming.[7] The council has at the time of writing not yet addressed the language of the subtitling and whether this is of high enough quality.

The practice of television subtitling

Becoming a translator in Norway does not require a certification from an authority. Translation can be studied as a subject, but this is not required in order to work as a television subtitler. Almost everyone working in subtitling for Norwegian television works on a freelance basis. There are differences between each channels' approaches to the practice of subtitling, which are covered in the short sections below.

NRK

NRK began subtitling without pressure from the authorities and without any requirements to meet licensing laws.[8] Consideration for hearing impaired viewers and to viewers who do not speak other languages fluently were the main reasons for introducing subtitling. NRK has traditionally allocated significant resources to the subtitling of their programmes. They have an internal subtitling department which also has a proofreading section. This practice of proofreading is unique among Norwegian channels. The proofreading of the translation is

[6] The aim is that 50% of Norwegian speech television programmes (pre-recorded and live) will be subtitled by December 2005.

[7] The project working to develop Norwegian technology for translation has been stopped due to bankruptcy.

[8] According to Nikolai Nelvik in NRK's subtitling department

important to ensure high quality subtitling. NRK also hires between 40 and 45 full-time, well-qualified freelancers.[9] NRK pays its subtitlers well and it is reasonable to state that NRK is the broadcaster that pays the most for translation work. Other subtitling agencies have refused to confirm their subtitling rates. The standard pay at NRK for translating 90 minutes of television is approximately NOK 8,000 – work is assumed to take 40 hours paid at NOK 200 per hour.

NRK keeps data that shows how much of the broadcasting content is subtitles. The channel uses both open and closed subtitling. All things considered, NRK 1 and NRK 2 had subtitles for a total of 50.1% of the programmes broadcast in 2003 – of this, 28.3% was through open subtitling.[10] Subtitling of live programmes is currently in the development phase, and has so far been successful. Live subtitling is a demanding job mastered only by the best translators. In addition to the relevant skills, live subtitling requires significant resources.

TV 2

TV 2's licensing conditions for the period from 2003 to 2009 include guidelines for the subtitling of programmes:

> **§3-5 Subtitling for the hearing impaired**
>
> TV 2 will subtitle broadcasts shown between 18.00 and 22.00 each day for hearing impaired viewers. This applies to programmes where subtitling is technically and practically possible in terms of production timeframes. If the entire broadcast cannot be subtitled, individual items will be subtitled where possible. TV 2 will utilise technology for automated simultaneous subtitling of live broadcast news and current affairs programmes as soon as the technology is available and of adequate quality. Until this technology is available, TV 2 will subtitle all re-runs of live current affairs programmes.[11] (http://www.tv2.no)

TV 2's licensing conditions are somewhat vague about the use of technology for the simultaneous translation of television programmes. As mentioned, this technology is still not available and TV 2 has not begun live subtitling in the same way as NRK.

Unlike NRK, TV 2 does not track or publish statistics of what programmes are subtitled. A measurement that can be used for TV 2 is the percentage of non-Norwegian programmes, which in 2003 was 45%. As we can see from the licensing conditions, they are required to subtitle all programmes between 6 and 10pm. Some of this subtitling is completed in-house at TV 2, primarily for news programmes. For additional programmes TV 2 employs subtitling agency Filmtekst Norge, which also provides some subtitling for TVNorge.[12] This agency does not have a proofreading department correcting any errors made by translators. The translators correct their own work or collaborate with other translators. It is safe to assume this approach to proofreading is less effective than having a dedicated proofreading department.

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[9] NRK's translation is praised in Sylfest Lomheim's book *The Writing on the Screen* (1998).
[10] Statistics from NRK's subtitling department. These numbers refer to fully subtitled programmes.
[11] This applies to the new licensing conditions from 2003 – in previous conditions subtitling was not regulated.
[12] Filmtekst produces voiceovers for documentaries for TVNorge, where subtitles are also included.

TV3

TV3's headquarters are not based in Norway, so the channel does not have to meet Norwegian authority standards for the subtitling of programmes. Nevertheless, a large proportion of TV3's broadcasting consists of foreign language programmes with subtitles. A quantitative content analysis allows us to assume that approximately 80% of programmes on TV3 are subtitled (see below for more information). TV3 does not offer closed subtitling or subtitling of Norwegian programmes for the hearing impaired. There are also no live broadcast programmes on TV3.

Subtitling agency SDI-Media translates for TV3. Owned by the Kinnevig group which also owns TV3, SDI also does the subtitles for the Discovery Channel and ZTV. SDI's information department confirms the use of both first and second language translation as well as proofread machine translation. They do not keep comprehensive records of the different methods of translation. SDI is the only subtitling agency that uses machine translation for Norwegian television. The combination of machine and second language translations does not give a good basis for high quality translations. TV3's subtitling is proofread by the translators rather than by a proofreading department.

TVNorge

Like TV3, TVNorge does not have to meet any Norwegian authority requirement for subtitling programmes. Despite being based in Norway, TVNorge's satellite distribution means it avoids having to satisfy these regulations. TVNorge subtitles foreign language programmes, but not Norwegian programmes. They do not have closed subtitling through tele-text and do not offer subtitling for hearing impaired viewers. TVNorge does not keep records of subtitling – their information department estimates that 70% of programming is foreign language. A quantitative content analysis shows that 60% of sample programmes are subtitled.

Broadcast Text performs translation for TVNorge and is owned by TVNorge through the company SBS and also carries out translation work for MTV, BBC and Canal Digital. Broadcast Text has multiple offices in Europe that can provide subtitles, so the work is not necessarily always completed in Norway. Broadcast Text say they do not use machine translation, but occasionally use second language translation.[13] The translation agency has its own proofreaders to catch potential errors, but the department is small and works under pressure with a lot of deadlines. All the same, a small proofreading department produces better results than not having a proofreading department at all.

Summary

With more channels, competition for viewers has increased. There are more programmes to choose from and a larger proportion of foreign programmes. It is now possible to watch television throughout an evening without viewing any Norwegian language programmes. In this media environment an industry has evolved around the subtitling and presentation of television programmes for a Norwegian audience. As stated above, NRK has an in-house subtitling department that delivers translation.

[13] Information from Broadcast Text

Demands for efficiency and competitive pricing dominate the workday for agencies and translators. Producing high-quality translation takes time. According to translators, one problem is that the fees paid by television channels are too low, which impacts the quality of work. There is a lot of competition between the translation and subtitling agencies. The price charged by agencies is to some degree dictated by the television channels.

The regulation of television subtitling in Norway focuses on quantity rather than quality, which is understandable when taking into account the number of hearing impaired viewers in Norway. They rely on subtitling to follow programmes – without subtitling this large group is excluded from an important forum for public debate. An important point is the live subtitling of programmes, which only NRK currently offers. TV 2 is able to avoid live subtitling in the absence of technology. Neither TV3 nor TVNorge provide subtitles for hearing impaired audiences.

However, a focus on the quality of subtitling is timely. Second language and machine translations have an impact on the quality of language in translations. The methods used by agencies aim to increase efficiency in translation. These ‘deficient’ approaches are predominantly used by TVNorge and TV3. NRK exhibits best practice in this field, ensuring that translators have the time they need and are well paid for their work. NRK’s proofreading department also ensures high quality for their subtitling.

Methodological discussion

This report is based on existing statistics of media use in Norway, primarily from Statistics Norway (Statistisk sentralbyrå, SSB) and TNS-Norsk Gallup. Where this information is not comprehensive enough to provide estimates for television subtitling, we have undertaken a quantitative content analysis of the television channels' broadcasting schedule and ratings. The sample for this analysis is limited to one week's broadcast content, 19-26 January 2004. From such a small sample, it can be problematic to draw broader conclusions. The quantitative content analysis therefore only indicates trends in the role of television subtitling in everyday Norwegian media. Calculating how much television subtitling the average person is exposed to offers some methodological challenges, which will be investigated here. An exact calculation of television subtitling intake is difficult when there are so many variables determining how much subtitling a viewer absorbs from watching television. The most important variable affecting this is which types of programmes an individual watches. Channel choice is also a factor, as are the number of characters on the screen. Finally, there is the significant question of whether the viewer actually reads the subtitles. Any calculation has to be based on the amount of subtitling the average viewer consumes; individual differences and deviations from the average will of course occur. It is important to remember that the existing statistics on which this study is based will also have a margin of error, even though the studies by SSB and Gallup have used a relatively large sample in order to offer a representative image of media use.

The proportion of Norwegian programmes as a measurement

Does the proportion of programmes that are Norwegian or foreign language give an answer to how much of the programmes on our screens are subtitled? Not all channels have statistics of the proportion of programming that is Norwegian, un-subtitled or foreign language subtitled. NRK has in-depth statistics of this and TV 2 has a clear overview of the number of Norwegian-produced as opposed to imported programmes. TV3 and TVNorge lack these statistics. This study therefore approximates the percentage of programming that is Norwegian based on a quantitative content analysis (see above). As mentioned, this is based on one week's broadcasting during January in 2004. The Norwegian proportion of programmes shown may vary seasonally from channel to channel.

The share of programming in Norwegian does not necessarily give an accurate representation of how much subtitling viewers experience. For example, we can easily imagine that non-subtitled Norwegian programmes that don't have many viewers but take up a significant share of a channel's broadcasting will lead to an incorrect representation of the role of television subtitling in media use. An example of this could be *Mess TV* on TVNorge. This is

an SMS-based programme broadcast from 3am to noon and has very low ratings. *Mess TV* increases the proportion of Norwegian-produced programming significantly for TVNorge.

We can therefore conclude that the proportion of Norwegian programming does not give a clear estimate of the volume of subtitling on a channel. The problem with using the Norwegian proportion as a measure is that an estimation of subtitling on television also has to take into account the number of viewers the programme has.

Proportion of viewers

How many people watch subtitled programmes? It is difficult to determine exactly how many people watch subtitled rather than non-subtitled programmes. This study used a television meter panel from TNS-Norsk Gallup, showing how many people watch the different programmes, alongside the programme summary from the same week. By analysing one week's ratings in January for the different channels, an estimate has been made of how many subtitled and non-subtitled programmes have been watched on each channel.[14] This will vary seasonally, because the broadcasting schedule varies throughout the year. This study can, however, present a well-founded estimate of how many people are watching as well as who is watching, based on numbers from Gallup. The estimate of what the channel's 'demographic focus' (see below) is in terms of ratings gives a good representation of which programmes are the most popular on the different channels.

Subtitle exposure

The third methodological question is about measuring the subtitle exposure, which is the amount of time the text is shown on the screen or the number of characters per minute. This varies from programme to programme and depends on how much dialogue there is. This is obviously difficult to find exact figures for. This problem has been overcome by using estimates for the different genres of programme and their different levels of subtitle exposure. Within the different genres there is also room for variance of subtitle exposure. Estimates for the genres and how much text is shown on screen are based on calculation codes developed by the Danish media researcher and translator Henrik Gottlieb. Through his experience as a translator for Danish Radio, Gottlieb has identified the norms for different genres and the volume of text presented. To what extent these estimates are accurate can be debated. The point of the calculation codes is that, for example, a foreign language comedy programme will have more dialogue and therefore more subtitles than a nature documentary. This is a variable that is generally relevant, but is difficult to calculate accurately for an individual programme. Because an evaluation of the degree of subtitling in different genres falls outside the scope of this study, Gottlieb's calculations (1996) will be the basis for this study.[15] Because genre distribution on television and knowledge of foreign languages is

[14] The calculation used for measuring 'demographic focus' (see below) is based on a selection from this week, including Wednesday, Saturday and Sunday.

[15] The categories of programmes for degrees of subtitling are as follows: US drama 60%, foreign film 60%, talk show 60%, documentary and factual 30%, reality programmes 30%, food programmes 30%, sport 5%, nature documentary 30%, music and entertainment 10%. The proportion of programmes in the different genres is multiplied by the degree of subtitling for the programmes. The degree of subtitling for channels' imported programmes is the sum of the proportion of different genres multiplied by their degree of subtitling. See also Gottlieb (1994 and 1996)

relatively similar in Denmark and Norway, we believe that Gottlieb's calculations are transferable to the Norwegian television landscape. In a broader study, it would be beneficial to evaluate the relation to Norwegian material.

As well as the calculation code from Gottlieb, the quantitative analysis below is based on one week's programme analysis. Statistics from the research department of NRK (annual review 2002), in which broadcasting schedules for genres across different channels is reported, also supplement the content analysis.

Reliability and validity

The methodological problems discussed above focus primarily on this study's *reliability*, in short whether there are uncertainties in how measurements are taken and the numbers that the calculations are based on. As we have seen, there are several elements of the study's reliability that can be questioned in terms of the calculation for television subtitle consumption. However the study is based on good statistics, especially from those channels that subtitle the most and have the highest ratings; NRK 1 and TV 2. Overall, the methodological approach offers reliability and a good snapshot of television subtitling's role for the average person in Norway.

Another factor linked to this methodological approach is the study's *validity* – whether the study is measuring what it was intended to measure. Can we guarantee that the text on the screen is being read? The question is whether we automatically read subtitles when they are present, or if it is a sliding scale – from being dependent on the subtitles to understand the programme, to not needing the text at all to follow the action. We can naturally assume that if the viewer can speak the foreign language, they will not follow the subtitles to the same extent as if they do not know the language at all.

It would be extreme to conclude that viewers actually read all translation on the television screen. Exactly how to handle this issue is complex. Gottlieb's premise is that viewers in fact read everything on the screen – which is primarily based on the need to compare television subtitling with other written media. To argue this point, Gottlieb claims that viewers do not necessarily concentrate any more when reading a newspaper or book than when they are watching television (Gottlieb 1996). We reject this assumption.

This is based on research into ways of viewing television and the eye contact we have with the screen when sitting in front of the television. The study shows that the amount of eye contact we have with the screen varies depending on age, genre and gender. Viewers have the least contact with the screen during advertising and news reports, and most contact during feature films.[16] Most of this research has been undertaken in countries that do not commonly subtitle television, including the US, UK, Germany and Japan. It is therefore difficult to extrapolate this research to determine how much subtitling increases eye contact with the screen and whether the text is being read. However, if the same eye contact patterns apply in Norway, we can assume that viewers in general do not look directly at the screen for more than 70% of their time in front of the television and that the proportion of time used to read subtitles is an unknown proportion of this percentage.

[16] See a review of this research in Maasø (2002), specifically chapter 2.

We have previously touched on the fact that reading translation requires a certain reading speed. The subtitling speed on the screen can make it difficult to read all the text. In contrast, the text can also be too slow, meaning that viewers lose concentration and pay less attention to the screen. In these ways, the fact that viewers do not determine their own reading speed can result in them not catching all of the subtitles.

It is problematic to claim that all of the text on the screen is read, and prudent to remember that the degree of connection between viewer and translation will vary, as will the degree to which the viewer can follow it. Estimates on the quantity of subtitling in this study will need to be moderated. In this report we have therefore focused on the subtitles viewers are *exposed to*, not those that they actually *read*. A more reliable assessment of how much of the text viewers actually read would require other methods than were available for this study. Observation, interviews, user studies and other methods require greater resources and a separate study to chart the phenomenon more accurately.

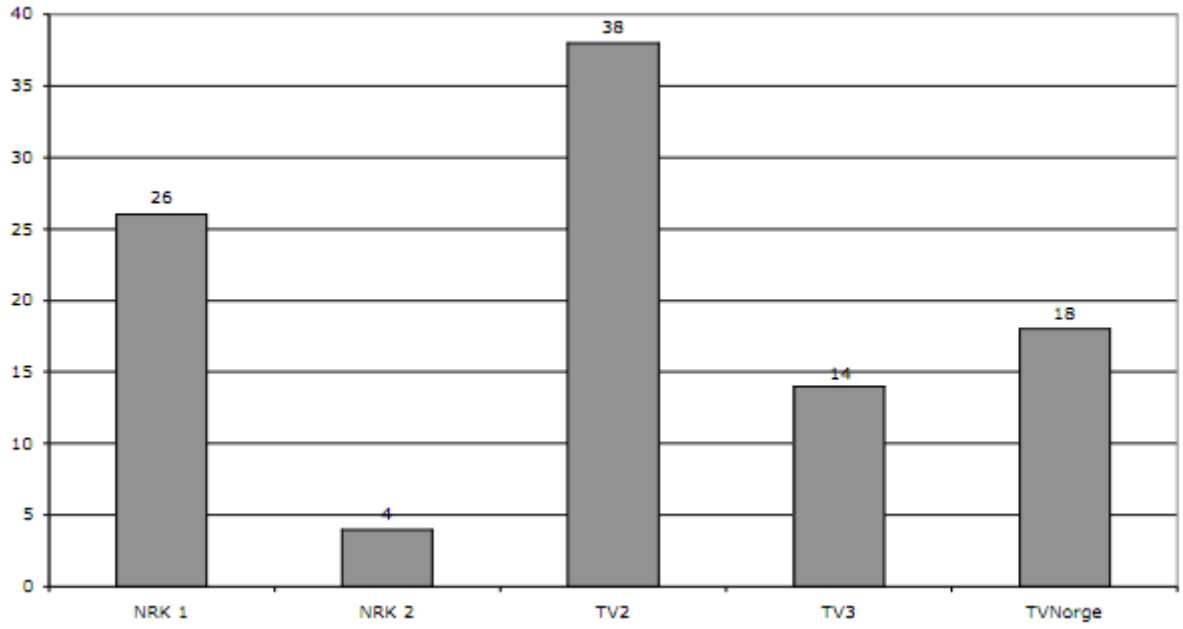
Analysis: media consumption and television subtitling

How much television subtitling is the average viewer exposed to? This question is the primary focus of this study. The consumption of television subtitling is calculated here by evaluating the number of minutes it is possible to read television subtitles each day. We will also take a closer look at children and young people's media consumption in the context of television subtitling. Quantitative and qualitative conditions are closely connected, which is especially important in relation to children and young people's media consumption.

Which channels have the most subtitles?

Diagram 1

Open subtitling on television channels in relation to number of viewers. Percentage of open subtitling each day.



The calculation here shows that 38.75% of the television we watch is subtitled. This number is reached by evaluating the proportion of subtitled programmes on each channel and multiplying this by the proportion of ratings for the different channels (proportion of open subtitling on the channel as a percentage × proportion of viewer rating for the channel as a percentage).[17]

[17] Open subtitling is here calculated respectively: NRK 1 22.7%, NRK 2 38.4%, TV 2 45%, TVNorge 60% and TV3 78.5%. Other channels remain outside of the scope of this calculation. NRK 1's relatively low figures are due to the fact that a significant proportion of the subtitling is not open, but can be selected by the viewer from tele-text. TVNorge and TV3's relatively high figures are due to the fact

Diagram 1 shows an overview of which television channels expose us to the most subtitling. This is a rough representation, because there are relevant variables other than proportion of open subtitling and viewing figures involved when understanding which channels show the most subtitling. For example, the proportion of subtitled programmes in *prime time* will affect the relationship between the channels, since this is when most television is watched. Diagram 1 shows that TV 2 and NRK are the channels that offer the most translation in relation to the television consumption. TV3 and TVNorge also have a significant impact, representing 14% and 18% respectively of the subtitling we are exposed to in Norway.

Time spent in front of the television and the number of pages of text

At the start of this report we saw that one hour in front of a television film equates to 30 pages of text (Lomheim 1998). If we base our calculations on the average person watching 146 minutes of television each day (Vaage 2003)[18] and that 38.75% of the broadcast content is subtitled, we can conclude that television viewers are exposed to 56.5 minutes of subtitling each day. Over the course of a year this equates to 20,650 minutes or 344 hours of subtitling. If we then calculate the number of pages this would equate to (30 pages per hour), in one year the viewer reads the equivalent of 10,325 pages – a large volume of text. When related to novels that are on average 350 pages long, this means that the television viewer is exposed to more than 29 novels' worth of subtitling in one year. This estimate needs to be moderated significantly as there are several aspects of television watching that needs to be considered in order to calculate the consumption of television (see below). The estimate that we are exposed to the equivalent of almost an entire novel each week is therefore too high.

The channels' broadcast schedule also impacts how much text we are exposed to – television channels have different profiles for different days, genres, audiences and viewing habits. A typical trend is that there are more Norwegian language programmes in prime time, when the largest number of viewers watches television, as compared to other times of day. This trend significantly reduces the amount of text we are exposed to via television overall. This is one of several important variables that make the calculation of 30 novels' worth of text in a year far too high.

Calculations with multiple variables

How large is the percentage of subtitled programmes shown on the different channels – and do subtitled programmes have as good ratings as non-subtitled programmes? These variables will now be taken into account to calculate the text consumption on our screens. Gottlieb points to a way of calculating subtitling exposure that includes more variables. His background as a radio translator equips him with a knowledge of how subtitling works and which variables are important in charting the scope of television subtitling. By looking at the number of viewers, imported programmes, demographic focus and degree of subtitling, Gottlieb calculates the collected subtitle reading from exposure to intralingual subtitling. Some of these terms require further explanation: **Import** refers to the proportion of foreign

that the programme profile consists of many foreign language series.

[18] CHECK PLACEMENT OF FOOTNOTE SSB's statistics of media use for 2003 are not available at time of writing

language programmes requiring translation. **Demographic focus** refers to the number of viewers for each programme. This is measured using television rating panels, which inform us about the individual programme's ratings. Demographic focus is calculated using the average rating for the subtitled and non-subtitled programmes, divided across the time the programmes account for on the channels' broadcast content. **Degree of subtitling** is a measure of the amount of text used in the subtitling of different types of programme. For example, different genres such as comedies and sports programmes have different volumes of text. The degree of subtitling for different genres has been calculated by Gottlieb. For example, comedy programmes with a lot of dialogue will have more subtitle exposure than a nature documentary (Gottlieb 1994).[19] According to Gottlieb, American dramas have a 60% degree of subtitling, while news programmes have a 10% degree (see above).

The calculation below includes several variables, relevant to how much text has been shown on the television screen. Genre as well as the degree of popularity of the foreign language programmes shown on the different channels is relevant to subtitle exposure.

Daily exposure to interlingual subtitling

Channel	Broadcasting	Import	Demographic focus	Degree of subtitling	Reading time
NRK 1	66 minutes	X 37.1%	X 0.85	46.8%	9.74 min
NRK 2	6 minutes	X 45.8%	X 1.28	57%	2 min
TV 2	48 minutes	X 45%	X 0.70	59.5%	8.99 min
TV 3	10 minutes	X 78.5%	X 0.95	60%	4.47 min
TVNorge	17 minutes	X 60%	X 1.39	57%	8.08 min
				Sum	33.28 min

Gallup estimates that on average television viewers spent 164 minutes in front of the screen in 2003.[20] While our calculation takes multiple variables into account, there are other variables that are not included. The most important of these is whether viewers actually read all of the subtitles to which they are exposed. The estimate above shows that we are exposed to 33 minutes of subtitled television each day – whether we actually read all the text is difficult to ascertain. Another point is that English is understood by many Norwegians and accounts for the majority of imported programmes. When viewers know a language well it is reasonable to think they are released from the need for translation. Many people don't need

[19] These calculations are based on a quantitative content analysis of TV channels' broadcast range. The calculation is: [average of all programmes] divided by [average of subtitled programmes]. For the average of all programmes, subtitled and non-subtitled, are measured by how much of the broadcast range they cover.

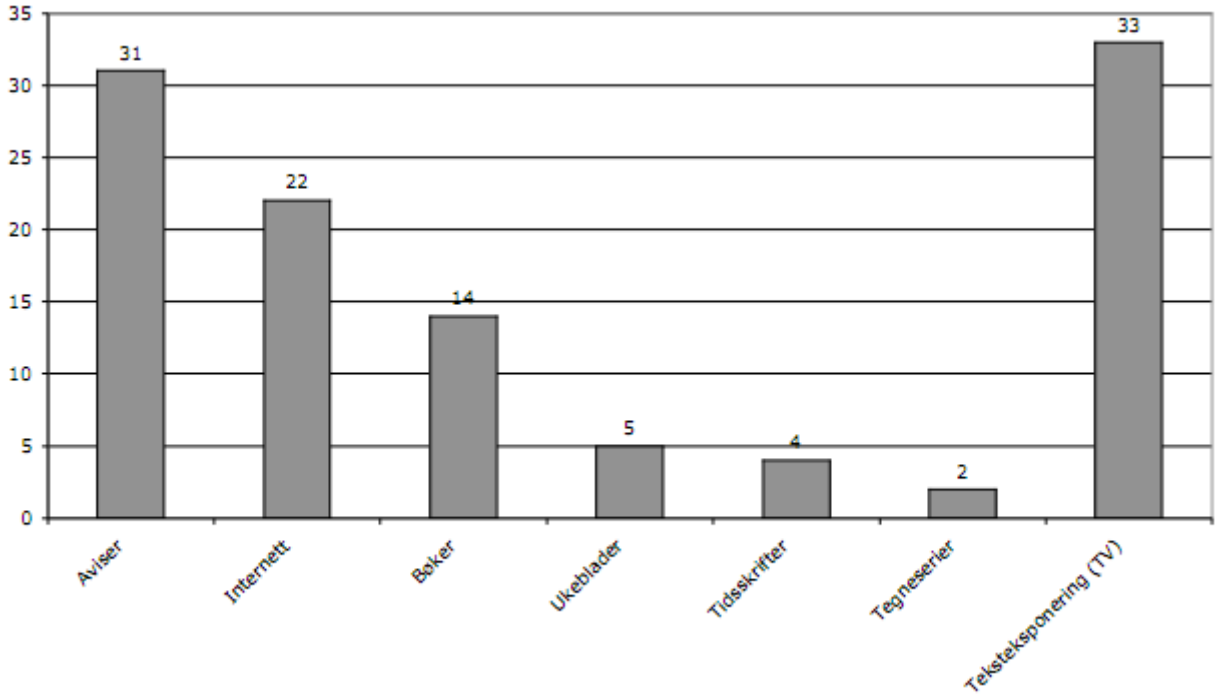
[20] This represents an increase of 11 minutes compared to 2002, based on Gallup's own measurements. 'Other channels' have been omitted from the calculation.

the subtitles to follow the action and therefore may not read all the text on the screen.

In considering these important provisos, it must also be said that this calculation is based only on interlingual translation, the translation of foreign language programmes into Norwegian. If we include both intra and interlingual and partial as well as fully subtitled programmes, the estimation of subtitle exposure becomes somewhat higher. There are course some large individual variances in how much text some people take in from the screen. Also, not everyone watches television – 15% of Norwegians are not active television viewers. People also have different preferences that affect the amount of text that appears on their screens – those who opt to watch a significant number of foreign language programmes will be exposed to a larger amount of subtitling, whereas others who prefer programmes produced in Norway will be exposed to less. The calculations completed here aim at ascertaining an average across Norway's population, so individual variances will occur.

Diagram 2

Minutes spent on written media compared to television subtitle exposure



The numbers pertaining to consumption of written media and calculation method 1 are based on Statistics Norway's figures for 2002 (Vaage 2003). The calculation of text exposure is based on TNS-Norsk Gallup's figures for 2003. 33 minutes of interlingual translation equates to very high exposure to translated text on the screen. Diagram 2 shows the average exposure to television subtitling in relation to time spent on written media. This diagram disregards the question of whether we actually read all the text we see on the screen, in order to facilitate the comparison of the consumption of television subtitling with that of written media. Seen in this light, diagram 2 is a good illustration of the consumption of television subtitling in relation to other written media. As we can see, it is reasonable to say that Norway is a '*television-reading*' nation.

More reading on television than in books

As discussed, the comparison with other written media in diagram 2 is a simplification of reality. To compare these figures, the premise must be that we actually read all subtitling on the screen, which is debatable.[21] It could be argued that the degree to which we focus and concentrate on a medium will vary, or that readers don't always take in *all* of the text they see when reading a newspaper or a book. Another argument, as mentioned, is that viewers concentrate just as much when watching television as during the consumption of other media (Gottlieb 1996). Based on research into the degree to which viewers have eye contact with the screen when watching television, we believe it is unreasonable to claim that viewers take in all subtitling on the screen in front of them and that viewers will consume more text per minute when reading a newspaper than when reading television subtitling.

We therefore believe that the estimate of 33 minutes of subtitling exposure does not equate to

[21] To our knowledge, there is no research available offering an adequate answer to this question.

33 minutes of actual reading. It is likely that Norway, as a nation, still reads most text in newspapers. If we assume that on average viewers only read approximately half the subtitling on their screens, translation on television still constitutes a significant proportion of the written text they read. This means for example that Norwegians read more on television than in books. Because the activity of watching television is more evenly spread across the population in terms of age and gender than reading newspapers and reading online, it is reasonable to assume that television subtitling is the second most important source of reading for most people. The television screen provides much of written text we read, consciously or subconsciously, while sitting in front of the television.

Age, gender, media use and reading skills

We will examine more closely the question of who watches what on television – or, more specifically, who *reads* what on television. Which trends can we see in the relationship between media consumption and the viewers' age and gender? Does television consumption impact reading skills?

Age and gender

It is not as simple as being able to claim that people who watch television have better reading skills. Egil Gabrielsen's study *This is how we read in Norway* (2000) shows the opposite; that those who watch the most television have the weakest reading skills. It is among the large-scale consumers of television we will find the weakest reading abilities.

> *«Even if there seems to be a correlation between reading level and time spent in front of the television, this does not automatically imply that television watching is the cause of poor reading skills. An equally plausible explanation could be that extensive television consumption is a consequence of poor reading skills. The worrying element is that this has become for many people a lifestyle pattern that could be difficult to break.» (Gabrielsen 2000, p.102)*

Viewers do not necessarily improve their reading skills by watching television. As food for thought, one could claim that those who have the lowest reading skills *ought* to be exposed to high quality language, which would make high quality television subtitling paramount. Another demographic characteristic is that men watch more television than women. This applies to all age groups, young and old. Women, in turn, are generally better readers and spend more time reading than men. The question is whether we see trends that support or detract from pre-existing patterns. Another identifiable factor is that boys and men watch more sport on television than women and girls; sport is not subtitled in Norway. Correspondingly, women watch more subtitled television series than men. Are these signs that viewing patterns support pre-existing tendencies in terms of gender and reading skills? This question cannot be settled for certain. The extent to which television contributes to creating, expanding or reducing gender and skill divisions cannot be concluded from the material and methodology of this study.

Diagram 3

Percentage of television viewers by age group

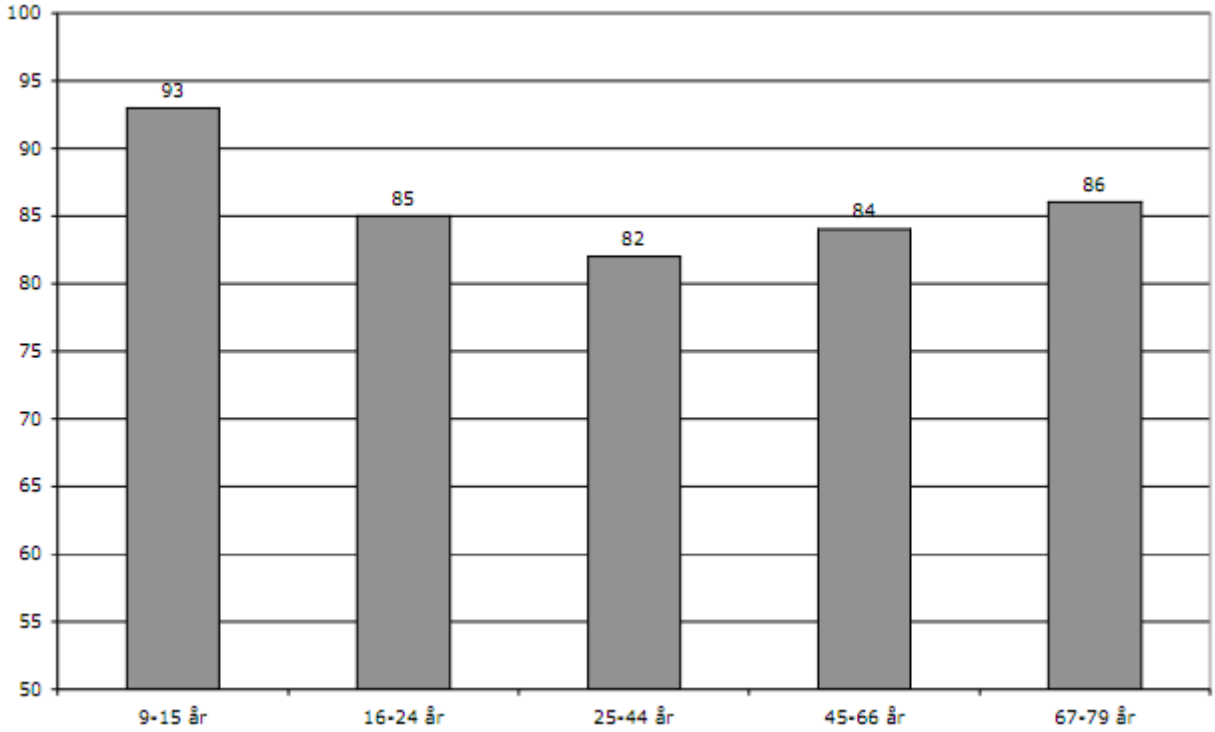


Diagram 3 shows that it is the youngest and oldest sections of the population who watch the most television. Television watching is comparatively evenly divided across other age ranges in the population, but children and the elderly are the groups that watch the most television. In terms of television consumption by children and young people, it is reasonable to assume that television subtitling plays an important role for this age group in learning to read and write and in learning foreign languages. Some observations of children and young people in research literature seem to support this assumption, for example:

> *«I asked 75 pupils in the 1st grade why they wanted to learn to read. 72 of them answered that they wanted to be able to read subtitles.»*
> *(Jens Raahauge, President of the Danish Teachers' Association. Quote from FBO's trade conference, November 2000)*

To read television subtitling, some fundamental reading skills are required. As mentioned, the two lines are displayed on the screen for approximately six seconds. This requires a certain reading speed that cannot be expected in young children. Reading speed is not usually taken into account when measuring children's reading skills, nor is comprehension measured. Comprehension will correspond to reading speed – how much we understand is connected to how fast we can read. But a more precise evaluation of how fast children read is hard to perform. In practice it is reasonable to assume that older children, from age nine and above,

are able to follow translations. Programmes for younger children are 'dubbed' to enable them to follow the action, as few children below school age or in the first years of schooling can read.

Diagram 4

Selected programme categories' daily ratings among younger viewers. Percentages by age group

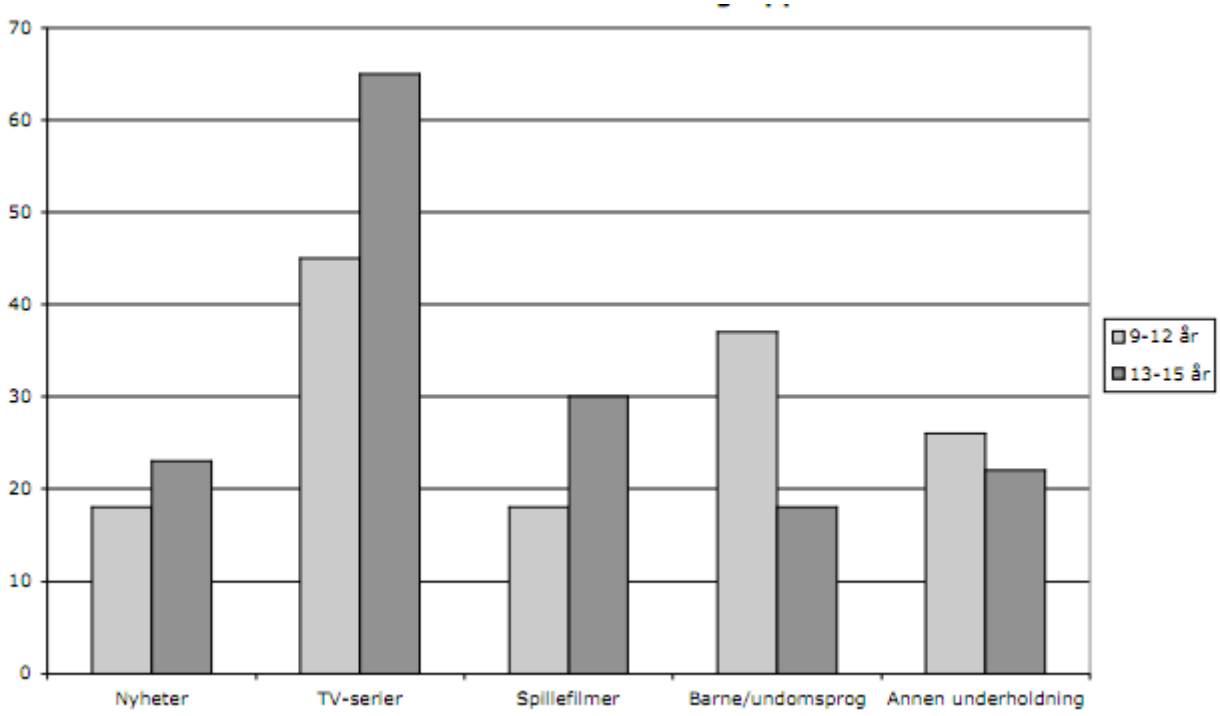


Diagram 4 offers an insight into some programme categories and their ratings among the youngest of viewers.[22] This must be evaluated in relation to how the different channels subtitle programmes. As discussed, the method used by different channels to subtitle their programmes impacts the quality of the translations. We have also assumed that the factor that most significantly impairs the quality of translations is 'cloning' of subtitling (second language translations) and machine translations. The genres watched most by children and young people are those with the highest ratings on TV3 and TVNorge. Series on these channels are popular among children and young people.[23] These channels, especially TV3, most frequently use the lower quality forms of translation and broadcast much of what is popular among children and young people. It is therefore reasonable to say that children and young people mainly watch programmes with poor quality translations.

Based on the calculation of exposure to interlingual translation, subtitle viewing figures for children and young people are likely to be above the 33 minute average.

[22] Source: SSB, Vaage 2003.
[23] According to figures from TNS-Gallup

This assumption stems from three conditions: young people watch more television than average viewers; the 'demographic focus' of the ratings is greater on subtitled programmes for this age group, since young people watch fewer news and debate programmes and more series; the frequency of subtitling is high for the types of programmes popular among children and young people. For example, diagram 4 shows that children and young people watch a lot of television series, a genre with a high degree of subtitling, but they watch less news, which has a lower degree of subtitling. A calculation of the younger age groups' exposure to television subtitling was too costly to undertake in this study, but can hopefully be determined by future research.

Summary

This study has shown that the consumption of written text through television is extremely high in Norway. At the same time, it has shown that it is difficult to accurately estimate the actual consumption of television subtitling and that there are several methodological problems with this type of investigation. A key – and unanswered – question here is whether viewers read subtitles more or less automatically, or whether this varies with language skills and other factors such as age, gender and reading skills.

Our study shows that the average *exposure* to interlingual subtitling is 33 minutes each day for the average viewer. This calculation must be modified in order to determine how much *viewers actually read*. If we assume that viewers only read half of the subtitles they are exposed to, this still equates to more than the amount of text the average Norwegian reads in books. It is reasonable to assume that television viewing is among the most important sources for written text and that it demographically reaches a broader range of the population than books and the Internet. From this we can conclude that television subtitling is a more democratic source of reading material than most other written media.

In relation to children and young people there is a lack of research into the role television subtitles play in the development of reading skills and foreign language skills. It is clear that children and young people watch a lot of television series, often on channels that utilise machine and second language translation. These methods of translation do not generally produce the highest quality results from a linguistic perspective. Children and young people are likely to be exposed to a lot of poor language via television.

Conclusion and summary

The viewer as a reader

This study has evaluated the consumption of media in Norway and the role of television subtitling. A calculation of the volume of text absorbed by the average television viewer through subtitling has not previously been completed in Norway. This report shows that Norwegians have a high consumption of written text through television. The calculations have to be moderated because it is difficult to determine whether viewers actually read the text they are exposed to on the screen. The estimate in this study shows that viewers are exposed to an average of 33 minutes of interlingual subtitled television daily. This does not mean, however, that they actually read all the text they see. If they actually read all the text on the screen, it would be a volume of text equivalent to 17 or 18 novels per year.

Figures from Statistics Norway show that viewers on average spend 146 minutes in front of the television each day – meaning that they clearly read a lot of text on the television. According to SSB Norwegians read newspapers for an average of 31 minutes each day and spend 14 minutes reading books each day. It is reasonable to conclude that Norwegians read more text in television subtitles than in books. This assumption is based on the premise that viewers take in approximately half of the subtitling that appears on their screens. Quantitatively, television subtitling constitutes a significant element of the average Norwegian's consumption of written text. The reading of written text on television is more evenly spread across the population than, for example, reading books and online in terms of age and gender.

Quantity and quality

The limited regulation currently in place for the subtitling of television programmes focuses primarily on being inclusive to the large group of hearing impaired people in Norway. The provision for the hearing impaired can still be improved in terms of the percentage of programmes subtitled and the implementation of further measures for live translation of programmes.

There are two crucial elements in ensuring a qualitatively good translation. The translators need to have mastered the Norwegian language and need to have enough time to do a good job. There is no guarantee of the quality of translators for television, no certification or assessment in order to become a translator. It is possible to study translation, but this is not a prerequisite to employment as a translator. The time allocated for translation is under pressure from the need to increase efficiency in the field. The competition among translation agencies may push down the rates paid by television channels for subtitling projects, but the competition is not conducive to maintaining a standard of quality in language used on screen. Translators have to work quickly in order to earn a decent wage. The pressure on efficiency has also lead to expanded use of second language translation methods (cloning of language) and machine translation. These forms of translation are not the best in terms of ensuring good use of the Norwegian language.

The aim of this study was to chart the role of television subtitling descriptively, by evaluating the quantity of subtitling on Norwegian television screens. The scope of subtitling here makes it clear that there is a need to ensure the good *quality* of translations and Norwegian use. This is especially important in terms of children and young people, at a time when the reading of books is decreasing, especially among young boys. The analysis of the television preferences of the youngest age group shows that those consuming the most television subtitling are also consuming the lowest quality subtitling. This applies especially to the subtitling of foreign language television series, which are popular among children and young people. These series can be found on most channels, but overwhelmingly on TV3 and TVNorge, the channels that most frequently use second language and machine translation techniques. The language these translation techniques offer is not the best foundation for the youngest viewers.

This report highlights that further research is required into television subtitling. Whereas this study scratches the surface of the subjects of media consumption and the role of subtitling, further studies could go further in terms of quantitative and qualitative content analyses. Research into the way viewers read subtitling would also be useful. This report poses questions about whether we actually read all of the translation on the screens in front of us. Other methods of investigation could answer these questions and examine how this is related to foreign language skills for viewers.

Most people do not give thought to the subtitles on their screen until there is an error in translation. In this way, subtitling is often 'invisible' to viewers. In the context of the large volume of television subtitling we are exposed to daily, there is reason to ask whether subtitling ought not to play a larger role in public debate and as a field of research. As a cultural and political topic it may be especially important to focus on the role of subtitling for the significant number of hearing impaired viewers in Norway, as well as viewers who are in the process of learning written Norwegian. A stronger focus on the role of subtitling could also contribute to improving the quality of subtitling on television, which would be of benefit to all viewers.

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