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**Abstract**
The objective of the Signing Books Project is the development of guidelines for the production and distribution of signing books for the deaf: books in sign language, on videotape or CD-ROM. This deliverable contains a synthesis of the previous workpackages, presented as guidelines for the production, publication and distribution of signing books.

**Keywords**
Deaf, Sign Language, Signing Books, videobooks

**Classification**

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FOREWORD

It is with great pleasure that we present these Guidelines. As an organisation of parents of Deaf children we are all too aware of the necessity for special materials such as videos and CD-ROMs with sign language. These ‘signing books’ will most certainly help Deaf children and students in their development; whether productions with clear-cut educational and informational purposes are concerned, ‘books’ or films for recreation, or games. The possibilities signing books offer to many adult Deaf people are obviously also great; for instance to access information that otherwise would be difficult to gain.

We have experienced how complicated the development of such material is. During the course of the Signing Books project we have seen how others have also struggled with many aspects, such as translation issues, contrast, the use of visuals, etc., etc.

We do hope the Guidelines will be helpful for people making signing books in the future. We also hope for a good co-operation, on an equal footing, between those experts who know all about video production and people with expertise on sign language and on the needs of Deaf children, students and adults.

We thank all persons who contributed to the Signing Books project. The researchers and assistants from the City University of London, the University of Hamburg and the FODOK and our project co-ordinator. We also thank the great number of Deaf and hearing persons who participated in the production of the test materials, the actual testing, in workshops, meetings of focus groups and in the organisation of the symposium. And last but not least we thank all the others who facilitated the proceeding of the project when they were asked for a helping hand. We are grateful to all of them.

Toine van Bijsterveldt, Chairman

FODOK  (Dutch Federation of Organisations of Parents of Deaf Children)

Main Contractor Signing Books project
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DOCUMENT CONTROL

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EXECUTIVE SUMMARY

Signing Books for the Deaf was a European project funded under the TAP-DE programme (TAP DE 4209). The project started on January 1 1998 and lasted until December 1999. Partners in the project were: FODOK – NL (co-ordinator), City University – UK, Hamburg University – DE, Signum GmbH (associated partner, DE) and sDG – NL (financial management).

The objective of the project was the development of guidelines for the production, publication and distribution of ‘signing books’ for the deaf: books in sign language. Sign language is the preferred language of the early Deaf (persons who were born deaf or became deaf early in life) and the only fully accessible language for most of them. As of yet, there is no generally accepted writing system for sign languages. Therefore, the term ‘signing books’ is used in this project to indicate books in sign language, on videotape or CD-ROM, comparable to the talking books for the blind. Sign language dictionaries, videos that teach sign language, and videos made for research purposes were outside the scope of this project.

Since the 1950’s large numbers of talking books have been available for the blind. Research aiming to improve the quality of the talking books as well as of the distribution process has been ongoing ever since, both nationally and internationally.

In contrast, signing books for the deaf are a new development. In some countries, only a few signing books are available, often ad-hoc productions; in others, the number of signing books available may be as many as 200-300. Numbers that may seem impressive, but that are in the most favourable situation, at the most only 0.5 % of the number of talking books available for blind people. Research to improve the quality of signing books and of the distribution process is, is – as far as known – non-existent.

The guidelines that can be found in this document are the results of activities undertaken by the Signing Books consortium, between January 1998 and December 2000. These activities were:

- A description of the state of the art of signing books in the European Union: the videos and CD-ROMs, the production process, and the people and organisations involved in their production (Del. 3.1).

- A description of the delivery methods of Libraries for the Blind, of currently available Library Services for the Deaf and of other distribution systems of videos to Deaf users, and a state of the art report on the possibilities of using the internet and/or television for the distribution of signing books (Del. 4.1).

- Hands-on development of signing books test-material by the partners of the consortium (Del. 5.1);

- User tests in three countries: DE, GB and NL, and with five user groups: deaf children, parents of deaf children, teachers of deaf children, deaf students, and deaf adults. In total, more than 300 persons participated in these tests (Del. 6.1).

- A symposium where producers from all countries of the EU presented their recent productions and productions methods and gave feedback on the preliminary guidelines presented there by the signing books consortium.

These guidelines were written for an extremely varied target group: for experienced producers and novices, for experts in sign language and for readers for whom this is the first encounter with Deaf people, their culture and their language, for Deaf readers and hearing readers, for producers that have access to state-of-the-art broadcasting studios and for ‘home-video’ makers, for signers, for
translators, for directors, for camera-persons, editors etc. etc., in all countries of the European Union, and beyond.

These guidelines are not prescriptions: we cannot and do not want to prescribe how signing books should be made, or what they must look like. The guidelines describe the practices of experienced producers, and the responses of viewers. Many examples and screen-prints have been added, to illustrate and support the text.

These guidelines present a snapshot of the production of signing books for deaf children, students and adults, at the end of the 20th century, in the countries of the European Union. Even during the two years of the project, we witnessed rapid developments: in technology, but also in awareness of, and in consensus on the right Deaf people have to information in Sign Language. We hope that the guidelines will need to be revised soon, to include new developments, new insights, new practices.

**SCOPE**

This document is deliverable 7.1, and the output of workpackage 7 of the Signing Books Project (TAP DE 4209). Workpackage 7 started in July 1999, and lasted until December 1999.
PART III

INTRODUCTION

The objective

In 1997, we optimistically wrote that we were going to improve the quality, quantity, accessibility and cost-effectiveness of signing books for Deaf people in the EU (Project proposal Signing Books for the Deaf, 1997). We were going to do this by producing guidelines and a manual for the production and distribution of videos and CD-ROMs in sign language, in the EU.

At this stage, two years later and wiser, we realise that we are not the persons to realise these objectives, or more accurately: our dream.

We wrote the manual - you are reading it now – but it is you, the readers of this manual: producers, signers, editors, cameramen, viewers, teachers, etc. etc. – to whom we now pass on our dream of more signing books in all countries of the EU, better signing books, reasonably priced signing books, and national and international catalogues and databases so that everyone knows what’s available, where.

Please help us realise the Signing Books objectives: if there are no signing books in your country: ask for them! Let relevant authorities know that signing books are needed, show that there is a real demand for information in sign language, for signing books in your country. If there are some, or many signing books in your country: co-operate nationally and internationally, share expertise and resources, collaborate on productions! Please help us realise our dream.

The resources

The Signing Books project started in January 1998, and ended in December 1999. The project team consisted of 4 organisations, 7 part-time persons. Most of us had never actually produced a signing book. Each of us however, brought along an extensive network of friends, colleagues and acquaintances, who in one way or another were participants or stakeholders in the signing books field.

During the project, we managed to add a considerable number of experts to our network. It was the people in this network who provided the base material for these guidelines. They showed us their productions, told us about the production process, problems, solutions, and ‘unresolved issues’: things that were done in one way or the other, without anyone having the resources to investigate other, possibly better ways. We tried to resolve some of these issues. We made prototypes, showed these to over 300 viewers in 3 countries, asked them for their preferences, tested them for comprehension. The outcomes of all these activities are synthesised in the guidelines that you find in this manual.

Target group

This manual was written for very many different groups of readers, with very different backgrounds. For people who have already been involved in the production of videos in sign language for many years. For persons who are totally new in this field. For experienced video producers who are new to the field of sign language productions. For experienced sign language narrators, who now want to publish their stories on video. For schools for the Deaf, who want to produce educational materials in sign language. For parents’ organisations, who want to publish signing books for their children. For people in the EU, but also of course for anyone else who is interested in signing books.
It probably would have been more effective to write a number of manuals: each made to measure for a specific group of readers, because one size hardly ever really fits all. Unfortunately, our resources wouldn’t stretch that far.

This manual therefore demonstrates what is probably the most important guideline of all: find the best balance or compromise between what you want to do, and what you can do. The ‘market’ for signing books is relatively small, the production and distribution costs are relatively high, almost all productions need outside funding, and the funding you receive hardly ever equals the funding that you need and applied for. But please, don’t let this stop you!

In our case: since we were not able to write a number of manuals made to measure, we wrote one manual in which we included as much information as possible, hoping that each reader will at least find something of value that will fit his or her individual circumstances.

Each chapter starts with a summary of absolute minimum background information for everyone who wants to work in this field. The main text of each chapter gives practical advice: it describes what we’ve learned from experienced producers and viewers of signing books. Each chapter ends with a number of examples: samples from productions and samples from our research data that we’ve included for inspiration, consideration, and comparison.

Low budget productions

In many countries, and for many organisations: low budget – or even no budget – productions are the reality. If this applies to you: use these guidelines not to the letter – actually, no one should do that – but in the spirit. Minimal requirements for any production are: a good story or good information, and a good signer. That is: someone who has good sign language skills, a good understanding of the material to be presented, and who is experienced with the target group. Set high standards for your signers, your stories, your information, and be creative in how you meet these standards. With those essential ingredients taken care of, you ‘can make do’ with a basic camera set-up, lights, scenery, and minimal editing The main complaint of the viewers we consulted, was: there are not enough videobooks to choose from, we want more! Some of the best written stories and the most useful printed information are not found in beautiful glossy hardcover books, but on hand-written, faxed, or photocopied pages or in desktop publications. So take heart: not all video has to be broadcast quality!

However: a reader can see on the outside if a book is a low-budget, or home-made production; a reader can browse through a text, before buying. In comparison, video and CD-ROM are ‘black boxes’. Usually, you have to buy before you can see what’s inside. For all productions, both low and high budget, it’s bad policy to disappoint your customers. Show clearly on the outside of the video or CD-ROM, as well as in your advertisements, what sort of production you’ve made, so viewers will know what they are buying.

Scope

This manual describes the production and publication of signing books. A separate document, Del. 4.1, consists of scenarios for the distribution of signing books (by mail, television, and/or internet). Other Signing Books documents describe the state of the art of signing books in the EU (Del. 3.1), the prototypes that were developed for the Signing Books project (Del. 5.1), and the results of user tests in Germany, Great Britain, and the Netherlands (Del. 6.1).

This manual is not finished. It represents the knowledge and expertise we’ve accumulated in two very short years, in a period of time that the field of signing books productions was undergoing rapid changes. More and more people are becoming involved. Videobooks in sign language are becoming available in more and more countries, and are becoming more generally accepted as alternatives to
printed information for Deaf sign language users. New media are becoming available. Viewers are becoming more aware, more experienced, and: more critical.

This manual will be published on the internet where everyone can use it. We hope that the 1999 issue will soon be outdated, and will become a curiosity ‘from the previous century’. We hope you will keep us informed of new developments, new productions. We will try to find ways to continue to add and update the signing books knowledge base, to keep it alive and growing.

**Warnings**

- These guidelines are not to be read as a ‘do-it-yourself’ manual. Even if you learn this manual by heart, we still do not guarantee that you will be able to produce a good quality signing book.

- These guidelines are not to be read as prescriptions. As we said before: one size never fits all. The guidelines present you with several, and sometimes many alternative ways in which things can be done. Which alternative is most appropriate for you and your production, is for you to decide. If you’re not sure, consult with your target group. And always check with them afterwards. With each production, you’ll get a better view of what does, or does not fit your particular target group.

- Don’t be discouraged by the many problems, barriers, difficulties we’ve catalogued for you. The best way to learn is to go ahead, and to learn while you’re doing. To cheer you up: the complaint that was expressed most often by your (potential) customers was: there aren’t enough signing books, we need more!

- If you’ve followed all our guidelines to the letter, and still you haven’t even been *nominated* for an Oscar, and you’re *still* not able to buy the mansion next to Steven Spielberg’s: we’re very sorry, but please keep trying!
I. PLANNING

If you want to publish your production (instead of making a video for personal use), then you have to plan it carefully. The planning stage may take between 2 to 20 times as much time as the actually filming. Unless of course you start filming without proper plans – in that case, the production will probably take 20 to 50 times longer than you thought before you started.

Issues you should take into account in your plans are listed and described in the following chapters.
1. **YOUR TARGET GROUP**

Deaf people have their own language and their own culture. It is difficult for a French producer to make a typically English production. It is as difficult for a hearing producer, to make a Deaf production. Define the target group of your production, get to know them, consult them, involve them.

**Who?**

Decide who you want to reach with your video? The Deaf community, Deaf children, hearing parents of Deaf children, teachers, the mainstream community, the world? In what sort of context will people view your production?

**Get to know them...**

After you’ve defined your target group, try to find out as much as possible about the people in your target group.

- How large is your target group? How many copies can you expect to sell, distribute?
- How can you reach your target group: video, TV, through Deaf clubs, through schools, etc.
- What earlier productions have been made for this target group, what was the response to these?

**Consult them...**

Contact members of the target group, discuss your plans with them:

- Hardware: what equipment does your target group have access to?
- Where will your target group use the production, and in what context? In a school, or a Deaf club? Alone at home, or with family and friends? If your target group is children: will they watch independently, or with parents, teachers, peers?
- Are there specific subgroups you should take into account, e.g. based on age, school, interests, regional differences, home-language, etc. Also: are the members of your target group real trend-setters, or more traditionally minded?
- Language: not all Deaf people are fluent in sign language. Not all Deaf people use the same sign language. Especially in countries where sign language is not used in the education of the Deaf and/or on television: many potential viewers may not be fluent signers.
- Background knowledge, experience: what does your target group know about the subject of your production? Is your production one of a series, does it fit in a tradition, do your viewers know what to expect? Or: will this be a very new format, or very new content for your target group?

**Involve them!**

Show the target group productions (made by you, or by other people, in other countries) and ask them what they do, do not like about these productions. If at all possible: include experienced members from the target group in your production team, from day one.
EXAMPLES

Book, TV, or computer?

Deaf children watch mainstream television and play mainstream computer games. Many Deaf children are reluctant readers. In the Netherlands, 75% of the children who participated in the Signing Books user evaluations (see Del. 6.1) said they watch television for 2 or more hours per day, 40% said they play computer games for 2 or more hours per day, and only 11% reads books for 2 hours or more per day.

If it were up to these children, they want lots of action, and lots of video in a signing book. A narrator signing a story with no visuals, is not very popular. Partly, this may be because Deaf children in the Netherlands don’t have a ‘tradition’ in watching videos in sign language. The number of videos with sign language is small, and they are watched at home, for entertainment only. At school, videos with sign language are used only occasionally, and children receive no instruction in media use, or in how to ‘read’ a video with comprehension (comparable to instruction in reading books ‘with comprehension’). So the preferences of (Dutch) Deaf children may not be universal ones, but caused by the lack of experience today’s Deaf children in the Netherlands have with signing books.

On the other hand: probably all children prefer television, video and computer games to reading books, and it is often predicted that interactive multimedia books will soon replace all books.

Only 10% of the teachers of the Deaf (NL) who participated in the evaluations, had a computer with a CD-ROM player in their classroom, while 70% had a television and video-player in the classroom.

Textbook or video?

The majority of Deaf students in secondary education in the Netherlands was educated orally or with sign supported Dutch; only now are they learning the Sign Language of the Netherlands. When asked, 80% said they prefer subtitles to sign language translations for access to mainstream television and video-programmes. Deaf students in mainstream (higher) education in the Netherlands responded that they would probably understand a sign language translation of a printed textbook better than the printed text. However, several students added, if they are to compete on the mainstream labour market, they also need to be able to use the mainstream vocabulary, and to be able to read printed textbooks. A sign language translation on videotape with subtitles in combination with a printed book, or better yet: an interactive production on CD-ROM with text, sign language, and visuals may be therefore be the most appropriate format for this target group.

Target group: hearing or Deaf?

Een wereld van gebaren ( A World of Signs) is a Belgian (Flemish) television and video production about sign language and deafness. The main target group of this production was the larger, mainstream community. Since Flemish Belgium doesn’t have any sign language programmes on television or on video yet, of course the Deaf community in Flanders was very interested in this production also. The (hearing) director however had no experience with sign language productions and saw the mainstream, hearing community as the main target group. Since he was convinced that a static picture of a sign language user is visually not very interesting for non-signing viewers, he decided to use an innovative approach to film the many signers in the production: the camera is never stationary, but swings around the signer, in three dimensions.
During a single shot, the viewer sees the signer from the front as well as the back, from below as well as from above, and from the left as well as from the right hand side.

Deaf people watching this production on television, tried to follow the camera’s eye in an attempt to keep track of the signing: while watching the screen, their heads swerved from left to right, and from top to bottom. Many Deaf viewers in Belgium were unhappy about this innovative camera-technique and thought that the needs of Deaf viewers had not been taken into account sufficiently, for this production.
2. **YOUR OBJECTIVE**

Decide what your primary objective is: to entertain, to inform, or to educate the target group? Check what background knowledge your target group has, and find a balance between making sure everyone understands, and being boring or patronising. Make sure your objective is relevant for the target group & make sure everyone involved in the production is aware of, shares and supports the objective.

What?

What exactly do you – or the person or organisation who commissioned you to make this production – want to accomplish with this video, what is the objective?

Information...

A video that is meant for information, shows viewers what has happened somewhere, sometime, it shows an original story, or a translation of a printed text or book. The purpose of the video is to give the viewers access to this information.

Education & instruction...

An educational or instructional video, on the other hand, wants to teach, to instruct. It explains, provides additional information, and shows examples that (some) viewers require to really understand the video. It may even include quizzes to get viewers actively involved in learning.

Or entertainment?

A video that is meant for entertainment wants the viewers to enjoy the production.

A mix ...

The objectives of most signing books productions are a mix: producers want to entertain, inform, and educate their viewers. However, for your production, you must decide early which of these objectives weighs more heavily than the others. This will help you with many of the myriad of decisions you’ll have to make, before your production is finished.

Making sure viewers will understand...

The balance between information and education – do you want to inform your viewers, or do you want to or need to educate them as well? - is especially important, because Deaf people in many countries grow up with limited access to information. The world-knowledge of many Deaf people is therefore different from what is generally accepted as ‘common knowledge’ in a country.

In many countries, (subgroups of) Deaf people still grow up with limited access to language as well, both sign language and printed language. They may not be familiar with certain words, signs, or concepts that will be used in your production. If you want to include all Deaf people in your target group, and if you want all of your viewers to really understand your production, it may therefore not be enough to just give them access to information – you may have to add some, or lots of education, e.g. by providing additional information, demonstrations, explanations, examples, etc.
Or being patronising?

In discussions with production teams, this dilemma often surfaced, with on the one hand statements such as: "(other) Deaf children/students/adults will not understand this’, and on the other hand the conviction that: ‘it is patronising to think (other) Deaf children/students/adults will not understand this’.

A balance...

The general guideline is that for each production, you should check what background knowledge is ‘common knowledge’ in your target group, and what needs to be explained or illustrated. Find a balance between making sure everyone understands the video, and being terribly boring or patronising.

A team decision!

Many of the other choices you will have to make during the production of your video, will depend on what the objective of the production is, how well you have defined it for yourself, and how well you can explain it to the members of your production team. Problems in production teams are often caused by the fact that the objective was not clear from the beginning, because the objective kept changing, or because (some members of) the production team had different objectives from yours – or from whoever commissioned the production.
EXAMPLES

Fairy tales

In many countries, fairy tales and fables have been translated into sign language. For some productions, the main objective was for Deaf children to have access to these fairy tales, and for them to enjoy these stories in the same way that hearing children do. For these productions, the fairy tales were translated on a conceptual level, and little or no attempt was made to keep intact typical ‘mainstream’ fairy tale constructions (e.g. once upon a time…), or vocabulary (e.g. stepmother). In one case, traditional stories were even rewritten with Deaf characters in the main roles – so Deaf children will find it easier to identify with the story and to relate the content to their own lives, and feelings.

Other producers want to use the fairy tales (also) to teach Deaf children about the mainstream traditions of storytelling, and about the language and expressions the children will come across when they watch a mainstream film or video of the story, or when they read the fairy tales themselves in a book.

Both are valid objectives – but the two end products will be distinctly different. The one will be a fairy tale freely retold in sign language, presented from a Deaf perspective, possibly with Deaf characters. The other will be a fairly literal translation in Sign Language, as close as possible to the original text. It will probably introduce vocabulary, concepts, and expressions whose meaning and possibly form are new to Deaf children, and will have to be clarified and explained for the viewers – either implicitly or explicitly.

Teacher button

SIH Läromedel (SE) solved the ‘information’ vs. ‘education’ problem in an ingenious way in the Satslära CD-ROM. This CD-ROM informs Deaf and hearing students about the syntax and structure of sign language. The program doesn’t teach Swedish Sign Language, it introduces users to the linguistics of sign language. The main text of the CD-ROM is of a high linguistic level, presented by two signers. In the right-hand corner of each screen is a ‘teacher-button’. Clicking on the teacher button opens a window in which a teacher (a different person from the presenters of the main texts) gives background information, explains new concepts, signs, etc. In this production, users are not being patronised, because each user gets only the help that s/he needs (or more accurately: only the help that s/he asks for).

Translation or explanation?

In the Netherlands, Vi-Taal produced Meer dan een Gebaar: a SLN synopsis of a high level, abstract report for the Dutch Government on the costs and benefits of recognition of the Sign Language of the Netherlands. The entire printed report is written in abstract, ‘government-ese’ language. The printed synopsis then summarises the main arguments and conclusions, in a very compact way. This synopsis was translated into sign language by Vi-Taal – as it was: no additional information, no explanations, no visuals to support the content. Many viewers found this video very difficult to understand. Vi-Taal, however, had not been asked to produce a video that explained the conclusions of the report. They had been asked to translate the synopsis so that Deaf people in the Netherlands would have access to the main conclusions of the report in their preferred language, the Sign Language of the Netherlands.
3. **YOUR RESOURCES**

For the production of sign language videos, experienced Deaf people are indispensable: as signers, as translators, scriptwriters, camera-persons, consultants, etc. In the European Union, it is very difficult for Deaf people to receive formal training in video and multimedia productions. Very little expertise is available in written or video format.

For your production, you can probably find the expertise = the people you need, through networking and personal contacts. International networking and co-operation may give you access to experience, and/or funding, that is not available in your country.

For teams to work well together, good communication, an understanding of each other’s - and one's own - strong and weak points, and respect for each other's culture and language, are indispensable.

For the future of signing books productions, it is very important that more Deaf people receive training in this field.

**Expertise**

Make a list of the expertise that you need for your production, and find the people or organisations that can give you access to this expertise.

- The language expertise: what sign language expertise do you need?
- The target group: who can advise you about, and give you access to the target group?
- The subject expertise: what do you need to know about the subject, the content of your video? Who has the expertise about this subject, and about sign language, and about your target group? If you can't find all this expertise in one person, find people who are the very best in one of these fields and who are open-minded, willing to learn and to work together in a team;
- Scriptwriting, directing, producing videos in general and sign language videos for Deaf people in particular;
- The technical expertise and the equipment that you need.

In most countries, there is no single information centre or even network, where you can find all the expertise that you need. The number of experienced people in this field is small, the number of Deaf people with experience even smaller. Very little of the expertise and information you need, is available in print or video format.

Be creative, and be flexible in your searches. Networking and personal contacts may be the only way to find the expertise = the people you need. All countries have a national Deaf organisation, several countries have a Sign Language Resource or Research Centre that may be able to advise you, or that may be willing to participate in a production. Deaf clubs and Bilingual Schools for the Deaf may be able to help you find persons who can contribute to your production – either as ‘guinea-pigs’ for pilot testing, or as signers, actors, consultants, etc.

If certain expertise is not available in your country, international networking - and possibly co-operation - may be a solution.

**People**

Most production teams are small, with each team-member having several roles. Teams minimally consist of:

- a producer/director;
- a scriptwriter / text-writer / translator (preferably: a native speaker of the national spoken language);
• a signer / presenter / translator (preferably: a native signer of the national sign language);
• a sign language monitor (preferably: a native signer of the national sign language);
• a camera-person;
• an editor;
• a voice-over.

Other team members may be: a shadow-signer, a caption-writer, a make-up/costume person, a graphical artist, a set designer, a lighting technician, researchers, consultants.

There are some all-Deaf teams, but most teams are mixed Deaf-hearing. When Deaf and hearing people first start working together, there may be an imbalance in expertise, and/or in power, because hearing team-members probably will have had more training in the video or multimedia field, while both groups may have little or no experience with the specific requirements of productions in sign language. For teams to work well together, good communication, an understanding of each other’s - and one's own - strong and weak points, and respect for each other's culture and language, are indispensable.

Some teams are able to deal with all aspects of a production, other teams use subcontractors for certain activities, e.g. the filming, and/or the editing. If not, you may be able to collaborate with an experienced production team (experienced = experience with the production of sign language videos). Or you may be able to contract out (part of) the production.

In all situations where team-members do not share the same (sign) language, a sign language interpreter should be available; preferably a sign language interpreter with experience in the field of video and multimedia productions.

Technical equipment...
Details on the technical equipment you need, can be found in the appendix to this document. If you don't have this equipment: Deaf organisations and (large) Schools for the Deaf may have a video-studio and/or technical equipment that you can use or rent.

Examples, half-products, other materials...
Someone, somewhere, may already have made (almost) exactly the production you are thinking of. Ask around, check catalogues and databases. Maybe there is a foreign sign language video that can be translated or adapted. Maybe you can buy a script, or visuals, (almost) ready made.

Funding...
In many countries, applying for funding will take (at least) as much time, as actually making the production. Be realistic, and reasonable, in the funding you apply for. Asking too little and asking too much are both counterproductive.

If you add an ‘innovative’, ‘cultural’, or ‘educational’ flavour to your production, your production may qualify for some specific funding programme in your country.

If you make your production into an international co-production, you may qualify for funding by the EU.

Maybe you can fund (part of) your production by means of a trailer with advertisements, or maybe a company or organisation is willing to support your video if you film on their premises, use their name, wear their clothing..?

Contracts!
To avoid later problems, make sure that all agreements are put in writing, and better yet: are fully specified in contracts that are signed by all relevant parties.
EXAMPLES

Chase Video

Chase Video Productions (GB) is located next to the Derby School for the Deaf. The main production team is all Deaf. Students and teachers of the school are used as guinea-pigs for new productions, and are involved as signers or voice-overs in some of the productions. The editing suite of Chase Video Productions was donated by Toyota Cars. Co-operation between Chase and Channel 4 (Educational network in GB) resulted in Chase producing a growing number of Channel 4 School videos with a BSL signer superimposed, and in distribution of all of the Channel 4 videos with subtitles. During Deaf Awareness Week, Chase advertised on national TV.

A Grammar of Flemish-Belgian Sign Language

In Belgium (Flanders), the Free University in Brussels, Fevlado (National Deaf Organisation), and KIDS (School for Deaf and Speech-Impaired Children in Hasselt) jointly produced a grammar of Flemish-Belgian Sign Language for Deaf people, in sign language: Grammaticale Aspecten van de Vlaams-Belgische Gebarentaal-Videoboek. The University provided the researcher/director, Fevlado the translator/signer, and KIDS the cameraman/editor, as well as the technical facilities. Raising the additional funds for this production still took over a year; without the donations in kind by the three partners, however, the production would have been impossible.

SIH

SIH Läromedel Örebro (SE) produced ‘Det Spökar’: a CD-ROM with ghost stories. The ghost stories are the winning stories of a story competition for Deaf students. On the CD-ROM, the winning authors sign their own stories. Original stories, great role models!

Det Spökar, SIH, SE

International co-operation

Chase Video (GB) exports a large number of its BSL videos to Norway, where Deaf children use them to learn BSL and English, as foreign languages. Co-operation with Norway resulted in the translation of an English Reading Scheme, into British Sign Language by Chase Video.
SIH Läromedel in Örebro (SE) has produced a number of videos for Deaf children that have been translated into Norwegian and Danish Sign Language. A new multimedia math programme for young Deaf children will be developed as a Nordic co-operation project. The programme will be produced on DVD, in four separate sign languages.
4. Your Format

Video and TV are not used in the same way as books are, and viewers may have different expectations for signing books, than for printed books. For some productions, a television or video format may be more appropriate than a ‘book’ format; for others, an interactive multimedia format may be a solution.

A format that is effective for the mainstream population, may not be the most appropriate format for a Deaf target group. The target group may not have access to the same peripherals as the general population, and/or they may not have the same experience with, and/or expectations of a certain format.

Three common formats for signing books are: printed (picture-)books presented in sign language; mainstream TV- and videoprogrammes with sign language superimposed, and original productions in sign language for deaf viewers.

Format...

Format is a concept that covers various aspects of a production. It is the ‘packaging’ of the message that you want to deliver with your production. On the one hand, format refers to the ‘medium’ you use to store the production: videotape, CD-ROM, or DVD. On the other hand, it refers to the ‘genre’ or ‘type’ of your production: is it a documentary, a game show, a ‘soap’, a story, or one of the many other genres that are available including ‘mixed’ genres such as ‘docu-drama’, or ‘info-tainment’.

Medium: Tape, CD-ROM, DVD?

The medium: will you distribute your video on videotape, on CD-ROM, DVD, or DVD-ROM?

To decide on the medium, you will have to take into account your objective, your target group, and the resources you have available.

CD-ROM and DVD (DVD-video or DVD-ROM) have a number of advantages over videotape:

- The physical size is smaller (easier and cheaper to send by mail; easier to store).
- The carrier is less vulnerable, more robust.
- Copies can be made when needed (‘just in time production’).
- The video quality (DVD) is better.
- The navigation possibilities are better.
- Interactivity can be included.
- User-control can be included over the interface: a user may be able to change the colour of the background, the size of a signing window, whether or not a voice-over is heard, whether or not subtitles are visible (and possibly: a choice of several languages for the subtitles).
- Hypertext options can be included, as well as dictionaries, search options, book-marking, and the option for the user to add personal notes (in text, or even in video format).
- The output is more portable: (parts of) the production can be used for other productions, for translation into other (sign) languages, etc.
- In the (near) future, DVDs and DVD-ROMs will replace videotapes and CD-ROMs.

Some disadvantages of CD-ROM and DVD:

- If interactivity and user control are to be included, production costs are much higher.
- Most target groups still have easier access to video-recorders than to DVD-recorders, or to computers with CD-ROM or DVD-players.
- Viewers have different expectations with respect to videotape versus CD-ROM. Children expect CD-ROMs to be highly interactive and to resemble computer-games.
• DVDs and DVD-players are still much more expensive than VCRs; the target group may not be willing (or able) to buy more expensive equipment - certainly not when the supply of DVDs (both mainstream and Sign Language) is still limited.

Genre or type of production...
Everyone has certain expectations of a TV-programme, a CD-ROM, or a book – based on ones experiences with these formats. In many countries, Deaf viewers have little or no experience with signing books: videotapes and CD-ROMs in sign language. There is no generally accepted ‘format’ for signing books, and we don’t yet know what the optimal format is.

At the moment, many signing books for children are translations of printed picture books into sign language. In the UK, there is a large number of mainstream educational videos with sign translation superimposed, in the Netherlands there mainstream children’s films with sign language superimposed. Some signing books for Deaf adults are translations from printed books or brochures also, but most seem to be ‘original’ productions that were made specifically for Deaf viewers. These three genres will be described in more detail, below.

Translations of printed picture-books...
Children usually begin to read picture-books with a parent, teacher or other adult. The adult reads the text, adapts the text if necessary, points at pictures, relates the pictures and the story to the child’s own life, and tries to actively involve the child in the story. Most picture-books are read over and over again: in subsequent readings, the adult will elaborate more and more on the text; then, step by step the child and the adult will change roles, with eventually the child reading the story to the adult.

Mainstream TV- and video-programmes for young children are cartoons, shows, and children’s films. They have lots of action but little or no interaction, and the role of the child is that of passive onlooker. Although all books on TV-use by young children urge parents to watch TV together with the child, to talk about the programme with the child, and to help the child understand what it sees on TV, studies show that most parents don’t have the time to do this. In many families, television is used as a visual pacifier or comforter, and often replaces reading to the child.

As a consequence, you will have a number of problems to overcome when you decide to produce a translation of a picture-book into sign language for young Deaf children:

- **Action, and visual information, visual interest**
  Children will expect your production to have lots of action, lots of visual information, lots of visual interest. They will expect your production to resemble Disney cartoons and the shows they watch on television. Most producers don’t have the resources for this, and some producers explicitly state that they don’t want their productions to resemble mainstream television. They want to make signing books that resemble books, not television shows. Picture-books are stepping stones to reading ‘real’ books. With ‘real’ books, readers re-create the message of the author in their own minds – on the basis of words and sentences on the printed page. In picture-books for very young children pictures and words usually tell the same story as the printed words: the verbal and visual message overlap. As children get older, the books become more verbal. The pictures tell only part of the story, more and more the child has to re-create the story on the basis of the verbal information alone. At first, the verbal information will be the words read out loud by the adult, later the child will read the words her-/himself. Some producers want signing books for young children to be used in the same way, as stepping stones toward understanding a story on the basis of the verbal (signed, later printed) information. In their productions, pictures are included in the same way as in printed books: still pictures whose function depends on the book, and the age of the child. In most of these
productions, a signer signs part of the story, then the pictures from the book are shown. The format is very predictable, the attractiveness is in the story, the signer, and in the still pictures, not in fancy camera-work, animations, and other gimmicks producers can use to add visual interest to a picture.

Parents and children may have to learn, how to ‘read’ these videobooks. Children may find them boring in comparison to television shows, children may not be used to watch long stretches of sign language without interaction, parents (teachers, adults) will have to learn to ‘read’ these videobooks together with the child, to pause the video as often as is necessary, to repeat and elaborate on what is signed on the screen, to point out details in the pictures, etc. etc.

Most of these signing books are marketed as mixed media: a videotape together with the picture book. The picture book will make it easier to interact over the pictures and the story (parent and child can point in the book instead of on the TV-screen), and will facilitate the transition from signed to printed story for the child.

Some recent productions in this area were produced on CD-ROM and show the sign language alongside the printed text and the pictures from the book (e.g. Elmer, BBC, GB).

More information on the use of visuals and visual interest in chapter 9.

Language and content level

Most parents who read a picture-book to a young child, don’t read the printed text word-for-word. They tell the story in words that the child knows, include examples that the child can relate to, and skip what seems irrelevant or too difficult. On repeated readings, the language and the story will move slowly from a story ‘made to measure’ for the individual child, to the ‘ready-made’ story in the book. A video usually only shows one ‘reading’. More on language level and content in chapter 5 and 8.

Pace and interaction

A reader reading a book decides how fast or slow to read, what to re-read, what to skip, when to turn the page, and when to stop. A viewer watching a videotape is ‘paced’ by the video. In theory, the viewer is able to pause the video, replay a part, or speed forward, but children watching independently won’t do this – and adults don’t usually do this either. CD-ROMs – if supplied with good navigation aids – allow the user almost the same interaction possibilities as the reader of a book. More on pace in chapter 13, more on navigation, in chapter 15.

In some productions, the signer signs the story to an audience of one or several children – to simulate the signer interacting with the viewer. The child watching the video however, can of course not participate in the interaction and is still an onlooker. Generally speaking, children prefer a signer to directly address the viewer (the camera) instead of other visible or invisible children. More on this in chapter 11 and 12.

Translations of read-it-yourself books...

Visual interest

Most books for older children and adults have few, if any pictures. Most productions that are translation of a read-it-yourself books, do add (some) visuals, for visual interest. Very few productions - for children – show only the signer, because it is generally assumed that children will find this boring, and that it is very tiring for viewers of all ages to watch a signer for long stretches of time, without interaction, and without visual variation. For more information on visual interest, see chapter 9 and 13.

Content and language level

The content and language level of a printed book may not be appropriate for the target group. The target group may lack the required background information, or may not be familiar with the vocabulary or concepts used in a printed story. Many printed stories...
were written for self-reading, not for being read to an audience. A sign language translation however is like a story being read to an audience. A printed story may be too compact, too abstract, too lengthy, and/or too complex for a straight-forward translation into sign language.

Some producers select ‘easy-to-read’ books as source texts for translations. These books are usually less demanding with respect to language and background knowledge, and are usually short. Some of these books however, may have been written on the basis of readability formulas (wordlength, sentence length), and may prove to be quite difficult to translate into sign language. More on this in chapters 7 and 9.

- **Length**
  
  Books are usually read in a number of sessions over a period of days or even weeks. A video on the other hand, is usually watched in one session. Most signing books for young children are (very) short: 6-10 minutes. Videos for older viewers may be longer – but are rarely if ever longer than 2 hours. Longer videos are usually divided into chapters or segments and provide the viewer with clearly indicated ‘break points’. CD-ROM or DVD may be the preferred medium for longer productions, because of the better navigation possibilities (see chapter 15).

**Mainstream films and videos translated into sign language...**

Superimposing a sign language translation on a mainstream production, may be the preferred option, for:

- **Educational videos**
  
  Most signing books producers don’t have the resources that mainstream production companies have. Superimposing a sign language translation gives the Deaf viewer access to the same information as the hearing viewer of the video, independent of reading skills. For some productions subtitles may be preferred over a sign language translation, see chapter 16.

- **Children’s films and programmes**
  
  Deaf children should be able to enjoy the same television programmes and the same films as hearing children do. Deaf children below the age of 10 usually can’t read well enough, to benefit from subtitles. Adding a sign language translation to mainstream productions will serve several goals: the child can enjoy the programme in the same way as the hearing child, the deaf child can enjoy the programme in ‘mixed’ company (deaf and hearing), the child acquires sign language vocabulary and syntax in an implicit way, and by watching these adapted mainstream movies, the deaf child has access to the language and the interactions between hearing peers and hearing adults, that it usually has only limited, or no access to in real life.

**Original sign language productions...**

Original sign language productions are written from a Deaf perspective, and for a visual language. At the moment, we don’t know what the characteristics are of a typical ‘Deaf’ production. Many original Deaf productions that are available today, were produced by mixed Deaf-hearing teams, and/or by teams that were schooled in the mainstream tradition of video-production.

Informational productions for deaf people include roleplay, drama, and documentaries to support verbal, signed information.

Some Deaf authors and teachers say they use a visual and spatial arrangement when they present a story or information – instead of the temporal, sequential arrangement that is used in most mainstream productions.
It is to be expected that Deaf producers, directors, scriptwriters, signers in a team will change their style as they get more experienced. At the same time, viewers’ expectations will change, as they watch more videos.

The first productions of an all-Deaf team may seem to be most ‘Deaf’, whereas later productions may seem more professional. This may be the effect of two different developments that should not be confused: over time, a team may become more professional, and a team may adapt more to mainstream conventions. An in depth comparison and analysis of Deaf vs. hearing video- and literary styles is very much needed.

Compare...
Before you decide on a format, look at existing productions – made in your own country, or in other countries – compare the formats that were used, and discuss the usability of each format with representatives of your target group.

Adapting a mainstream production (script, book, video) may seem the most efficient option; however, if your target group does not have the background knowledge or expertise that is required to understand this production, it will not be effective.

Long term vision!
Take into account that both the technical possibilities and user preferences are changing rapidly. Videotape may be the best option now, but not in 5, or even 3 years from now. Preferences with respect to genre and style may change even more rapidly.
EXAMPLES

The usability of CD-ROM or videotape for children

In 1997, Effatha (NL) produced a children’s Bible on CD-ROM (de Kijkbijbel): Bible stories, in text, pictures, and sign language. The target group were children between 6 and 8 years of age, and their parents. At that time, however, many parents didn’t have the hardware that was needed to play these CD-ROMs. In families that did have a computer, the computer was not associated with storytelling or joint book reading: parents associated the computer with work, children associated the computer with playing computer games. Looking back, the production team supposes that this production would have been used more often, and in more families, if it had been produced on videotape.

The effectiveness of CD-ROM or video, for students

Part of the usability testing done for the Signing Books project, was a comparison of instructional material on videotape versus CD-ROM for Deaf students in Germany. The same material was produced twice: once linear on videotape, once interactive on CD-ROM (See Del. 5.1 and 6.1). Students who were familiar with computers and CD-ROMs liked the extra interactivity that the CD-ROM offered. However, the expectations of the production on CD-ROM were higher than for the videotape, and the production costs of the CD-ROM equalled about 4 times the costs of the videotape. At the same time, the videotape was just as effective as the CD-ROM in teaching the students the content matter: students who used the videotape studied as long as students who used the CD-ROM, and both groups had similar scores on a comprehension test that was completed afterwards.

Children’s preferences

For the user tests in the Netherlands, Deaf children and teenagers (7-19 years old) were asked to rate different formats for attractiveness. They were shown a ‘typical’ signing book, with a signer signing a story next to an illustration from the book (Cinderella, by Chase Video, GB), a mainstream children’s film with a signer superimposed (Het Zakmes in de Nederlandse Gebarentaal, by Vereniging van Ouders van Dove Kinderen, NL) and a cartoon with a sign language bubble (Sign-Toons with Linda Bove. Looney Signs!, by Talking Hands, USA). They found the mainstream video most attractive, the cartoon second, and the signed picture-book least attractive.

The children were also asked to indicate the attractiveness of different kinds of signing books, for which no examples were shown. The order of preference for the 8 alternatives was (high to low):

- Funny videos in sign language, that make you laugh;
- Videos about deaf children, deaf youngsters;
- Scary videos in sign language;
- News for children, with sign language superimposed;
- Videos about hearing children and youngsters, with sign language superimposed;
- Educational TV with sign language superimposed;
- Videos to learn sign language;
- TV programmes with sign language superimposed.

Teachers were asked the same question. Their preferences, in order of importance (high to low):

- Non-fiction videos, specifically made for Deaf children/teenagers;
- Videos specifically made for Deaf children, with stories for and about Deaf children and adults;
- Mainstream educational programs, with sign language superimposed;
Mainstream TV-programmes, with sign language superimposed;
All good children’s literature, presented in sign language, on video;
Mainstream children’s movies, with sign language superimposed;
“Easy-to-read” books in sign language, on video;
Picture books in sign language, on video;
Mainstream cartoons, with sign language superimposed.
5. **THE CONTENT**

Deaf people live in two worlds: they are members of the Deaf community, and of the larger hearing community. The majority of Deaf children are born in hearing families that will have had little or no experience with Deaf people, or sign language. Video can give Deaf children and their relatives access to both. In Bilingual Deaf Education, sign language is used as the language of instruction for school subjects. The national language is taught as a second language, usually on the basis of its printed form. Signing books can help Deaf children learn both languages, as well as all school subjects – which may include foreign (sign) languages.

Deaf adults need video for information on Deaf issues and Deaf culture, but also for easy access to information, education, politics, culture etc. of the larger, hearing community.

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**Content...**

The content of a production is the specific story that you want to film, the specific topic you want to address, the events that will be the subject of your documentary. For many productions, especially commissioned ones - you will first decide on your content, then on your format (see chapter 4). On the other hand, if you will be producing a monthly video-magazine in sign language or a series of storybooks for children, you may first decide on a format, then select the topics you will address in each part of the magazine, or the stories that will be filmed.

**Deaf vs. hearing content...**

Most Deaf children grow up in hearing families: they - and their relatives - need videos that show them Deaf role models, good sign language, and examples of what it means to be a Deaf person. At the same time, they need videos that give them access to the ‘hearing’ world: the spoken language and the ‘hidden curriculum’ that all hearing children participate in, but that – in real life – is mostly inaccessible for Deaf children.

**Reading...**

Deaf children learn to read by reading a second language. Many productions for children are stories in sign language - almost always in combination with a printed book - to help Deaf children meet this double challenge.

Productions for children and young people are often based on mainstream (picture) books. Only a small number of videos has original sign language stories. Selection criteria for mainstream storybooks that are used as source material:

- the quality of the story in general, and for the target group in particular;
- the language – both the language level, as well as how well it can be translated into sign language (see chapter 8);
- the background knowledge that is required for the target group to understand the story;
- the length of the story – translations into sign language can be quite lengthy. Although books are usually read chapter by chapter over a number of days or weeks, a video is usually viewed from beginning to end in one sitting. For younger children, a video should probably be no longer than 15 minutes in duration, for teenagers a maximum length of 2 hours is sometimes used;
- the illustrations: how many illustrations are there, what is their artistic quality, do they support the message and/or the mood of the story sufficiently, how well can they be filmed (also see chapter 9);
- the suitability of the story with respect to the target group and your objective: if your objective is to stimulate the emotional development and their awareness and self image as
Deaf children, stories with Deaf characters and stories from Deaf culture may be most appropriate.

**School subjects...**
Many Deaf youngsters do not read well enough, to be able to use study and textbooks independently. In several countries, educational videos have been made accessible for Deaf youngsters by superimposing a sign language translation. A small number of mainstream textbooks has been translated into sign language for Deaf students.

**Information...**
Because so much information in hearing society is inaccessible for Deaf people, many productions are made to describe and explain the 'hearing' world to them. Recently, there have also been a number of productions to inform Deaf people about sign language, about Deaf issues, Deaf history, and about other topics directly related to Deafness. Usually all this information is available in printed form only, and therefore inaccessible for the majority of Deaf people. In many countries, hearing professionals are much better informed even about Deaf issues, than the Deaf people themselves.

**Culture, sports, recreation...**
Most videos for Deaf adults seem to be informational and educational videos. A relatively small number show Deaf poetry, Deaf drama. There are some documentaries on Deaf sports, and some productions with Deaf jokes. There are some productions, that show signed theatre productions; some of these productions are translations of mainstream drama (e.g. Shakespeare), others are original sign language productions.

**Sign language literature!**
The story-telling tradition of the Deaf Community seems to be better suited to ‘live’ story-telling, than to the video-format. We haven’t yet come across any Deaf authors who wrote their books in sign language, and had them published on video. In the past few years, the scientific community has shown a growing interest in “Sign Language Literature”; hopefully, with official recognition, the number of publications in this genre will increase rapidly.
EXAMPLES

Mainstream film

In the Netherlands, five mainstream video and film-productions for children have been made accessible for Deaf viewers, by adding a sign language translation. In one instance (Abeltje), the Sign Language version of the video was launched on the same day as the mainstream video. Deaf children were finally able to enjoy a video (and the accompanying mainstream marketing avalanche) at the same time as their hearing peers.

Reading schemes

To help Deaf children learn to read, all stories of a mainstream reading curriculum have been translated into sign language in GB (Oxford Reading Scheme), and in Norway. The Deaf children use the mainstream printed material, in combination with the videotaped stories.

Deaf issues

The first official signing book published in Flemish-Belgian Sign Language, is an introduction to the grammar of Flemish-Belgian Sign Language: Grammaticale Aspecten van de Vlaams-Belgische Gebarentaal-Videoboek. Before this production became available, many Deaf instructors teaching sign language courses had been unable to understand, let alone teach the structure of Flemish-Belgian Sign Language, because they couldn’t read the printed book. As a consequence, many hearing people were better informed about sign language than the users and ‘owners’ of this language – as is probably the case in many countries. For the videobook, the printed text was translated into sign language, divided into 20 chapters, and illustrated with many examples from Flemish-Belgian Sign Language. Deaf instructors can use the video for self-instruction, but can also use the video to support their lessons.

Similar productions have been made on CD-ROM by SDR (SE) and SIH (SE).
6. **The Signer(s)**

The signer is the 'face' of your video. In most productions, the signer is much more than the presenter. Signers will also be involved in writing or translating the texts, and sometimes in scriptwriting. Not every Deaf person is a good signer, not every good signer can sign fluently in front of a camera, not every person who can do this is appropriate for every subject, and/or for every target group.

In most countries, there are very few people with experience in this field – almost all of them are self-taught: they’ve learned on the job. It is very important that more people receive training in this field.

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**Signer...**

The term ‘signer’ is used to indicate the signing presenter, narrator, actor, interpreter, etc. etc.: all persons who will be using sign language in front of the camera. The selection of the right signer (or several signers) for your production, is very important. The signer will be the ‘face’ of your production – many viewers will remember and evaluate a production on the basis of who the signer is, and how well s/he signs.

**Author, translator...**

In mainstream video and film-productions, actors and presenters are usually selected after a script is written. For signing books, however, signers are best involved from a much earlier stage. The signer(s) will usually contribute to the writing of the scenario and the translation of texts into sign language.

**Selection criteria**

Issues you should take into account when selecting a signer, are:

- **Native signers**
  All signers should be ‘native’ signers – that is: people who learned to sign at a very young age. For some productions, a hearing sign language interpreter may be appropriate; for most productions however, Deaf signers are the preferred option.

- **Sign language fluency**
  A fast signer is not necessarily a fluent signer.
  USA research indicates that Deaf and hearing sign language users use different criteria to decide whether or not someone is a fluent signer (Lupton, 1998). Criteria used by Deaf viewers were: eye contact, signs sign language (instead of Sign Supported Speech), creates a picture, good posture, smooth, facial expression, body movement. All of these were considered more important, than actual signing speed.

- **Sign language fluency in front of a camera**
  Not every fluent signer is able to sign fluently in front of a video-camera. For many productions, the signer will have to stand or sit directly in front of the camera, sign and maintain eye-contact with the ‘dead’ one-eyed camera, as if it were a live and responsive member of the target audience. Not every fluent signer is able to do this.

- **Ability to memorise and reproduce texts**
  Signers don’t usually read their lines from an auto-cuer. They will have to learn their texts by heart, and present these without hesitation, without stumbling, without forgetting or adding signs, sentences or paragraphs (also see chapter 8 and chapter 12).

- **Local or regional dialect use**
  Some signers use a local, or regional sign language dialect. Whether this will be a problem
for your production, will depend on the objective and the target group of your production. If a video is to be watched by Deaf children at home (e.g. in the company of relatives, friends, etc. who are just learning to sign), nationally known signs are to be preferred. Partly this will also depend on the content and texts in your video: a small number of local or regional signs may not be a problem if the meaning of these signs can be understood on the basis of the context in which these signs are used. If a large number of local or regional signs cannot be avoided, it may be necessary to add an explanation at the beginning of the video, or a sign language dictionary in case of a production on CD-ROM, to clarify the signs that are not nationally known (also see chapter 7).

• **Knowledge of the subject of the production**
  A signer who is familiar with, or better yet: an expert in the content matter of the video will find it easier to memorise his/her lines and to present the subject confidently in front of the camera. A signer who is unfamiliar with the subject, or who doesn’t completely understand the subject matter of a video or a text, will not be able to sign it fluently and convincingly in front of the camera. Additional time will be needed for the signer to familiarise him/herself with the subject, and to practice signing the texts.

• **Expertise with the target group**
  There are many ways to sign a sentence, even more ways to sign a story, or any other text. How a text should be signed, will depend partly on the content and the objective of the production (see chapter 8), but also on the target group of a video: children or adults, fluent signers or beginning signers, which part of the country. A signer who has experience with the target group, will know how to sign so the viewers will best understand. A signer who has no, or limited experience with the target group, should practice his signing with (representatives of) the target group, to make sure that his/her signing is suitable for them.

• **Command of the written language**
  If a printed text is used for a production (a printed book or brochure, or a printed script), it saves time if the signer is bilingual and can read the source text him/herself. If not, someone will have to be available to translate printed texts into sign language and/or a gloss-script for the signer(s).

• **Register**
  The signer will have to be able to use a presentation and signing style (register) that matches the subject of the video (serious - funny, fast - slow, subjective – objective, emotional – distanced, etc.), and the various characters in a story.

• **Gender, age, looks**
  For some videos, a female signer may be more appropriate than a male signer. For other productions it may be important that signers match the target group in age. When a signer will be interpreting for a speaking person on the screen, it is not required that the signer resembles the speaker in gender, age, or appearance; one signer can interpret for all speakers. However, the signer will have to be dressed appropriately, and will have to adjust his/her ‘signing register’ (signing style, speed, and expressiveness) to match the speaker (also see chapter 12).
EXAMPLES

**Children’s preferences**

For the user tests in the Netherlands, Deaf children rated 6 short video-clips of different signers for attractiveness. Almost all children liked the most expressive signer best, because they said he was very funny, and very easy to understand. One video-clip showed a signer of about 10 years of age; opinions varied, but most children thought this signer was appropriate only for productions for very young children. The most important criteria for the selection of a signer was according to the children— that the signer signs very clearly, and that the signer signs directly to the camera. Deafness, the age of the signer, and whether a signer is good looking were rated as far less important.

**Unfriendly, or uncomfortable?**

For the user tests with students, a video and CD-ROM were made and these were tested were Deaf students in Hamburg. Some of the students commented that one of the signers used more Signed German than GSL (German Sign Language) in one part of the presentation. This may have been caused by the fact that the script was written in German and not in glosses and that the presenters sometimes found translation of the script difficult. There were also comments that one of the presenters looked rather unfriendly. The signer herself explained that she did not feel very comfortable at times signing in front of the camera. Some participants remarked that they had difficulty lip-reading the presenters. They would have liked the lip patterns to be clearer.

**Deaf, or hearing?**

For the user tests in the UK, 14 adult Deaf viewers watched video-clips of two professional signers signing a short script: one hearing, one Deaf. Most subjects preferred the Deaf signer; they felt that the signer was fluent and natural and that they could understand her without too much concentration. The concepts were highly visually presented, she was clear in her BSL concepts and used a lot of facial expression. The subjects thought that the hearing signer could do the job, but they felt that ‘something was missing’. One subject said she preferred the Deaf signer because she could identify with her as another Deaf person.
7. SYNOPSIS, SCENARIO, SCRIPT, MOCK-UP

A mainstream production – a book, video or instructional programme - that was developed for a hearing audience, will have a 'hearing' perspective. For Deaf viewers to really understand and/or identify with your production, a 'Deaf' perspective may be more appropriate.

Most Deaf adults are not fluent readers and writers. For Deaf people to be able to participate effectively in a production team a scenario and/or script will have to be supported by, or replaced with, a storyboard and/or a visual 'mock-ups' on videotape or CD-ROM.

Scripts and scenarios for signing books productions may be different from mainstream scripts and scenario’s in two respects:
- they are written from a ‘Deaf’ perspective, and
- they are not written, but recorded on video and/or visualised as a storyboard.

Deaf perspective...

Deaf people have a different ‘viewing history’ from hearing people. Many tv-programmes, films, videos are not accessible for Deaf viewers – so Deaf people will not be familiar with their format. Many mainstream programmes that have been made accessible by means of open or closed captions, will still be experienced differently by Deaf people, because they cannot hear the background music, the sound effects, etc.

Because so much information in daily life is still inaccessible for Deaf people, what is considered ‘common knowledge’ in mainstream productions, may not be common knowledge in the Deaf community.

Mainstream scenarios are written for and by hearing people, from a hearing perspective. Deaf people have a different view of life, a different thinking style, and possibly a different way of processing information. A scenario for a signing book therefore should preferably be written from a Deaf perspective, taking into account the characteristics of Deaf viewers.

Two-step process...

At the moment, there are very few Deaf professionals who can write a script or scenario. Script-writing is therefore best undertaken as a two-step process: a professional hearing script-writer writes the script, a professional Deaf person then adapts the script to make it meet the specific needs of Deaf viewers. If both professionals are bilingual, then the scriptwriting can of course be undertaken as a joint process.

Several professional Deaf scriptwriters prefer the first step of the scriptwriting process to be undertaken by a Deaf person, from a Deaf perspective. Only then will the end-product truly be a reflection of Deaf Culture, instead of a translated mainstream production.

Length of shots and scenes...

A script or scenario usually has to be divided into short paragraphs or sections that a signer can sign without problems and that can be filmed in one shot. How long these sections should be, will depend on the text – breaks should be made in logical places – and on the ability of the signer(s) to memorise the text.
Prologue, epilogue...

Many productions may need a prologue to introduce name signs, and to describe the opening scene: time, location, persons involved, context. In some cases, a longer introduction may be necessary to explain unfamiliar signs and/or concepts used in the video, to supply required background information, to relate the content or message of the production to the viewers’ personal situation. In educational/instructional videos, an epilogue can be added at the end of the video to summarise the main message(s) of the video, and/or to link these to the personal lives of the viewers.

Instructions...

In interactive productions on CD-ROM and DVD, instructions and feedback may be signed, in printed text, and/or by means of buttons and icons. Complex instructions should be avoided, and/or signed and demonstrated.

In writing?

Although television and video are visual media, written texts still play an important role in the production process. From general to detailed:

- A synopsis or outline: a short description of the production that will be made, including the objective, the target group, the format, and a summary of the content. Other information that is usually included in a synopsis: length of the production, title, and budget.
- A treatment: a more detailed description of the format and content of the production, describing what the viewer of the end-product will see (and hear).
- A scenario / script: a scenario or script also describes the end-product, but now from the producer’s perspective. A script is usually written in two columns, with the left-hand column describing what the camera will record, and the right-hand column describing the lines of the actors or signers.
- A shot list: a list of the scenes and shots that will be recorded, specifying for each scene and shot: information on the location, the camera’s and lenses used, lights, props, visuals, people involved, costumes, etc. etc. If shots are not going to be recorded in sequence, a shot-list will also include continuity checks to avoid unintentional ‘jumps’ between shots (e.g. a clock that jumps from 10 o’clock to 14 o’clock, or even backwards; glasses that are full, then empty, then half-full – even though no-one is ever seen drinking the water).

On video!

Deaf members of a production team may not be comfortable with reading and writing. For them to be able to participate on a professional basis in a production team, written documentation (a synopsis, scenario, script, etc.) should be kept limited and replaced by or supported with visual information: a storyboard, a pilot-video, or a ‘mock-up’.

For contract negotiations, for communication with (hearing) commissioners, for fundraising, for marketing, but also for communication within a production team, some written documentation will probably be indispensable. All written documentation should be translated and explained in sign language, for Deaf members of the production team.

As far as we know, all contracts are still in written language – that only people with legal training seem to be able to read and understand. Maybe producers of signing books can improve on this situation by introducing contracts that are easy to understand for everyone, presented in sign language, and stored on videotape or CD-ROM?
EXAMPLES

BBC Education Productions

At BBC Education Productions, all the scripting for sign language productions is done in BSL (British Sign Language) using a camcorder. To quote Kerena Marchant of BBC Education Productions (GB) during her presentation for the Signing Books Symposium in Hamburg 1999:

“If we are adapting an English book, the team will work as a team to translate the book and agree the translation. Obviously the presenter here is the key, as he or she will be signing the story and you cannot put signs into somebody else’s hands. Many people can present an English (spoken/written) script, but with a signed script this is not the case. Each Deaf presenter will do the script differently and nobody will exactly follow another person’s script. Because of the need to communicate the signed script, I translate it back into English for the Education officers and commissioners. This means that they are dealing with a translation, not with the actual script and as a consequence, problems sometimes arise. We have tried to use BSL gloss for the script, but this also presented problems. In one instance, the Education officer sent the script back, with the glosses corrected into ‘proper’ English sentences!”

Sample from a BBC script for a programme about how black people came as slaves to the Caribbean.

Source text: The slaves arrive at the Caribbean in a boat. They are unloaded. The rich white landowners inspect them and then buy them. Slaves work in hard conditions in the heat. They are not paid.

Script:

MIX OUT OF SHOT IN THE HOARD OF THE BOAT TO SHOTS OF THE MUSEUM EXHIBITION OF LIFE IN THE CARIBBEAN

BARBARA AND DAVID ARE LOOKING AT THE EXHIBITION AND TURN TO CAMERA

MCU BARBARA

BARBARA (TO CAMERA)

NB. PICK UP PLACEMENT OF SHIP FROM LAST SEQUENCE

Ship… arrive Caribbean. Ship (place by dock) Hatch open. Slaves pull out! Pull out! Line up…

White man rich… home land… look at line slaves (POINT…POINT)… how much? (NOD – YES) (POINT)

POINT (GROUP SLAVES) work me.
“If the programme/video is an adaptation of an English story book, we do it differently. Our aim is to translate the book into sign language (BSL) that is linguistically and culturally correct. This is difficult because spoken language English and signed language BSL are two different languages and their grammar, linguistics and culture are different. It is important that the BSL script is:

- a faithful adaptation and that we have not diverted from the English story,
- but is native BSL, not influenced by the English order.

The presenter and I sit down and translate the book, and gloss and camcorder in the same way as before. But now we script with the English book as well as with the gloss-translation, so we can check if we have moved away from the book. Because sign language is a visual language, we also work closely with the pictures in the book. We can use the illustrations to help with the placement of the BSL, and these form part of our script.

<table>
<thead>
<tr>
<th>Text in English book</th>
<th>BSL Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is the owl who swooped in the night.</td>
<td>Owl stare-at-teddy. Teddy sit.</td>
</tr>
<tr>
<td>And gave the bear a terrible fright.</td>
<td>Owl stare… fly… Teddy see what?? Frightened</td>
</tr>
<tr>
<td>This is the owl who struggled to fly.</td>
<td></td>
</tr>
</tbody>
</table>

If we followed the English of the book, the story wouldn’t make sense linguistically in BSL – the BSL script would be grammatically wrong. We have the owl swooping on the bear sitting on a chair, and then all of a sudden the bear and the owl are in the sky! BSL has rules and they would be broken if we translated it like that. In BSL you need to get the owl from the tree to the bear and the bear’s reaction, then the owl and the bear going into the sky. This is because signed languages are visual languages and in storytelling use grammatical conventions such as placement and role shift, which aren’t used in most spoken and written languages. One would never accept a script in badly written English, and the same of course applies to BSL.”
8. THE TEXT: THE LINES TO BE SIGNED

There is no generally accepted written form for sign languages. ‘Glosses’ can be used to write down an outline of a signed text, but this is by no means a 1-1 representation of what the signer will sign. ‘Writing’ in sign language is a highly personal process, and the output is difficult to transfer. Best results are had when the ‘writer’ and the ‘signer’ are one person or a team of two who work together closely during the writing as well as during the filming stages.

Translation of a mainstream text into sign language is best undertaken by a team of bilingual translators, in a two-step process: a native speaker translates the text into sign language, a native signer then converts the translation into ‘natural’, ‘Deaf’ sign language. For translations from sign language into spoken language (e.g. for a voice-over, subtitles, or a printed book) the reverse process is best followed.

For most productions, the text should be divided into paragraphs of a length that the signer can memorise and sign confidently in front of the camera.

Sign languages are complete, but in some countries: repressed, minority languages. Because of this, many countries are only now beginning to develop sign language dictionaries and grammars. In disputes or quandaries about the correct sign or the correct expression in sign language, you may rarely be able find the answer in a dictionary or other generally accepted official resource.

Lines on paper...
There is no conventional writing system for sign languages (yet). It is therefore very difficult to write down a signer’s lines. Different production teams use different methods: sometimes glosses are used, sometimes descriptions, sometimes a personal notation system.

On video...
The best – and probably only – way to store a sign language text for distribution, for study, and for future reference, is by recording it on video.

Translations...
For translations of printed texts into sign language, mixed Deaf-hearing translation teams are the preferred option, consisting of a bilingual Deaf person, and a bilingual hearing person. The hearing person translates the text into sign language, the native signer then rewrites (more accurately: ‘re-signs’) the translation to make it natural sign language instead of translated print. For translations of sign language into spoken or printed language, the opposite order can be used: the Deaf person translates sign language into written language, the hearing person fine-tunes the translation, to make it naturally sounding spoken language.

A translation of a source text can be literal – staying very close to the original text – or liberal, with the signer re-telling the story in his/her own words. This is sometimes compared to photography versus painting: a translator or interpreter can reproduce a text as if s/he were a photographer, capturing every detail as it is in the original. Or s/he can choose a specific painting style for the reproduction, to highlight certain aspects of the (meaning of the) original. A translator has the same options, when translating a text. Most translations will be somewhere on the continuum between the two extremes. What is most appropriate for a production, will depend on the objective, and the target group. It may also depend on the copyright agreement that you have with the publisher and/or author of the source text. This may include a requirement that a translation stays as close to the original text as possible.
Sign Supported Speech...

In the EU, Sign Supported Speech (e.g. Signed English) is no longer used for signing books.

New signs...

In some cases, new signs may have to be ‘invented’ because no sign is available for a certain concept. Before you do this, consult your national sign language centre to make sure that this is indeed so and if possible: ask them to suggest signs for you. For many productions, you may have to invent ‘name’ signs.

When a new sign is used for the first time in a production, the sign has to be explained. Sometimes, the corresponding word will be finger-spelled, or the printed word will be made visible on screen. The second time the new sign is used – or if the sign is used very infrequently in a video: the third and fourth time as well - the signer should briefly refer to the earlier explanation. After that, the sign can be used as it is. When a lot of new signs are used in a video, these new signs can be introduced in a prologue at the beginning of the video. If the production is published on CD-ROM or on DVD, a dictionary can be included, and/or hyperlinks can link new signs to their explanations.

Whether extra background information is provided, and/or an explanation of the concept that a new sign refers to, will partly depend on the objective of the production: do you want to give the viewers access to information, or do you want to educate and instruct them? (see chapter 2).

Figurative language, metaphors, rhyme...

Figurative language, abstract language, rhyme, metaphors, figures of speech are difficult to translate, because of the differences between the two languages and cultures. Many mainstream fairy tales begin with: ‘once upon a time...’ Should this be translated into: "Some time, in the past", with "Look, I will tell you a story..." or with "A long, long time ago, in a country, very far from here...’?

In the same way, sign languages have language and culture specific rhymes, metaphors and figures of ‘speech’ that are difficult to translate into spoken language (for the voice-over, see chapter 17 ), or written text (for subtitles, see chapter 16).

Different translation teams use different solutions for sentences and examples that are difficult to translate:

- translate literally, and add an explanation;
- translate liberally, at a conceptual level;
- describe;
- leave out all together.

Which solution is best, will again depend on your objectives, your target group, and possibly your copyright contract.

Ask!

Very few – if any – sign languages have been completely researched and described; in most countries, sign language dictionaries are still being developed. Most questions about what vocabulary to use, how to translate certain expressions, metaphors, figures of speech, etc. and as to whether a sign or a phrase is regionally or nationally known, can therefore not be answered on the basis of sign language books and dictionaries. In all of these cases: your best option is to check with your national sign language centre, and/or with well-informed representatives of your target group.
EXAMPLES

Learning from Deaf Adults…

In real life, Deaf adults read storybooks to Deaf children on a continuum from storytelling, to story reading: the first time they read a storybook with a child, they improvise and elaborate liberally on the text. On each successive reading, the translation begins to come closer and closer to the actual text: a direct representation of the English in the book (Schleper, 1998). On video, a story is usually only presented once. The production team will have to decide where on this continuum, the signer should read the story.

Other strategies Deaf readers use when reading picture books in sign language to young children (Reading to Deaf Children: Learning From Deaf Adults, David R. Schleper, Gallaudet University, 1998) and that can or can not be used when a story is narrated in front of the camera:

- they keep both languages (ASL and English) visible;
- they elaborate on the text;
- they follow the child’s lead;
- they make what is implied, explicit;
- they adjust sign placement to fit the story;
- they adjust signing style to fit the character;
- they connect concepts in the story to the real world;
- they use attention maintenance strategies;
- they use eye gaze to elicit participation;
- they engage in role play to extend concepts;
- they use ASL variations to sign repetitive English phrases.

The producer and/or the translation team will have to decide, which of these strategies they do, or do not want to include on a video. For a production on video, it may for instance be preferable not to make everything that is implicit in a story explicit, when the objective of the production is – among other things – to stimulate the fantasy of Deaf children, and to teach them to ‘read’ between the signed lines, to look beyond the information given.

Translation of the Grammar of the Flemish-Belgian Sign Language

In 1999, a printed book on the grammar of Flemish-Belgian Sign Language was translated into sign language and published as two 180 minutes videos (Grammaticale Aspecten van de Vlaams-Belgische Gebarentaal-Videobook, Vlaams-Gebarentaal Centrum, BE). The translation was undertaken by the (bilingual) author of the original printed book and an experienced Deaf signer, and took almost one year. First, the book was divided into 18 short chapters. The Deaf signer read each chapter as often as was necessary to understand the text. The text was of a high linguistic level and used a lot of linguistic vocabulary. As a consequence, some chapters were very difficult to understand. The hearing author rewrote some of these texts, translated them into sign language, and explained them to the signer. However, the meaning of some chapters still remained unclear, and without a good understanding of the source text, the signer would not be able to translate the text into sign language. An experienced sign language interpreter was then called in to translate the problematic passages into sign language, in front of a video camera. This video was used by the signer, to discuss the meaning of the passages with the author and the interpreter.

For many linguistic concepts, there were no signs in Flemish-Belgian Sign Language. New signs had to be created by the translation team.
When the signer had a good understanding of a chapter, she would sign the chapter in front of a video-camera. She would watch the video a number of times to check her signing and to compare the signed text with the text in the printed book. If she was not content with the chapter, the process would be repeated. The signer practised the texts on the basis of the video. Finally, the entire book was recorded on video, during 2 (long) weeks in the studio. On the video, new signs are introduced in a number of ways: the concept is explained, the sign is made twice, the corresponding word is fingerspelled and shown in bright green print on the screen.

**Name signs**

In the Netherlands, a videotape was produced with name-signs for biblical names used in the Netherlands (*Die naam*, 1997). These signs were not ad hoc ‘invented’, but developed during a number of steps that can be followed for the creation of other new signs as well:

1. A new name-sign was created on the basis of physical or personal characteristics, meaning, a symbol, a profession or a function.
2. The ‘signability’ of the sign was evaluated: did it fit within the Sign Language of the Netherlands, was it easy to use in combination with other signs?
3. Was the sign easily distinguishable from other signs? Wasn’t it an already existing sign, or very similar to an existing sign?
4. Did the sign look good, from a viewers point of view?
5. What was the first reaction people had to the sign, what concept and what context did they associate it with?

Each new sign was recorded on video, tested in various sentence contexts, and verified with a number of different target groups. Signs that passed all the above tests were then recorded on videotape, and published as a reference video for signers and interpreters.
9. **The Visuals**

Video and television are visual media. Viewers expect to see more than a ‘talking head’, or in the case of signing books: ‘a signing body’.

In signing books, visuals – still pictures or film – can be used: 1. To support the message and the content of a video, 2. to add visual interest and variety and to support the mood and the pace of a production, and 3. for navigation purposes.

The first function is very important for viewers who are not fluent signers, for viewers who are not very familiar with watching sign language on video, and for videos with difficult and/or unfamiliar content. The other functions are important also because they add a ‘professional’ touch to a production – but they should never be allowed to interfere with the signer, the sign language, and the content of a production.

**Visuals to support message**...

In almost all signing books, the sign language is 'illustrated' with still pictures, or film. This is especially important when viewers are not fluent in sign language, when viewers are not used to seeing sign language on video or television, and when the content is unfamiliar or difficult. Visuals can be pictures of persons, objects, settings, actions.

**The mood**...

Visuals can support the ‘mood’ of a video - as a visual alternative for background music in mainstream videos.

**The pace**...

Visuals can be used also, to ‘pace’ a video, e.g. to indicate the end of a paragraph or chapter. Fast changing visuals, or a rapid alternation of signer and visuals, can make a signing book less ‘boring’ for young people, and more like mainstream video and television programmes.

**Still pictures**...

Many signing books use 'book-like' illustrations as visuals. In many cases, these visuals were copied from a printed mainstream book or publication; in some cases, the visuals were made especially for the video.

If still pictures are used, they should meet the following criteria:
- pictures should be attractive and appropriate for the target group and the subject of the production;
- they should preferably be in colour, of good contrast and not too detailed. Visibility should be good on video, even for visually impaired viewers;
- very detailed or complex pictures can be filmed in parts, or with the camera zooming in on specific details;
- pictures should support what is signed – they should not be in conflict with the story;
- the balance between pictures and signing - in number and in content - should be appropriate for the target group and for the objective of the production. Visuals are often used to cover edits between shots of a signer. If you want to use visuals for this end, you will need as many visuals as your text (see 8) has paragraphs.

**Film**...

Film can be either an existing mainstream television programme or video (fiction or non-fiction), or it can be role-play, drama, or a documentary specifically made for this production.
The advantage of specifically made materials is that one can use signing actors; the advantage of using pre-existing materials is that these have usually been made with much larger budgets.

As background...

Visuals can be used as 'background' to the sign language, without any interaction between the signer and the visuals. This doesn't necessarily mean that the visuals are actually shown behind the signer - there are many other alternatives (see chapter 13 on editing).

As props...

A signer may on the other hand interact with the visuals: he may look at them, turn towards them, point to them, or even: manipulate them. This can be done in real life, in front of the camera, or added during the editing phase, by means of superimposing images. If a signer is to interact with images that will be superimposed during the editing, the interaction should be described carefully in the script.

Copyright!...

If existing pictures or video material is to be used, make sure that you are not in violation of copyright laws when you use these. Unless pictures or videos are copyright free, you will need written permission by the publisher and/or the artist of the originals – even if the original production was never published in your country.

Low-vision viewers...

For low-vision viewers, it is important that:

- the contrast between background and visuals is good;
- the contrast between visuals and signer is good;
- the contrast within the visuals is good;
- visuals are not too small or too detailed;
- visuals have a fixed (or: predictable) location on the screen;
- in interactive productions: that visuals can be sized and moved around by the user.
EXAMPLES

Still pictures

Visuals to support the message. *Little Red Hen*, Chase Video, GB

Visuals to support the mood. *Griezelen*, Vereniging van Ouders van Dove Kinderen, NL

Interaction with the visuals. *Pirate Adventure*, Chase Video, GB
10. LOCATIONS, LIGHTS, COSTUMES, PROPS

There should be good contrast between the signer’s hands and face and his/her clothing, and between
the signers hands, face and clothing, and the background.

Scenery, lights, costumes, make-up, props: all of these can be used to support the message and mood
of a video, and to add visual interest and variety. However, this should never be allowed to interfere
with the visibility of the signer (hands, face) and the sign language (orientation, use of space).

If a neutral background is needed, light colours are preferred over dark colours, and light blues and
greys over more pronounced colours. For clothing, darker colours seem no objection - for light-
skinned signers.

A well-lit signer, good contrast and an avoidance of visual clutter and glare are especially important
for low-vision viewers.

Visual interest...
Costumes, make-up, lights, props, and scenery can be used to support the video, and to add
visual interest and variety.

In the studio...
If a signer is to be superimposed on a mainstream film, the filming is best done in a studio
against a ChromaKey background. If the signer is to be added to a mainstream production in a
‘bubble’ or ‘box’, the colour of the background should contrast well with the skin colour and
clothing of the signer, and should be appropriate for the content of the main production. If users
have a choice, they prefer a light blue or grey background.

On location...
If a signer will be in the main screen of a production, the background can be varied. However,
the contrast with the signer (skin colour and clothing) should still be good. A signer can be
filmed in a real location, or in the studio against a still picture or video of a location or other
scenery, or against ‘virtual scenery’: simulated scenery that is added during the editing of the
video.

Light...
Coloured lights can be used to support the atmosphere and mood of a video-production; changes in lighting can be used for narrative as well as for dramatic purposes. In all cases,
lighting conditions should not interfere with the visibility of the signer. When signers are
filmed on location, lighting conditions should not be too variable, and should allow for good
visibility of the signer. The signer should not be blinded by the lights: if lights are too strong,
the signer’s pupils will contract and/or the signer will squeeze his eyes shut. Both will result in
a less attractive image for the viewer. Reflections (from background, scenery, props, jewellery,
glasses) and glare should be avoided.

Shadow...
The shadow of the signer against a background, may be distracting, and may reduce the visibility
of the signer. Dark shadows in the face of the signer are not attractive for the viewers.
Make-up...
Facial expression is important in all sign languages. In many sign languages, the oral component (mouth movement) is an integral part of signs. Make-up, beards, moustaches or masks should not be allowed to interfere with the visibility of the signers face: the facial expression, and the oral component of signs.

Costumes...
Costumes and props should not hinder the signer, and face and hands of the signer should be clearly visible at all times.

Scenery and props...
Scenery should not distract from the signer or the visibility of the signer (shadows, blocking the view, etc.). In children’s videos, props and costumes can be used to indicate various personalities. Props can also be used as a memory aid for name signs.

Low-vision viewers!
For low-vision viewers, it is important that:

- the signer is well-lit – including the face;
- the signer (face, hands, and clothing) contrasts well with the background;
- the signers clothing doesn’t interfere with the visibility of the signs: e.g. no bright stripes or polka dots;
- glare is avoided in the clothing of the signer and in the scenery: no white or very bright cuffs or frills in the clothing, no very bright or shining props and attributes.
EXAMPLES

Neutral backgrounds, clothing

Preferred colour combinations (Signing Books prototypes, Hamburg University, DE)

Disliked colour combinations (Signing Books prototypes, Hamburg University)

Varied backgrounds, neutral clothing

On location. Kuurojen Video, FI

Picture in the background. Alle Hens aan Dek, De Gebarenwinkel (Stichting Vi-Taal), NL

Virtual scenery. Onno het varkentje, Inst. voor Doven "H.D. Guyot", NL

Costumes, make-up

In many of the videos for children by Chase (UK), costumes and locations are used to support the setting (time, atmosphere) of a story
Little Red Hen, Chase Video, GB  Adolf Hitler, Chase Video, GB  Het Zakmes in de Nederlandse Gebarentaal, Vereniging van Ouders van Dove Kinderen, NL

In the Dutch video Griezelen (horror stories for Deaf teenagers) lights, make-up and props are used to make the signers more scary – and the video visually more attractive and appropriate for the target group.

Griezelen, Vereniging van Ouders van Dove Kinderen, NL

**Poor contrast, low visibility**

In some videos, the visibility of the signer is poor – especially for low vision viewers – because of interference with the background, or insufficient light.

Poor contrast, Sprookjes voor Dove Kinderen 2, FODOK, NL  Poor contrast: too light. Signing Books prototype, City University London, GB  Poor contrast: too dark. Hänsel und Gretel, Signum, DE  Poor contrast: too dark. The whales’ song, Chase Video, GB
II. PRODUCTION

If all these preparations have been taken care of, you should be able to manage the actual filming quite efficiently – an absolute requirement if a studio, cameras, lights – and often also the people to operate these – have to be paid for by the hour or the day.
11. SIGNING THE STORY

The signer should feel comfortable with his/her lines as well as with the camera (and the cameraperson!) to be able to sign with confidence and conviction, from the heart. For many productions the preferred set-up is for the signer to directly address the camera.

A signer can sit or stand; if s/he is to walk around, movements should be carefully choreographed, to allow the cameraperson to shoot the scene without losing track of the signer or the sign language. The signer will usually sign a text in short segments or paragraphs, of a size that can be memorise and reproduced at a time.

A sign language monitor or consultant should be available during the filming, to cue the signer and to check the sign language. A cueing system (autocuer, cuecards, etc.) can be used, but should not interfere with the fluency and the power of the signer and the sign language. If more than one signer is to be filmed simultaneously, use of space and interactivity should be carefully choreographed, and the visibility of all signers monitored.

Sign from the heart...

For many productions, it is important that the signer signs a text, exactly as it was decided on by the translator/text-writer team. At the same time, the signer should seem to be signing ‘from the heart’: the signing must seem natural and spontaneous. A viewer will notice it when the signer is trying hard to remember what comes next, but also when a signed text has been ‘overlearned’, and is being signed ‘by rote’. Some signers can memorise all their lines and sign an entire story or text at a time. This is most likely when the signer is quite free in his/her use of sign language, e.g. in the case of an original sign language story.

Short paragraphs...

When the signer has to follow a script quite closely, most signers sign the text in short paragraphs, or sections. After a paragraph has been filmed, the next paragraph can be rehearsed, and recorded. If fairly short shots are later to be pasted into longer shots, the beginning and ending position of the signer should be the same in successive shots (e.g.: the signer begins and ends each shot in a neutral position, or begins each shot in the ending position of the previous shot).

Cueing systems...

If a text is too long, or too complicated to be memorised, the signer can use a cueing system. Experienced signers use different cueing systems:

- cue cards, with keywords or glosses;
- an auto-cuer with the text in English, in keywords, in glosses, or in some individual notation system;
- a shadow-signer: someone who is standing very close to the camera, so that the signer can see him/her, without breaking eye-contact with the camera;
- if the signer is hearing: an audio-recording of the text, or a reader in the studio to read the text that is to be signed;
- if available: the pictures or other visuals that will be used to illustrate the video;
- if a signer is to be superimposed on a film or video: a monitor with the film or video – played in mirror image. The signer can use the images on the monitor to pace him/her and to cue him/her with respect to, use of space, eye-gaze, expression, etc.
**Sit, stand, walk...**

Signers can sit, stand, or walk around while they sign their lines. What is most appropriate, will depend on the script and the personal preferences of the signer(s). If a signer is to be superimposed on a video, the signer is usually filmed standing up, in a fixed position. Signers who walk around will have to follow a script, so that the camera-person will know exactly what to shoot, where to focus the camera, etc..

**Address the camera...**

If there is only one signer, most viewers prefer the signer to sign directly to the camera – pretending that the camera / the viewer is the communication partner. With two signers in dialogue, many viewers still prefer the signers to address the camera, instead of each other.

**Interact...**

Interaction with visuals and props – or even with the viewer – is appreciated by viewers: this can be done by means of body-position, eye-gaze, localisation, pointing, showing, etc.

**Register...**

Most signers can use various ‘registers’, or ‘styles’ when signing: e.g. a ‘high, abstract’ style, versus a ‘concrete, more iconic’ style, serious or humorous, for children or for adults, highly expressive or neutral. Signers should sign in a register (signing speed, style, expressiveness) that matches the content of the video and the target group. If a signer is signing a story with several characters, each character should have it’s own register, so viewers will be able to identify the character. If a video is to be recorded in more than one session, there shouldn’t be any major changes in the signer’s register between sessions – unless of course this is required by the script.

**Signing speed & pace...**

Since there is no real interactivity with the viewer, and since the signer has no way of knowing how well viewers understand what is being signed, signers should sign slightly more slowly in front of the camera, than they would do in an interactive situation; and for some productions / target groups: much more slowly. If the signer is to be superimposed over a mainstream video or TV-programme, the signer should synchronise his/her signing with the actors and actions in the main screen.

**Easy or boring?**

Viewers who are not experienced sign language users (e.g. children, or Deaf people who have learned sign language at a later age) prefer a signer who signs very clearly, directly to the camera, in fairly predictable shots. Their main request is that the signers sign in a way that is easy to understand. In countries where Deaf people have access to a lot of TV- and video-programmes in sign language, viewers may find this way of signing to be too predictable, and therefore: boring. They may prefer a faster pace, more varied signing, more gimmicks: less emphasis on the signer being easy to understand, more emphasis on visual interest and pace.

**Monitor...**

During the filming, the signer must be assisted by a sign language monitor or consultant – preferably a native signer – who knows the target group and the production’s subject well. The sign language monitor checks the sign language used by the signer for format and content, and is often the intermediary between the signer and the camera- and other technical persons.

**Check!**

After each shot has been recorded, the team will replay the recording, to check for:
• correct sign language use (e.g. correct vocabulary, syntax);
• correct content (nothing forgotten, confused, added);
• correct eye-contact, eye-line;
• correct signing speed, pace;
• continuity in localisation, expression;
• correct register;
• no cut-offs;
• good visibility of the signs (lighting, background, glare, reflections, scenery, etc.).

When a shot meets the criteria, the scene, shot and take-number are entered in the production log, together with the beginning and ending time codes. The signer will then practice the next paragraph, sign it in front of the camera, etc.
EXAMPLES

From GSL to SLN

For the Signing Books user tests with children in the Netherlands, a translation into the Sign Language of the Netherlands (SLN) was needed of *Hans im Glück*, a German sign language production for Deaf children. The signed text of the German video was first translated into printed Dutch. Then, the printed Dutch was translated into SLN by a Deaf/hearing team. The German sign language was used during the translation process, for support (some sentences and paragraphs were easier to understand in German sign language, than in printed Dutch), for inspiration and for comparison. The text was then signed in front of the camera by the hearing native signer, with the Deaf team member acting as sign language monitor and shadow-signer. Since there wasn’t enough time for the signer to learn the text by heart, it was decided to use an audio-tape during the filming, to cue the signer. The tape was a recording of the signer reading the Dutch text. The tape proved helpful – because fairly long shots could be recorded in one take, and the entire story (20 minutes of signing) could be recorded in half a day. It was, however, an emergency measure. The audiotape influenced the signer’s role, which became that of an interpreter, instead of that of a story-teller. In some instances the audio-tape interfered with the signer’s pace and concentration.
12. **Filming the Signer(s)**

Sign language is a three dimensional, visual language that uses the hands, arms, shoulders, head, face, lips and tongue of the signer as ‘articulators’. In filming signing books the camera therefore doesn’t only record people, objects, scenery; and actions, the camera also records the text: the sign language. For viewers to understand what is being signed, the camera must record the sign language naturally and completely. Cut-offs (hands moving outside the range of the camera), obstructions (scenery or people blocking the view of a signer), close-ups and long-distance shots should all be avoided. Different lenses, movements of the camera, variations in shots may be used to add visual interest, but should be functional and should not be allowed to interfere with the visibility of the signer and the sign language.

A balance...
During the filming, the camera-person will have to find a balance between good visibility of the signer(s), and varied and interesting use of available camera-techniques: shots, angles, viewpoint, movement and lenses.

Hands and face...
The camera set-up will at least include the ‘signing space’ of the signer(s), either with or without some background scenery. How large the signing space of a signer is, will depend on the signer, and on the register that is used for (a part of) a story. On average, the signing space is a triangle with the top located slightly above the head of the signer, and the base at waist line (see examples below).

If the signer is to be superimposed on a video, by means of a sign language ‘bubble’ or ‘box’ (see chapter 13) a smaller signing space is usually used, and the signer is filmed from the chest up.

The signer’s body location and body movements have a syntactic function in sign language. The camera should record these naturally with continuity in sight lines within and between successive shots.

Not too close...
Although facial expression is very important in sign language, close-ups are almost never used because of the risk that the hands will move outside of the view of the camera. Close-ups are only possible during ‘silent’ periods, and must be carefully choreographed. When two signers are filmed together, they can either address each other, or the camera. When the two signers address each other, the distance between the two signers must be natural (at least 1 meter). If one camera is used, both signers can be filmed in one shot, or the camera can zoom in on the signing person. Again, this has to be carefully choreographed, to avoid the camera ping-ponging from one signer to the other, or parts of a conversation being invisible because the camera was focused on the wrong person. With two or more cameras, there is of course more flexibility.

Not too far...
Long distance shots are generally not used either, because the signs and/or the face of the signer will be too far off for good visibility. Generally speaking, the signer should be as close to the camera as is possible without risking cut-offs, to suggest real interaction and eye-contact with the viewer. For recordings of discussions or group conversations, it is not feasible to have more than 3 signers in one shot. More signers would have to sit too close together to be comfortable,
or the distance to the camera would be too far for viewers to properly see the sign language, and/or to watch as participants in the dialogue or discussion, instead of as distant by-standers.

Eye level...
A signer can be filmed from the side, but not from the back. Generally speaking, frontal or semi-profile shots are preferred because these result in the best visibility of the hands, face, and body movements of the signer. The same applies to the angle of the camera: high and low angles can be used, but only if this is functional. Generally speaking, the camera should be at eye-level with the signer.

The signer moves...
When a single signer is presenting a story, the signer is usually filmed from the knees or waist up, in a fixed position, standing up. Unless there is a visible audience (e.g. children watching the story) the signer addresses the camera directly. Variations are: a signer sitting in a chair, the signer on location with some variations in background, the signer addressing and interacting with a visible audience.

The camera is stationary...
Camera movements within and between shots should be functional, and should not interfere with the visibility of the sign language. A camera can zoom in on scenery or props – but unless these shots are combined with shots of the signer during editing, this will result in ‘silent’ periods in the end-product.

Plan for visual...
When a signer is to be superimposed on visuals, the signer is usually filmed standing up, in a fixed position and a fixed shot: from the knees or the waist up (medium full shot to medium close shot). If visuals are to be shown simultaneously with the signer, appropriate space should be reserved where visuals can be added during the editing.

The signer always addresses the camera – but may turn towards the picture (to the left or to the right, depending on where the visuals will be superimposed) either to indicate a silent period, or to refer to the visuals. The signers use of space and localisation should correspond to the visuals.

Captions...
If captions or subtitles are to be superimposed over the signer (see chapter 17) some extra space should be reserved to allow for this.

Visual interest...
To add visual interest and action, a signer can walk around a stage or location, or two signers can be shown, interacting. To minimise the risk of cut-offs, and signers or (parts of) signs going out of the range of the camera, these movements should be carefully choreographed. If the movements, and the signing, of the signer(s) are choreographed and known to the cameraperson, s/he can be more creative in the use of viewpoints, distances and angles as well.
EXAMPLES

**Single signers**

- **Hans im Glück**, Signum, DE
- **Baby’s First Book**, Chase Video, GB
- **De man, de stad en het boek**. Handtheater, NL

- **Hans och Greta**, SIH, SE
- **Signing Books prototype**, City University London, GB
- **Sprookjes voor Dove Kinderen 1**, FODOK, NL

**Two signers**

- **Naar Jezus**, Dit Koningskind, NL
- **Signing Books prototype**, City University London, GB
- **Kuurojen Video**, FI
Groups

Signing Books prototype, City University London, GB

Signing Books prototype, City University London, GB

Kuurojen Video, FI

Signing Books prototypes, City University London, GB
III. POST PRODUCTION

When the filming has been done, the many shots and scenes will be cut and pasted into a coherent, understandable, and attractive production. Animations, navigation aids, sound, and captions may be added to make the production more interesting and more accessible for certain groups of viewers.
13. **EDITING**

The editor will combine shots and scenes into a understandable, coherent and attractive whole. Mainstream editing conventions that depend on the use of sound (e.g. background music, sound effects) will have to be replaced by or supported with visual means.

For many productions, the video of the signer has to be combined with visuals in a way that is both attractive and effective: the sign language always clearly visible for the viewer, the relationship between visuals and signer obvious, and signer and visuals seen as an integrated whole, not as two (or more) independent, unrelated channels.

Visuals and sign language can be combined sequentially (one after the other) or simultaneously, with both sharing the same screen. If signer and visuals are shown simultaneously, ChromaKey is preferred to the signer in a bubble or box.

The size of the signer on the screen will depend on the size and content of the visuals, but must always be large enough for good visibility of all signs. The preferred location for the signer is to the right of visuals (viewer perspective).

Transitions and other visual effects can be used to camouflage cuts in a signer’s presentation, to indicate transitions between signer and visuals, and to visualise background sounds, background music and/or sound effects. These editing effects should be functional and may not distract from the sign language or interfere with the visibility of the sign language.

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Visual editing...

Not all mainstream editing conventions may be appropriate - without modification - for Deaf viewers. Length and order of shots and scenes, as well as transitions must be appropriate and understandable on the basis of the visual information alone. Without support music, scenes without action - e.g. shots of nature, scenery - may not hold the viewer's attention for very long.

In mainstream productions, background music is often used to support a video's mood and pace, to emphasise a build-up of tension, to indicate transitions. The editor of a signing book will have to find ways to realise these same effects, using visual means.

Special effects and animations can be used also to visualise environmental sounds (eg. a telephone ringing), and/or sound effects (see chapter 14).

Visible signer...

Many mainstream videos and television programmes have an invisible narrator; in sign language productions, the narrator always has to be visible somewhere on the screen. To indicate that a person is thinking, and not speaking or signing ‘out loud’, thinking clouds are sometimes used as in printed cartoons (see examples below).

Separately...

Shots of a signer can alternate with visuals. Both the signer and the visuals are then shown separately, full screen, and the timing of each can be independent of the other. The background of the signer can be varied or fixed, neutral or related to the visuals.

Advantages of sequential presentation are:

- No information overload: the viewer watches the signer or the visuals;
- The visuals can be used to camouflage editing cuts, to mark paragraphs and sections within the production, and to mark and support the rhythm and pace of the production;
• The change-over from signer to visuals and back can be used as visual attention getting strategies.
• Visuals can be used as ‘eye pauses’ for viewers. Hearing viewers often look away from a television screen; by listening to the soundtrack, they know when they have to look back at the screen. Deaf viewers have to watch a signer continuously if they want to understand what is being signed. Visuals alternating with the signer will give Deaf viewers the opportunity to briefly look away from the screen, also.

Disadvantages:
• Shots of a signer, without other visuals, may seem visually boring;
• The signer cannot interact with the visuals;
• The ‘memory load’ for the viewer may be higher, because the viewer may need to actively remember the visuals, to be able to interpret the signer correctly, or vice versa.

Simultaneously...
When signer and visuals are to be shown simultaneously, the editor will have to fit both the signer and the visuals together on the one screen.

Advantages of simultaneous presentation are:
• With simultaneous presentation, the sign language and the visuals are more closely connected in space, and in time;
• The signer will be able to directly refer to, or interact with the visuals;

Disadvantages are:
• The visuals and the signer will have to be similar in content or at least related – or the viewer will be confused by two conflicting messages;
• The signer and the visuals will be sharing the same screen – so either the visuals or the signer (or both) will be smaller and possibly less clearly visible;
• The signer and the visuals will be sharing the same time, so visuals and signer will have to be carefully synchronised.

ChromaKey ...
Generally speaking, there are two ways in which the signer and the visuals can be shown simultaneously:
• ChromaKey, with the signer totally or partially super-imposed on the visuals;
• a ‘box’ ('bubble') or window in the main screen, with the box showing either the signer or the visuals.

When given a choice, viewers prefer ChromaKey to a box or bubble.

When ChromaKey is used, the preferred location for (right-handed) signers is to the right (from the viewers’ point of view) of the visuals. The size of the signer, relative to the visuals, varies between productions. Generally speaking, viewers prefer the signer to be smaller than the main actors in the main screen.

Box or bubble...
When a box (square or rectangle) or bubble (circle or egg-shape) is used, the box generally shows the signer. In some productions specifically made for Deaf viewers, the signer is in the main screen, with the visuals in a box or bubble.
If a box or bubble is used, the size should be large enough for the signer to be clearly visible. The location should be fixed, not variable. The preferred location is in the top right corner of the screen, to the right of the visuals (viewer perspective).

Cuts and transitions...

If subsequent shots of a signer are to be pasted into a longer shot, various transition effects can be used: hard-cuts (e.g. if the beginning and ending frame of the two subsequent shots are almost similar), fade-out and fade-ins, and various ‘fancy’ transitions such as tiles breaking up, a page being turned, etc. Fancy transitions should be functional and should not distract from or interfere with the sign language.

During ‘silent’ periods (there is nothing to be signed), a signer may remain visible on the screen, possibly turned towards and looking at the visuals to indicate that there is a signing pause (shorter pauses), or the signer is faded out (longer pauses).
EXAMPLES

Egg-shaped bubble: *Channel IV* production, Chase Video, GB

Egg-shaped bubble, variable location, *Sign-Toons with Linda Bove. Looney Signs!, Talking Hands, USA*

Fuzzy shaped bubble, Kuurojen Video, FI

ChromaKey, signer on the lefthand side, large. *Baby’s First Book*, Chase Video, GB

ChromaKey, signer on the right, large; *Off Limits*, Chase Video, GB

ChromaKey, signer on the right, small. *Soldaat van Oranje*, Vereniging van Ouders van Dove Kinderen, NL

ChromaKey and subtitles, large signer on the right, overlapping with the main video. *See Hear*, BBC, GB
Main video in box (a speaker),
the sign language interpreter in
the main screen. Kuurojen
Video, FI

Main video (a signer) in the
main screen.

Three active windows, partially overlapping, each
with moving video, and signers. Visually
interesting, but confusing for low-vision signers.
Kuurojen Video, FI

The main video is the cartoon on the virtual tv-set.
The signer interprets the voices of the cartoon
characters. The signer and the virtual scenery are
visually very dominant, relative to the window
with the main video: the cartoon. Sign Enhanced
Arthur, WGBH, USA

To indicate that the person is thinking, captions
are shown in a thinking cloud. Ich soll mich heute
vorstellen, Theodor-Schäfer-Berufsbildungswerk,
DE

To indicate that the boy is thinking, the signer is
shown in thinking cloud. Het Zakmes in de
Nederlandse Gebarentaal, Vereniging van Ouders
van Dove Kinderen, NL
14. **ANIMATIONS**

Animations are used in signing books to add visual interest, and to visualise sound and sound effects. In educational programs they can be added to visualise complex structures.

As far as we know, there are no cartoons (yet!) in sign language.

Virtual – animated – scenery and props can be used to allow signers to interact with cartoon figures, to walk around in virtual real or imaginary settings, etc. In practice, few if any production teams have the resources to do this.

A recent development is the use of signing robots, avatars, or sign language animations instead of human signers.

**Background sounds**

Animations and special effects can be used to visualise relevant background sounds. A phone ringing can be visualised by an animated phone on the screen, songs by musical notes and words dancing over the screen.

**Background music**

Animations and special visual effects can be used to partially replace background music and sound effects, e.g. to support the mood, tension or pace in a production, provided it is functional, attractive and effective, and doesn’t interfere with the visibility of the signer and the sign language.

**Virtual scenery**

Virtual scenery, props, and cartoon characters can be added to a video of a signer. Few production teams however, seem too have the resources to fully explore these possibilities.

**Sign language animations**

A recent development that is being explored in the USA and the UK is the use of 3D animations (robots, manikins, avatars) to replace human signers. These developments are currently still in the research stage and are not yet used for ‘signing books’. In the future, they may prove useful because it will be possible to adapt the signer to meet the specific requirements of a production or a viewer. For some productions, a cartoon-signer may be the preferred option, for others a very abstract, anonymous signer. In interactive productions, the user may even be able to select which signer is to present a text.

A closely related development is the use of translation software to generate the animated signer. The input for the programme is printed text, the output is an animated signer signing the story in sign language. With this software, every user will eventually be able to convert every printed text into a signing book. This development also is currently only in the research stage. For more information, see Del. 4.1.
EXAMPLES

Sounds

In the Dutch production *Het Zakmes in de Nederlandse Gebarentaal* (Vereniging van Ouders van Dove Kinderen, NL) a phone that is ringing is visualised as a red telephone on the screen, lighting up and fading away with each successive ring.

Avatars & virtual signers

In the USA, signing ‘avatars’ have been developed (3D puppets on a computer screen) that sign stories in ASL and in Signed English. There are several avatars, varying in age and colour, including a signing frog. The programme was tested with Deaf children: their favourite avatar was the frog. In England, “Simon the Virtual Signer” was developed to translate printed subtitles into British Sign Language on digital television.
15. **Navigation & User Control**

Most signing books are still produced on videotape. To check if a video contains certain information, a viewer may have to play the entire video before knowing the answer. “Navigation aids” enable viewers to find information in a more efficient way, and to know where one is at each point of time in a production. Navigation aids are usually included in interactive productions (CD-ROM and DVD), but are at least as essential in longer productions on videotape that a viewer may want to watch over several sessions, or may not want to watch in its entirety.

In printed, and even in interactive media, a ‘table of contents’ listing the various parts of a production in sequential order is the most common navigation aid. Since Deaf people are visual thinkers, visual maps may be a more effective or attractive alternative.

In interactive media, the user may be able to control the size and location of the signer on the screen, the background colour of the signer, the speed of the signer and on DVD: one of several sign languages. Other options may include: with/without voice-over, with/without background music, with/without subtitles, size and colour of subtitles, language and language level of subtitles.

**Navigation aids...**

Very often a viewer may not want to watch a video-production from beginning to end. To help a viewer select which parts to view and to find specific information on a video, navigation aids can be included.

**Videotape**

A longer production on videotape can be divided up into sections (chapter or even paragraph sized). Transitions between sections can be indicated with visuals or coloured screens, that are easy to spot even when the viewer is fast-forwarding the video. Each section can be identified with a number, name, icon, or time-code. If these remain visible in a corner of the screen, the user will always have an indication of where s/he is in a video.

At the beginning of the production, the table of contents can be shown in text and/or or presented in sign language. A table of contents can be printed on the video-box, preferably with time-codes. If a transparent box is used for the videotape, the table of contents can be printed on the backside of the cover sleeve. The user will be able to read the text (provided it is printed in fairly large and bold print) through the transparent plastic, after opening the box.

**DVD**

DVD – which will soon replace videotape – may include additional navigation aids. A table of contents at the beginning of the production will allow the user to select which parts to view, and in which order. Preferably, the table of contents does not only list the names of the parts (or worse: part 1, part 2, part 3) but also gives some indication of the contents of each part, e.g. by means of a printed or signed summary, or a visual.

**CD-ROM & DVD-ROM**

CD-ROM and DVD-ROM allow for far even better navigation – provided that these have been included in the production. Navigation aids may include:

- a table of contents or a visual map;
- page forward, page back;
- stop, pause, replay;
- back to the table of contents;
• help;
• search (text input);
• hyperlinks to other sections or sub-programmes, e.g. a dictionary, footnotes, additional information, explanations;
• bookmarks and notes: the user may be able to include personal bookmarks and/or notes (in print or sign language) for later reference and retrieval.

User control
In interactive media, the user may be able to adapt the programme to his/her personal preferences and needs. User control may include:

• Setting the size and location of the signer on screen, the speed of the signer (e.g. slow motion, fast forward), and the colour of the background of the signer; in future productions that use animated signers (see chapter 14) users may also be able to select the signer they want for a production (e.g. male or female, human or animal, personal, or abstract, ). On DVD, the user may be able to select one of several sign languages.

• The use of sound: with or without voice-over, with or without background music. If a voice-over and background music are both included in a production, the user should be able to set the volume for each independently of the other.

• Subtitles: with or without subtitles, the size, font and colour of subtitles; the language of the subtitles (e.g. English subtitles vs. French subtitles), and preferably: the language level of subtitles (short easy-to-read subtitles vs. complete subtitles).

• Setting the size and location of other visuals on the screen.

User friendly!
All navigation and user control options should be transparent and easy to use, even for users with limited computer skills. More complicated instructions should be available in text as well as in sign language. All buttons should be easy to locate, see and understand, even for low-vision users. Help-files should be written in easy to read language, and should preferably be in printed as well as in sign language.
EXAMPLES

Chapter indicators

Chapter title at the beginning of a new chapter: in print, and in sign language. *Grammaticale Aspecten van de Vlaams-Belgische Gebarentaal-Videobook*, Vlaams-Gebarentaal Centrum, BE

On-screen indication of the chapter number. *Grammaticale Aspecten van de Vlaams-Belgische Gebarentaal-Videobook*, Vlaams-Gebarentaal Centrum, BE
Table of contents

A table of contents (CD-ROM) in print and pictures; the user can read chapters in any order. *De Kijkbijbel*, Effatha, NL

Instructions for use

A CD-ROM for young deaf children. With instructions in small print that children in the intended age group will probably not be able to read! *Basil’s World*, Speciality Software, GB
16. **SOUND**

During the filming of a video for Deaf people, sound is usually not recorded. To allow non-signing people access to the signed information, a voice-over is often added during the post-production stage. This is especially important for videos for Deaf children, most of whom grow up in hearing families, and for other videos that will be viewed by mixed Deaf-hearing audiences. A voice-over and all sounds added to a video should meet the expectations and requirements of hearing people who don't know sign language. For some productions, background music, sound, or sound-effects can be added to make the production more effective and attractive for hearing viewers.

For Deaf viewers, functional sounds (songs, phone ringing, sirens, etc.) should be visualised. For hard-of-hearing viewers the voice-over should not be played simultaneously with background music or other background sounds; in interactive productions, the user should be able to select what sounds are played (voice over, music, other sounds), and should be able to set the volume for each sound track separately.

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*No sound...*

In most sign language productions, no sound is recorded during the filming. Exceptions may be productions for mixed Deaf-hearing audiences, filmed on location. For hearing people, it may be alienating to see a car drive buy, or a door slam shut – without the accompanying sounds. If no sound was recorded during the filming, some background music or sound effects can be added, to fill in ‘gaps’ left by the voice-over.

*A voice-over...*

Many videos for mixed hearing-Deaf target groups, have a voice-over. The voice-over is usually added after the video has been edited.

*A trained voice...*

Most production teams prefer a trained radio voice or reader for the voice-over. It is not required that the voice-over understands sign language. The voice-over will read the text, while a sign language interpreter watches the signer on the video and cues the reader with respect to reading speed, pauses, loudness, register, etc.

*Matched to the signer...*

The voice-over should preferably match the signer in gender, age, register, and dialect. When there is more than one signer in a video, each signer should preferably have his/her own voice-over.

*Matched to the content...*

The text read for the voice-over should be a correct representation of what is signed. The text should be well written, and when read out loud, should sound natural to hearing native speakers. The text can either be the original printed text that the signer used as his/her source text, or a back-translation from what the signer has actually signed in front of the camera. What is preferred will depend on the objective of the video and the resources available (a back-translation will be more costly).

*‘In sync’...*

The voice-over should be synchronised as best as possible with the signing. The voice-over is added for hearing people who do not know sign language; it is therefore more important that the voice-over sounds natural and is easy to listen to, than that the voice-over is perfectly 'in
sync' with the signer. If the signer needs more time than the voice-over, the voice-over should not pause within sentences (matching the signer’s pace at word level), but at natural breaks in the text, e.g. at the end of paragraphs. If it is necessary for the voice-over to insert a pause at the very beginning of a production, or at the beginning of a new segment, hearing users may wonder why they can’t hear anything and may start looking for the volume control. This can be avoided by adding some background music or some other background sounds during longer pauses in the voice-over.

If a production has both a voice-over and subtitles, the voice-over is best synchronised with the subtitles.

*Deaf viewers...*

In original sign language productions and in productions with a superimposed signer, functional sound should either be signed or visualised in some other way for Deaf viewers (e.g. by means of animations, see chapter 15). Music can be described, songs (including title songs!) can be signed.

*Hard-of-hearing viewers...*

For hard-of-hearing viewers, it is important that a voice-over does not overlap with background music or sound effects. In interactive productions, users should have the option to have no sound at all, a voice-over but no background music, or voice-over and background music. The user should be able to set the volume for each audio-channel, independent of the others.
EXAMPLES

Female signer, male voice-over

The video *Grammaticale Aspecten van de Vlaams-Belgische Gebarentaal-Videobook* is signed by a female signer. The voice-over that was added is not an exact translation of the text signed by the signer, but a narrator who describes what is signed on the screen. To avoid misunderstandings – e.g. that the voice-over is the actual voice of the signer, and/or that the voice-over is an exact translation of the sign language - the production team decided to use a male voice, instead of a female voice.

Deaf voices?

“De man, de stad en het boek” (Handtheater, NL) is a play for three Deaf signers, that was performed on stage by three Deaf actors in the Netherlands. The play was later produced on video also. The video production is not a live recording of one of the performances, but was studio-recorded. The three signers in the video however, are the same actors that performed the play on stage.

The (hearing) producer, who had no previous experience with sign language productions, recorded all sounds during the production, including the sounds made by the deaf actors: footsteps, books opened and closed, as well as their vocalisations.

During the editing, a neutral city-noise was added as a background to these ‘live’ sounds – because the production didn’t sound quite right to the producer: it was ‘too empty’. For hearing viewers, the video-production now ‘sounds’ as the play was performed on stage: all the ‘live’ sounds made by the actors, against a background of grey city-noise.
### 17. **Subtitles, Captions, Texts**

Subtitles, captions, and other printed texts can be used to support and in some cases: to replace sign language or a voice-over in signing books.

Subtitles (lines of text in the bottom of the screen) should reflect faithfully what is being said / signed. Timing, language level, and the extent to which texts are abbreviated or simplified will depend on the target group and the objective of the production.

Captions (names, words, other texts on the screen) can be used for names, difficult words, new words, and/or to support fingerspelling.

In educational productions, printed texts can be included in a video or CD-ROM, to help the viewers make the transition from signed to printed language.

Subtitles, captions and texts should be clearly visible, even for low-vision viewers. They should not interfere with the visibility of the sign language, and should not distract the user who knows sign language.

In interactive media (CD-ROM, DVD) the user should be able to choose whether or not captions are visible, and if they are visible, they should be allowed to select the style (size, colour, speed, location).

---

**Subtitles...**

Subtitles show what speakers say, and/or what signers sign, in printed language. Subtitles are usually shown in the bottom part of the screen. In the USA, subtitles are called ‘captions’. Open subtitles or captions are visible for everyone, closed subtitles or captions are hidden and only visible on television sets that have a teletext decoder.

**Captions...**

The term captions may also be used to refer to labels, names, and other printed texts on a video.

**Printed text...**

Some videos and CD-ROMs include text-screens, alternating with or in combination with a signer.

**For hearing people...**

Subtitles for hearing people are usually ‘open’ subtitles, visible for everyone. They are usually in a white font, with a black outline, against a transparent background. They represent everything that is being said – or as closely as time and space allows. In many countries (e.g. the Netherlands), national subtitles are added to all foreign video and television programmes, to make them accessible for all viewers. In other countries (e.g. Germany), almost all foreign programmes are ‘dubbed’: the voices of the foreign actors are replaced by voices of actors speaking the national language.

Subtitles for hearing people rarely if ever include information about the source of a text (which actor is speaking these lines?), or about background sounds or music.

**For Deaf people...**

Subtitles for Deaf and hard-of-hearing people can be ‘closed’, or ‘open’. Different colours can be used for the font, to indicate different speakers. The captions are usually shown against a black background. They usually include information as to the speaker (colour coded, or named...
explicitly, or by captions being centred underneath the speaker), as well as with respect to music, environmental sounds, and even: the absence of sounds. In some countries, subtitles for Deaf people use simplified language, and/or are simplified as to content.

Subtitles can appear as ‘pop-on’ lines, 2 or 3 lines on the screen that ‘pop on’ as whole units, or as ‘roll-up’ lines, with two to four lines on continuous display. As each new row appears at the bottom of the display, the display scrolls up one row, and the top row disappears.

Instead of sign language...
In some productions, subtitles may be used instead of sign language, for all or some of the information. Subtitles should not be used for productions for children under 10, because they will probably not read well enough to understand the subtitles.

To support sign language...
Subtitles can be added to videos in sign language, to make these accessible for hearing viewers. They can also be used for deaf viewers, if a video uses many new, or unfamiliar signs. Subtitles underneath the signer may also be appreciated by Deaf and hearing people who are not (yet) fluent signers. On the other hand, some Deaf viewers find subtitles distracting, and interfering with the sign language.

To support fingerspelling...
Names, technical terms, and unfamiliar words are often fingerspelled. Captions, text-screens, and/or labels can be used to support (or even replace) the fingerspelling.

For navigation...
Captions and text-screens can also be used for navigation purposes, e.g. for chapter headings.

To support reading...
In some interactive CD-ROM productions for children and students, the signer is shown alongside the text that is being signed. The viewer can watch the sign language, read the printed text, or do both. The sign language will help the viewer understand the content of the message, the printed text will introduce the viewer to the words and language used to express the content in printed and spoken language. For other viewers, the opposite may be true: the printed text will convey the meaning, the sign language will introduce the viewer to the signs and sign language that can be used to transmit this meaning.

To satisfy copyright regulations...
If a video is a translation of a printed book, e.g. a printed story-book for children, the publisher of the original publication may require that the signing book contains exactly the same information and the same language, as the printed book. Since the sign language may deviate a little or a lot from the printed language in the book, the printed language can be included as text-screens in the production, to meet this requirement.

For foreign signing books...
A video produced in a foreign sign language can be made accessible by adding subtitles in the national language. For foreign sign language productions, most deaf people prefer subtitles to a translation added in the national sign language, because they find it very difficult and very confusing to watch two different signers and two different sign languages, shown simultaneously, side by side, on the screen.
All subtitles...
For all productions with subtitles, the producer will have to decide whether or not to include subtitles, and if subtitles are included:

- How these appear on the screen (roll-up, or pop-on);
- The number of lines that are visible at a time;
- Whether the ‘hearing’ subtitle style is used, or the style of ‘closed’ subtitles for deaf and hard-of-hearing viewers
- How long each line remains visible on the screen;
- Where breaks are made in each sentence and a new line is begun;
- The language level and the content of the subtitles.

Subtitles in signing books
If subtitles are added to a production in sign language, the producer will have to decide what text to use for the subtitles, and the relationship between the subtitles and the signer (in time and in content) and between the subtitles and a voice-over. Some production teams use the original written text as the source text for captions, others use a ‘back-translation’ from the sign language; if the captions are to be synchronised with the sign language, abbreviations in the source text may be necessary. If a video has a voice-over and subtitles, these should be synchronised in time and content as much as possible.

In interactive productions...
In interactive productions, the user should be able to select whether or not captions are shown, and if they are shown, the user should be able to select the size and the colour of the font. On DVD, the user may also be able to select what language subtitles should be in.

Visually impaired viewers!
For visually impaired viewers, the preferred colour for subtitles and captions is white, against a black background.
EXAMPLES

Captions

Chapter heading, in print and in sign language. Grammaticale Aspecten van de Vlaams-Belgische Gebarentaal Videobook, Vlaams-Gebarentaal Centrum, BE

Names: in print and in fingerspelling
Signing Books prototype, Hamburg University, DE

In print: the name of the speaker (Jari Heiskanen, in small box) as well as the name of the interpreter (in large box).
Kuurojen Video, FI

Subtitles

The deaf children (90 children, 7-19 years of age) who participated in the Signing Books user tests compared two video-clips of a signer signing a story in SLN. The first clip had no captions, the second clip did have captions. Almost all children (90%) preferred the captioned clip. The children said they could watch the signer and read the captions at the same time, and that the captions helped them understand the sign language better (see Del. 6.1).

For foreign sign language productions, most children preferred captions to a bubble with a sign language translation.

Open subtitles: white font, black outline, against transparent background. Woord & Gebaar, NL

Closed subtitles: white font against black background. Maandelijkse videokrant voor Doven, Dovenschap, NL
Open subtitles, white font, against a semi-transparent grey background. Signer and subtitles, overlap but don’t interfere. See Hear, BBC, GB

Open captions, white font against black background. Not overlapping with video or signers. Human Rights, Fischer Film, AT

**Printed text**

De Kijkbijbel, Effatha, NL: A CD-ROM for young deaf children with pictures, printed text, and a signer presenting the story (top right).

Mini Vejledning, Ministry of Education, DK a video with a signer, alongside the printed text that is signed.

The same text as to the left, but now produced on CD-ROM, with additional navigation buttons (Ministry of Education, DK)
IV. MARKETING

In many countries, the marketing of signing books receives very little or no attention, and/or is a very low-budget (or no budget!) affair. Productions are often marketed only locally and/or to members of a Deaf or parents’ organisation, sometimes nationally within the Deaf community. Productions are rarely offered to mainstream bookstores or to public libraries.

It is important, however, to include marketing of your videos in your activities. Deaf and hearing people should know what is available, and where. The mainstream community should become as familiar with ‘signing books for the Deaf’, as they are with ‘talking books for the blind’. Public libraries are usually interested in sign language materials – and in some countries (e.g. GB) public libraries are even required by law to include sign language productions in their collection.

The internet can be used to advertise your productions nationally, and internationally. A national database with information on all signing books available in your country will help intermediate and end-users find your productions. An international catalogue with information on all signing books available in Europe or world-wide, will stimulate international co-operation and co-productions.
18. **Promotion & Sales**

In many countries, signing books are sold by the production companies themselves. However, little or no attention (or funds) are usually available at the end of the production line, for promotion and sales. Many companies don’t have a catalogue, and sell their productions only to members of their organisation, or to members of the Deaf community. As a consequence, public libraries and the general public are rarely aware of the existence of signing books in their country, and/or of the publication of new titles.

**Black box**

People who pick up your production in a library or in a bookstore, are hardly ever able to watch the video before they buy, or lend it. The cover of the video-box or CD-ROM should therefore be attractive as well as informative. For bookstores and libraries to include your productions in their catalogues correctly, they must be able to find certain information on the outside or inside cover of the video-box or CD-ROM:

- the title of the production;
- the author – and in case of a translation: the title, author and publication year of the original production;
- a clearly visible indication that this is a production in Sign Language;
- the name and address of the publisher;
- possibly: the name of the producer;
- publication year;
- duration of the video;
- the target group e.g. age-group;
- name of the signer(s);
- with / without voice-over;
- with / without captions;
- a short description of the contents;
- a short description of the visuals;
- if applicable: a table of contents, with time-codes;
- last but not least: credits and thanks to organisation(s) that financed the production.

**Promotion**

Promote your production(s) through flyers, catalogues, a web-site. Try to include the mainstream community in your promotion activities: public libraries, mainstream organisations, etc..

Include pictures and screen-prints in your catalogues. Show videoclips of your productions on your website.

Make a video-catalogue on videotape or CD-ROM, with short clips to illustrate your productions.

If there is a national database for sign language material: submit your information to this database so people will be able to find you and your productions.

**Price**

The price range for signing books varies from distributed freely, to over 100 Euro per production. Many sign language productions on the market today are cheaper than comparable mainstream productions. Viewers in your country may not be used to paying high prices (or even: to paying at all) for information in sign language.
For most productions, outside funding is therefore indispensable. When you apply for funding, include funds for marketing, promotion, and after-sales services in your budget.

**Protection**
You may also have to include ‘protection’ in your marketing plans. Protection against illegal copying and unauthorised use may vary from a copyright statement in the trailer of your production, to making it technically impossible to make unauthorised copies.
19. **SUPPORT**

Your (potential) customers should be able to contact you for information, for ordering, and for after-sales support. Your (potential) customers will include both Deaf people and hearing people; they should be able to contact you by text-telephone, telephone, fax, and email.

If your productions include ‘new media’ such as CD-ROM, DVD or DVD-ROM, users may need technical support.

**Deaf and hearing customers**

Customers and potential customers should be able to contact you with questions about your productions, and should be able to do this by text-telephone, fax, and/or e-mail.

**New media**

If your productions include ‘new media’ such as CD-ROM, DVD or DVD-ROM, it should be very clear on the outside of your production, what hardware is required to play these media. Customers with installation problems will want to contact you – preferably 24 hours a day! If you can’t afford a full-time helpdesk, include information on the cover of your production how and when users can contact you.

**Frequently asked questions**

If you have a website, include a section for ‘frequently asked questions’. Use visuals to support the questions as well as the answers. Translate questions and answers in sign language, and publish these videoclips on your website.
20. BACK TO THE BEGINNING

And then: The end? Go to Hollywood and collect your Oscar?

No, back to the beginning!! Compare your plans with your outcome. Watch your video with people who do and with some who don’t like it (yes, there will always be some people who don’t like it). Try to find out what you did right, what you did wrong. And then: start all over again, with your next production.

Too many persons and organisations in the signing books field stop after one production, or start every new production as if it was their first one. Don’t! We need to learn, to build up a tradition, to develop conventions, if only for the new generation to be able to break with them and to come up with new, innovative, improved solutions.

What you’ve read in this manual are only the very first steps, the very first pages of the history and the art of sign language video production in the EU. Please continue, and start thinking about part II, III, IV etc : the continuing story of signing books for the Deaf.
PART IV

GLOSSARY

Captions, subtitles
Lines of printed text on the screen that are direct representations of spoken, signed text in a programme.

ChromaKey
A method of representing two separate video signals simultaneously on a screen, with complete, partial, or no overlap between the two signals. When used for sign language videos, it is as if the signer stands in front of a movie-screen on which the other video signal is projected.

Gloss
A gloss is a printed word used as a graphic representation of a sign. Glosses are not exact translations of signs. A text printed in glosses is not a complete representation of that text in sign language. Glosses are usually written in capital letters.

Picture-in-picture, sign language bubble, box
A method of representing two separate video signals simultaneously on a screen, with no overlap between the two signals. The second signal is shown in a box somewhere on the screen. The box can have any shape (bubble, square, oval) and size, and can be placed anywhere on the screen. The edges of the box can be clearly demarcated or can blend in with the background.

Voice-over
Spoken language that is recorded later and added to a production, e.g. a translation of sign language texts that are presented on the screen.
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APPENDIX TO THE GUIDELINES: GETTING DIGITAL

INTRODUCTION

This appendix tries to provide information for people who start using digital video. Information in this appendix is not based on actual research carried out in the Signing Books project but on our own experience with new technologies. We try to address the issues most frequently raised by the users of the Signing Books helpdesk and will provide relevant references.

You might find the information in this appendix useful if you are in one of the following situations:

- You have no video equipment, but need to decide how to start.
- You have analogue equipment, but you want to produce a CD-ROM or DVD.
- You have analogue equipment, and you want to replace some old stuff with new technology.

Many of the persons who contacted the Signing Books helpdesk during the past two years asked us to provide as detailed information as possible, e.g. to give order numbers for specific products. While we were happy to tell them about our experiences with certain equipment, we did not actually recommend specific solutions for a variety of reasons:

- Even this special market has become so large that only a couple of people to have a good overview.
- Most product-specific information would be out of date at the time it is written: The time on market for most products in the computer industry has fallen to below one year. This is even truer for digital video technology.
- The quality of a product highly depends on the quality of support available in a specific region. You may be better off if you choose a product where you can find a regional support and/or an experienced dealer than to purchase cutting-edge technology as an early bird.

The same holds true for this appendix: We will only list specific products if they are representative examples or if they have become de-facto standards.

This text in no way tries to replace books out there in the market. Instead it tries to be a short introduction into the subject with special attention to the target group, i.e. producers of SigningBooks. We suggest that you have a look at the relevant literature on specific topics if you need more information. Keep in mind that there are others who in the past may have faced problems similar to the ones you are currently confronted with and who can share their experiences. One of the most important outcomes of the SigningBooks Symposium in Hamburg in November 1999 was that participants were very open-minded about cooperation. Other players in the SigningBooks domain are rarely seen as competitors, but rather as companions on the way to better products. So make use of this opportunity and contact other people in the field from all over Europe!

The following three chapters describe the technological basics while the final chapter tries to summarise the information in the light of the decision you have to take.

HOW DO THE MOVING PICTURES GET INTO MY COMPUTER?

When video technology was born with the definition of television broadcast, transmission technology was based on analogue encoding: a television signal was transmitted using modulation of a radio signal; the higher the signal to be encoded, the "higher" the modulation. This was true for the whole chain from generating the TV picture to the TV set in consumers' households, and it was kept the same when adding pieces like VCRs to the scene.
The digital revolution – with the computer creeping into every machine – only changed part of the story: While some types of equipment became digital inside, video transfer remained analogue until only some years ago (and in most cases is: Digital TV is still in its infancy). For example: in cameras, the electron valves were replaced by sensor (CCD) chips which operate digitally. But then, inside the camera, the digital signal was converted to analogue, to be transferred to the next piece of equipment which may need to return to digital format. This means that a lot of unnecessary conversion takes place until the video images reach the viewer, resulting in a loss of quality. About ten years ago, the first high-end recorders appeared with digital in and out. Unfortunately, vendors did not agree on a common standard, and technology was meant for the high-end market of online and offline editing systems and therefore did not have a major impact on the technology in general. This may now change because IEEE1394 (aka FireWire is becoming more and more popular: there are now "DV" cameras that work digitally from the chips to output, including storage, in a price range close to consumer-level (around 1500 EUR in 12/99). There are also computers that have FireWire-capabilities built-in or that can be equipped with appropriate extra cards for this purpose (starting at about 1400 EUR in 12/99). Connecting these two by a simple cable, you have a relatively low-cost system with transfer quality which three years ago was only achievable in price ranges of at least fifty times higher than today!

**From digital equipment**

When using FireWire technology, all you need is a cable to plug your camera into your computer and a program to store an incoming video stream to your hard disk. (You might find such a program bundled to a FireWire-equipped computer.) With a data rate of 25 MBit/s (or even 50 MBit/s for DV50), it is quite easy to fill up your hard drives. So keep in mind: You need huge hard disks if you want to work with DV input. You will also see that your computer has a hard time playing back DV files as DV decoding is computing power intensive. If you plan to make the video footage available on CD-ROM or DVD, you will have to transform it to another format (cf. the heading "Compression" in the next chapter).

If you want to edit your DV footage and then transfer it back to DV cassettes, leave it as it is.

**From analogue equipment**

To transfer analogue video to your computer you need a so-called digitizer board. (Actually, a digitizer may be built into your computer, or it may be a separate box connected via USB or SCSI.) The digitizer transfers analogue video which comes in via a video cable to digital format.

The quality of the video in your computer depends on three factors:

- The quality of the source material needs to be as good as possible. The higher the tape quality, the better your results will be, i.e. S-VHS is preferred over VHS, and Component Signal is preferred over S-VHS.
- The digitizer board plays an important role. You should not necessarily buy the cheapest board you can find. Also keep in mind that different video systems require different input jacks for the digitizer. If you have a high-end BetacamSP recorder and your card can only input S-VHS, you will waste quality.
- The compression you choose for the material to go through after digitisation and before the material is stored on the hard drive is very important. An uncompressed full-format video stream would result in a data rate of 250 MBit/s. Even if your computer were fast enough to handle that much data, your hard drives would be full in seconds. Therefore, most digitizer boards have compression hardware on board, with M-JPEG being the most popular format.
Working with large amounts of video clips

If you plan to work with large numbers of videos to be digitised, it is very convenient if you can enter an edit-list (time codes for beginning and end of each clip) and then ask the computer to process that list. The computer then tells the VCR to jump to the required position on tape, and then records the incoming video until the end is reached. With FireWire, you only need software to handle this process as the required connection is built into the FireWire protocol. With other technologies, you do not only need the appropriate software, but also hardware to command your VCR. In many cases, a simple RS-422 cable is all you need, but there are a variety of implementations on the market, and you have to check what fits to the VCR you have.

HOW CAN I MANIPULATE DIGITAL VIDEO?

When you have finally managed to get your video into your computer, what do you do with it except playing it back to verify that all went well? Well, you may not even be able to play back your movie before compressing it. Anyway, you probably do not want to keep the movie as it is, but apply changes.

Editing

Editing means cutting out pieces, rearranging stuff, adding stuff you already have lying around somewhere, adding titles, effects, etc. For this purpose, you need an editing software that allows you to manipulate the digital video files as you like. As usual, you will find simple programs basically for free and highly sophisticated programs for a lot of money.

Cropping and Aspect Ratio Correction

Unless you want to output the material to where it came from, you will probably need to cut off parts of the original to make it fit the width-to-height ratio of the target system, e.g.: when going onto DVD, you can choose between ratios of 4:3 and 16:9. If you do not cut (crop) your movie, it will probably appear distorted. But even when going for a CD-ROM or some other computer-based target, you might want to cut off some rows of the input video signal as the bottom-most lines of most video signals contain nothing but noise. DV poses an additional problem: When going from DV to computer-based display, you need to compensate for the non-square pixels that DV uses. While these formats look normal on a television screen, they do not on computer screens that can only display square pixels, resulting in a display that is too wide. Special software is needed to compensate this problem, resulting in a slight blur in the target image.

Compressing

Regardless whether the video comes from digital or analogue sources, it is kept in files on your computer. In most cases, the file format is a wrapper around the actual data that is the compressed form of a sequence of images (frames). If you have PAL or SECAM input, you should end up with 25 frames per second, each of them containing approx. 1MByte of uncompressed data. This demonstrates how important compression is: One single minute of uncompressed video frames would take up 1.5 GByte on your hard disk. Compression can bring down these data rates by a factor of 40, ending at less than 40 MByte per minute.

Almost all compressors used in video technology are "lossy", i.e. they modify the picture in a way that makes compression easier which results in a loss in quality. In general, the higher the compression factor, the more quality you loose. However, compressors differ in what aspects of the movie they pay attention to. Some compressors reduce the number of colours in the image, some
introduce pixel noise, some take forever to do their job. It is a whole science for itself which compressor to choose for a certain task. The best advice is: Try out yourself with your own material!

A data rate achieved by compression might look a lot better than without compression, but is still far too much for many applications. (Consider that a CD-ROM could only contain 15 minutes of video with a data rate of 40 MByte per minute, taking for granted that data can be read off the CD fast enough.) To further reduce the data rate, you can choose to reduce the size of the image, or the number of frames per second during the compression process. (That is why in the beginnings of digital video one always found these stamp-size movies.) E.g. by reducing height and width of the image to one half each and going for 12.5 frames per second instead of 25, you typically reduce the data rate by a factor of 8. As with the choice of the compressor, there is a trade-off you have to decide about in view of your own application context.

At http://www.codeccentral.com, maintained by Terran, Inc., you find a lot of information on when to choose which compressor. The web pages show different demos that can help you to decide which compressor works best with your type of video. However, if you are planning to output your digital video to video cassettes, be it in digital or analogue format, your main concern is not to make the video as small as possible, but to keep the quality loss to a minimum in order to achieve an output on tape that is not recognisably different from what you had captured into your computer earlier on. Therefore, you would choose a compression that allows you to fit all the material you need on your hard disks and maybe to have good playback quality, but not going beyond that.

If you are going to produce a DVD, you have the choice between MPEG-I and MPEG-II, where MPEG-II will be the preferred option in most cases. Also, a lot of the compression details will be dictated by the DVD standard.

While some high-end video editing software packages have proprietary formats or rely on standard file formats (such as OMFI, cf. http://www.avid.com/3rdparty/omfi/index.html) for storing compressed video, the majority of programs use the file formats provided by one of the major video architectures, such as QuickTime, RealSystem G2, or DirectShow and Windows Media Technologies (as successors of AVI, and Video for Windows).

Since not all compressors are available for all video architectures, your choice of a compressor may already decide which architecture to use. Or the other way round, if you want to work within a specific architecture (maybe due to its availability to your customers or its compatibility with your editing software), your choice of compressors may already be narrowed down.

**Adding navigation capabilities and interactivity**

One of the major disadvantages of classical video is its lack of navigation possibilities for the user. In the best case, a videocassette is accompanied by a printed table of contents referring to certain points of time on the videotape by means of time codes. Unfortunately, home video equipment is not very precise when it comes to working with time codes.

Often the user has to rewind or forward the tape until the counter is quite close to the time code given in the table of contents. A number of additional features found in some productions can help you to find out where you are when viewing or searching with picture: Coloured backgrounds matching chapters, the insertion of chapter numbers or chapter headings, etc. Going digital gives you a lot more freedom; nevertheless, video remains a primarily linear medium.

What exactly you have available when using digital media depends on the medium.

On DVD-Video, tables of contents on the medium itself are standard. The user knows which button to press to view the table of contents. The creator of a DVD has some freedom in designing the table of contents. You are not bound to text headings, but instead can use graphics or even moving images to
represent each part of the video. Even with the extended possibilities of inserting tables of contents, extra movies, etc, DVD-Video – measured by its usage concept – is only a small step beyond VCRs: DVD-video productions are centered around one video stream visible to the user. The medium does not easily lend itself to simultaneous information presentation (such as a signer overlay) or to cross-links in the video.

On CD-ROM or DVD-ROM, you have the largest degree of freedom. CD-ROM/DVD-ROM productions often have tables of contents; in addition, there are more design capabilities than for DVD-Video. A few CD-ROM productions go beyond that by adding information to the video timing that is displayed concurrently with the video or that allows the user to access external information or to jump to different parts of the video.

Technically, this can be achieved by different architectures:

In QuickTime, the movie author can augment the video by making it "wired movies". Certain areas of the video at certain time intervals can be linked with special actions that are executed when the viewer clicks on the right place at the right point of time. Or the movie can direct a web-browser to show certain URLs at certain points of time, possibly resulting in a movie with background information available from self-created or referenced World Wide Web pages.

In SMIL, an XML application (kind of successor to HTML), several time-based services can be synchronised. An example would be two video streams where one starts when the other one pauses. Thus, you could create a World Wide Web page where two signers take turns in telling a story, without wasting bandwidth by making one large video which shows both signers. Displaying static contents from certain URLs connected to points of time in the video is, of course, also possible. In this architecture, the viewing environment, e.g. the WWW browser, plays the central role, because it starts and stops videos as defined by the SMIL document; the videos themselves remain largely unchanged.

There are different predecessors to this technique of using markers in the video, e.g. by inserting beeps in an inactive audio track.

The technology of wired movies, independent of how they are implemented, allows for interactivity: It is not only the script writer who plans the course of actions, but the user can intervene by selecting from different options, or by answering some kind of multiple-choice questions. To a certain degree, this is also possible with DVD-Video technology. However, as this technology was not tailored to this type of use, most authoring environments are not either. A lot of effort is therefore necessary to accomplish something that is comparatively easy in computer-driven environments.

**HOW DO I OUTPUT DIGITAL VIDEO?**

**To analogue video**

Until only a couple of years ago, digital movie files were never output to analogue video since the resolution of the files was too low. Instead, working in the computer with a low-quality digital copy produced so-called Edit Decision Lists (cutting instructions) that were handed to a cutting system that mixed pieces from the various sources by controlling one or more VCRs with the original material to copy the right scene at the right point of time to another VCR recording whatever the cutting system mixes in. High-end non-linear systems such as the AVID system still can use this approach, only supplying digital footage if that had not originated from VCR sources or had been modified in the computer. However, most systems can now "print to video", i.e. play the video to a digital-to-analogue converter that can be plugged as source into a VCR. For this to be of reasonable quality, it is essential that the spatial resolution of the digital film equals that of analogue video.
To DV video

In theory, it is quite easy: Press record on your DV equipment, and use your DV editing software to play to DV. In practice, there are two obstacles:

- Many DV cameras sold in Europe cannot record from DV input. (In fact, the functionality is there, but is blocked in order to save custom taxes.) So if you are going to purchase a DV camera as the only DV equipment (except the computer), be sure to buy one that can record DV sources.
- If, besides rearranging stuff that came from the DV source, you added pictures (e.g. graphics created in the computer) or special effects, these are probably not compressed with the DV compressor. Even if they are, the output to DV may fail if the material in your computer is kind of a patchwork. You may have to "flatten" your DV stream first before it can be successfully played back. For this, however, you may need the same amount of free hard disk space as for your almost-ready material!

To CD-ROM or DVD-ROM or to the Internet

If you had your target delivery system in mind when choosing the size and the compressor, you are probably there when heading for a CD-ROM or DVD-ROM production: You can add the movie films to the resources of the multimedia integration system you work with. But make sure that you test the end-results. Not everything that plays fine from a hard disk also plays fine when coming from CD-ROM. In the early days of CD-ROM the data transfer limitation of around 100 KByte/s was THE limiting factor when deciding about compression. But even today, when most CD drives are at least eight times faster, data rate peaks in the video stream may cause problems. For a movie to become part of a web-site, an additional step may be necessary: For long videos to be downloaded from a web server, users might experience better downloading if you choose a real time streaming protocol (RTSP) instead of HTTP, the standard for web delivery. For optimal delivery via RTSP, hinting is recommended, i.e. adding markers that tell the server in advance what is coming next. This hinting process can be done in most up-to-date video compression programs.

To DVD-Video

A DVD playable in a standard DVD player is nothing but a DVD-ROM with special contents as the contents needs to be played back by a program the functionality of which has been defined some time ago. For example, this means that all video files need to be in either MPEG1 or MPEG2 format. As MPEG, especially MPEG2, is not very handy for editing, you probably have worked with another compression scheme. Therefore, the whole video contents need to be converted to MPEG2 in its DVD-variant. You often find the necessary converter as part of DVD authoring environments that you use to create tables of contents, define what to happen if the user presses a button on the remote control, etc. As MPEG2 encoding is very computing-intensive, it is recommendable to have a hardware-supported solution if you plan to produce DVDs regularly.

WHAT IS SPECIAL FOR SIGN LANGUAGE PRODUCTIONS?

Bluescreen and DV

DV cameras offer a superb quality when compared to similarly priced analogue cameras. On the other hand, DV itself is also a lossy compressed format. For example it uses a technique called colour subsampling 4:2:0 (for PAL, as does MPEG). This can turn out to be a problem with signers when using bluescreen technology: The signer signs in front of a blue background, and the background is later on (in the computer) replaced by still or moving images. The colour ramps resulting from the DV compression at the edge of the signer's body may then be to coarse to faithfully separate the signer from the background, resulting in some artefacts at the border of the signer and the new background in the target material. This is not so much a problem with speaking moderators as other techniques
such as soft masks can be used to compensate, but it is with signers since they are moving all the time. The solution is to use the higher quality DV format DV50 with twice the data rate (and, of course, "slightly" higher prices for the cameras).

Audio quality

Audio quality today is not a problem for computers as the data rates needed for excellent sound are negligible when compared to video. For CD-ROM or DVD-ROM you might even go below usual standards to save some bytes which you can then spend on slightly better video as this is more essential in your context. What is annoying with technology such as DV is that you cannot tell your camera not to record sound which means that you have to delete sound tracks over and over again if you are working on a project without sound.

Frame rates and movement reception

One of the common practices to save bandwidth in CD-ROM, DVD-ROM, or Internet applications is to reduce the number of frames on a video from the standard 25 to a substantially lower number. While in many circumstances the impression is good enough with only 8 frames per second, this is not true for sign language with its relatively fast movements. The minimum rate depends, of course, on the signer(s) in front of your camera; but you will probably find that 12.5 frames per second is the minimum before viewers complain that signs are difficult to recognise. But even with this frame rate, some movements do not appear as "smooth" as they should. In the literature, you often find the recommendation to use 15 frames per second. However, this is only true for NTSC with a native rate of approximately 30 frames per second (used in America). The idea behind using 12.5 fps for PAL or 15 fps for NTSC is the same: Every second frame is left out. (In the same way, other preferred rates are taking each third or fourth frame.) To achieve higher rates, however, you would have to leave out less than every second frame, resulting in an uneven distribution in time of the remaining frames. This is also recognised by the viewer as distorting the movements (the so-called "Judder" effect). So basically the choice is 12.5 frames or 25 frames (or something close to that).

Double fields and movement blur

For historical reasons, TV images do not really consist of 25 images per second, but instead of 50 half images per second that are interlaced: At one point of time, all odd lines are transmitted (the odd field), and 1/50 of a second later, the even lines are transmitted (the even field). This means that there is a time difference between two adjacent lines of a frame as you see it on a computer monitor (non-interlaced). With quick movements, this can easily detected from the zigzag lines showing that the object has moved during that 1/50 of a second. And: This clearly shows with signing. To avoid this problem when going from interlaced to non-interlaced, it is the easiest to simply throw out one field and to only work with the other one. Of course, this costs spatial resolution, i.e. quality. And this explains why quarter-screen movies are quite common on CD-ROMs: They are the largest format that can be squeezed out of an interlaced format by throwing away one field.

Even modern DV technology works with interlaced frames. However, there is an exception: Some cameras offer "progressive scan" technology which is nothing else but shooting the image in non-interlaced mode, i.e. really 25 full frames per second instead of 50 half frames per second. As price differences are not that high, we consider this feature highly recommendable for DV cameras to be used as input for signing CD-ROM or DVD-productions.

Subtitling

Even in signing books productions, subtitles may play a significant role (cf. the main part of this deliverable). In closed captioning, subtitles are only visible if the user switches them on, while open
captioning means that the subtitles are visible all the time which might be annoying for people who cannot or need not make use of them.

While closed captioning is quite common in television, it is relatively new for video, and many VCRs are still not capable of handling closed captioning. Keep this in mind when planning for your target group.

On DVD, on the other hand, subtitling is a standard user-selectable feature. In many productions, the user can choose between dozens of languages for the subtitles, sometimes including simplified language.

The production of subtitles for DVD is as simple as it is for the major computer video architectures: You create a text file associating time codes with specific parts of the text, where necessary, formatting options are added. This file is then imported into the movie as an additional text track. So if it makes sense for your production, do not leave out subtitles: they are not too much work (assuming that you have a text version of your script), and you do not need any additional software.

For computer video architecture you have an extra option: As you are free in the video frame aspect ratio, the subtitles need not overlay the video images but can be outside.

**HOW SHALL I DECIDE?**

Now that you have found your way through this appendix, you still do not know what to buy? We tried to give you some background knowledge on which you may base your decisions. In the usual case of limited budgets, you will still need to decide where to trade off. Only you can do that because you know what you want to produce and what will be most important in your future productions. And whatever you then decide to buy, be assured that there will be a better solution available only three months later. But do not blame yourself for that; this is the current speed of technological innovation.

**WHERE CAN I FIND MORE INFORMATION?**

- MPEG: [http://www.mpeg.org](http://www.mpeg.org)
- SMIL: [http://www.w3.org/AudioVideo](http://www.w3.org/AudioVideo)
- XML: [http://www.w3.org/XML](http://www.w3.org/XML)
- HTML: [http://www.w3.org/MarkUp](http://www.w3.org/MarkUp)
• Compression schemes and computer video architectures: http://www.terran-int.com/CodecCentral/

On many of these subjects, you can easily find dozens of books. When you think about buying one, keep in mind how fast technology moves on: The book should not be older than approximately a year.

None of these sites can tell you how to become a good cutter. This is an area where consulting one of the many books on the market is the second best solution after being taught by someone who knows…