Sign Bilingualism

Language development,
interaction, and maintenance
in sign language contact situations

EDITED BY

Carolina Plaza Pust
Esperanza Morales López

Sign Bilingualism

Studies in Bilingualism (SiBil)

The focus of this series is on psycholinguistic and sociolinguistic aspects of bilingualism. This entails topics such as childhood bilingualism, psychological models of bilingual language users, language contact and bilingualism, maintenance and shift of minority languages, and socio-political aspects of bilingualism.

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Volume 38

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Angela Vecchietti, teacher at Kindergarten, Institute of Specialized Instruction for the Deaf, in Rome. In 1990 she started the first Italian bilingual experience accepting hearing children into the school for the Deaf. She trains new young teachers and has been invited to several workshops throughout Italy to describe the school curriculum she has been developing in the last 15 years to foster, in particular, cognitive, visual, manual and linguistic skills of young children.

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Jun Hui Yang, PhD., is a lecturer in Deaf Studies at University of Central Lancashire. She was born in Beijing and became deaf at the age of four. After graduating from Capital Normal University in China, she taught Chinese language at Beijing Fourth School for the Deaf. She obtained a Masters degree from NTID/RIT in 2000 and a PhD in Deaf Education from Gallaudet University in 2006.

Foreword

Carol Padden

Until very recently, most of my academic life has involved the study of sign languages of North America and Europe. In the Western world, sign languages are largely organized around schools for deaf children, many of which were founded during the eighteenth century in Europe and the nineteenth century in North America. Deaf schools have become durable institutions, drawing together deaf children who would not otherwise know each other into the same space. As they leave school, they form communities that continue their links to schools through deaf associations and other social groups. Over the years, generations of deaf signers have transmitted their language across centuries in this way. It was not until I joined a research team studying a new sign language used by a community of Bedouins in the Negev region of Israel, that I saw an entirely different context for the co-existence of sign and spoken languages. In this region of the world, deaf schools are comparatively more recent institutions, established only in the middle or late twentieth century. In the Middle East, there are communities of deaf and hearing signers who transmit their sign language across generations, not through schools, but within their small villages and tribes. In such cases, deaf and hearing signers know each other, indeed, they can be relatives, and share close family ties within their communities.

It is a fact about deafness that nearly all sign languages live alongside spoken languages. Deaf people almost always have hearing relatives and work with hearing people, bringing sign and spoken languages into contact. But the ways in which the languages meet, and how they are used can be very different from one community to another around the world. In the US, as in parts of Europe and Canada, there is a great deal of borrowing from spoken language to sign language, but in the small Bedouin community where our research is located, spoken and sign languages exist almost in parallel. The older signers in the village do not use either fingerspelling or mouthing which are two of the common and visible ways that sign languages borrow spoken language material in the Western world.

This book explores bilingualism of a sign and spoken language from multiple perspectives. It asks questions about language structure, how sign languages borrow words, phrases or structures from spoken languages. For the most part, sign languages borrow from spoken languages, not the other way around. Sign languages are typically

minority languages in any nation, and the burden is in one direction, to accommodate spoken language. This book also asks about bilingualism in individuals, how deaf and hearing people manage to be bilingual across modalities, juggling demands in visual as well as spoken languages. Among individual signers, cross-modal interaction can occur bidirectionally, providing important insights about how bilinguals take advantage of their resources. And finally, in certain places around the world, bilingualism has become a means and a goal in deaf education, as deaf and hearing children and adults use bilingual behavior in classrooms and schools.

Bilingualism in two languages can take different forms, from using the two languages more or less separately in different settings or domains, or it can involve code switching and code mixing, as bilinguals switch between two languages in a speech event. How might language contact phenomena be realized when one of the two languages is signed and the other is spoken? How do sign language communities resolve the modality divide, and incorporate spoken language material within the bounds of signed sentences, or conversely, from sign to speech? The answers to these questions are within these pages; indeed the articles that comprise this volume offer a compelling account of human biology and culture at the service of language and communication.

As these chapters show, bilingualism is very much a social and cultural phenomenon. How communities organize their lives reveals a great deal about how their members use language. Among deaf communities around the world, sign languages vary in how extensively they incorporate spoken or written language elements into their structures through manual systems such as fingerspelling and oral systems such as mouthing. American Sign Language, for one, borrows heavily from written English in the form of fingerspelling while other European sign languages use this strategy much less. In yet other deaf communities, sign and spoken languages exist more in parallel and little of one language is borrowed into the other, even among bilingual individuals.

Translating the many possibilities of human communication into educational practice is another principal task of this volume. This book rejects the view still in force in many places around the world that deaf children should not use sign language, instead should learn spoken language exclusively through oral education. In place of the oral view, this book recognizes that sign languages are the hallmark of natural (that is, not planned or interventionist) communities of deaf and hearing people, and that sign language has an instrumental role in the education of deaf children. Given this view, how might a sign and a spoken language be organized together as a means of educating young deaf children? Bilingual deaf education has offered some of the most innovative approaches to educating young and older deaf children because it draws from what we have learned in the last few decades about language and cognitive development in young hearing and deaf children. As a name, "bilingual deaf education" is new, reflected in the fact that the chapters that follow describe educational efforts carried out only recently. The level of detail that we can use to describe bilingual behavior across modalities, particularly in young signers, rests on years of research into the structure of sign languages. Work on bilingualism in turn has been translated into recent experiments

in classrooms around the world from North America to Europe and to China, where sign and spoken languages are used together in the education of deaf and hearing children.

The rationale for bilingual deaf education draws from principles of bilingual and multilingual communication around the world, but it is not uncontroversial. As an audiologist who works with young deaf children with cochlear implants explained to me, doctors and audiologists do not recommend sign language to parents with implanted children because they believe that linguistic differences between spoken and sign languages are so great as to be difficult to overcome. This book shows that bilingualism in a sign and spoken language, as it is used by a large and significant population of deaf and hearing adults around the world, is a practicable goal in deaf education. It develops naturally in many families with deaf parents and hearing children with no known deleterious effects. Indeed, there has been no evidence that hearing children growing up with a sign and a spoken language are at any educational disadvantage. Millions of hearing children grow up speaking two or more languages which are structurally very different from the other, for example, Chinese and English, or Vietnamese and English. Neither Chinese nor Vietnamese have plurals or verb agreement, in sharp contrast to English, but no one is making the case that children learning Asian languages will be at a disadvantage if they are also learning English.

Bilingualism, indeed multilingualism, is a natural state in large areas of the world, in sharp contrast to the Western world in which monolingualism is more common. Deaf children and adults who migrate across international boundaries bring their sign languages with them, resulting in a complex language situation of not only bilingualism across sign languages but multilingualism with spoken (and written) languages as well. One of the key elements of bilingual deaf education is that it takes into account that children can have different sets of knowledge organized by different languages, a fact that goes unrecognized in a monolingual curriculum.

This volume is timely and necessary. For those of us who do research on sign languages in the age of cochlear implants and genetic engineering, it is absolutely essential that we marshal the forces of science to demonstrate the depth of the human capacity for language. Indeed, without sign languages much of what we now know about the human brain, human language and human culture would be less rich and detailed. Using hearing and deaf bilinguals who know a sign and a spoken language, we have been able to probe the effect of early acquisition of sign language on the developing brain. From deaf cultures around the world, we are finding that there are a significant number of skilled deaf readers who learn to read and write in a language they do not speak aloud, or hear directly. If spoken language phonology is said to play a role in how hearing children learn to read, what role does it play in deaf children who do not hear it directly? Can sign language instead play a role in reading development? If so, how is this achieved in young deaf children? Which elements of sign language link to comparable elements in spoken language that we already know contribute to reading development? What does it mean to cross modalities in order to become literate in a spoken

language? These are questions that bring us to the heart of human cognition and language, made possible by exploring a phenomenon that happens around the world time and time again: the natural co-existence of a sign and spoken language in a community of humans.

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Acknowledgements

While *Sign Bilingualism: Language Development, Interaction, and Maintenance in Sign Language Contact Situations* grew out of our interest in signed languages, language development and language use in bilingual signers, and the realisation that our own research projects could not capture the breadth and depth of current research into this type of bilingualism, we owe much of the impetus to engage in this endeavour to many colleagues, students and friends who encouraged us with enthusiasm to go ahead with the project, contributing also in various ways to the completion of this book. The result is a volume that explores sign bilingualism from multiple theoretical perspectives in diverse social contexts, providing valuable insights into the richness of the field, and, we hope, stimulation for future work.

For us, putting together this volume has been both a challenging and a rewarding endeavour. Through this co-operation we have learned how enriching collaborative work can be, particularly because it involved going beyond our own individual theoretical positions to approach sign bilingualism from an open-minded, inter-disciplinary perspective. We know that this is not obvious and are particularly grateful for this experience. The dialogue that has emerged from this project has also strengthened our conviction that while we are but at the beginning of a long journey, current research into sign bilingualism significantly contributes to our understanding of the intriguing dynamics of language in its multiple dimensions.

We are particularly grateful for the inspiring work of the contributors, their patience and their readiness to respond to our editorial requests. We hope they are reasonably satisfied with a volume that will prove useful to students and scholars who are familiar with sign bilingualism and to those who are not.

We owe a special debt of gratitude to Annette Hohenberger, Michele Bishop, Daniel Daigle, Ilka Dittrich, Susan Fischer, Robert Hoffmeister, Jörg Keller, Mieke Van Herreweghe, Clara Martinot, Philip Prinz, Xoán Paulo Rodríguez-Yáñez, and Kristina Svartholm, who devoted their time to comment on various chapters, providing thorough and thoughtful suggestions for improvement.

We thank Kees de Bot, Thom Huebner and Dalila Ayoun for including this book in the *Studies in Bilingualism* series, and are grateful to the staff of John Benjamins for their care and attention in the production of this book.

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Frankfurt am Main and A Coruña,
Carolina Plaza-Pust and Esperanza Morales-López

"… once exposed to the bright lights of science and the public's interest, Deaf language and culture irreversibly changed. They certainly became more self-conscious, more deliberate, and more animated, in order to take their place on a larger, more public stage."
Carol Padden and Tom Humphries
(*Inside Deaf Culture* 2005: 130)

Code-mixing in signs and words in input to and output from children*

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Drawing on a longitudinal data collection of six children (three hearing, three deaf) learning Dutch and Sign Language of the Netherlands (NGT) in deaf families, this chapter explores the amount and types of simultaneous mixing (code-blending) of signed and spoken language elements in the children's linguistic input and output. The hearing children receive far more code-blending in their input than the deaf children; they also produce more than the deaf children. The types of code-blending also differ between the two groups of children. The factors that determine these differences appear to be the language ability of the children, the input and the language choice. Finally an analysis of the classes of signs/words shows that more nouns than verbs are code-blended and more verbs than adjectives/adverbs, pronouns, or question words. Linguistic factors and the input seem to play a part here.

1. Introduction

Sign language users very often are bilingual in as much as, in addition to using the sign language of their community, they also learn and use the spoken language of the surrounding community. According to Muysken (2000), when bilingual users communicate with each other, they typically mix their languages, that is, they use elements or structures from their two languages. Mixing is the result of the influence of sociolinguistic factors such as the interlocutor, the situational context, etc. (Meisel 1994), and the choice of languages can be a conscious or unconscious process. Mixing often indicates high language proficiency rather than insufficient language ability (Milroy &

Muysken 1995). According to this reasoning, it would not be surprising if sign language users in communication with each other also often mix their languages. However, it must be remembered that spoken language is not directly accessible to deaf people, usually only through speech reading. In contrast to mixing that involves two spoken languages, when the languages produced are a signed and a spoken language, these can be combined simultaneously in time. This simultaneity poses extra challenges to the analysis of bimodal mixing at many levels. In the Western sign languages studied thus far mixing appears to be frequent since the spoken language and the signed language are continuously in contact with one another. Many questions can be asked such as what the function of mixing is, how this mixing should be described and what the psycholinguistic and sociolinguistic implications are. This chapter hopes to answer some of these questions shedding light on the phenomenon of mixing in general.

With respect to the functional/sociolinguistic aspects of mixing, research by Lucas and Valli (1992) has shown that deaf adults in the USA mix spoken English and American Sign Language (ASL) amongst themselves. They also found that deaf adults produce mixing in interactions with hearing people bilingual in ASL and English. This mixing is, of course, to be more expected here than with deaf participants, since hearing participants have full access to the spoken language. Hearing status is certainly not the only factor that determines the amount of mixing, however, since the sociolinguistic situation in deaf communication is quite complex (see Plaza-Pust 2005). Later research has confirmed Lucas and Valli's findings for ASL and English (see Berent 2004, for an overview). Berent also uses the term "mode-mixing" for mixing where a sign language and spoken language are involved.

Emmorey, Borinstein and Thompson (2005) have studied the language production of hearing ASL-English bilinguals, that is, adults who are the children of deaf parents (Codas). They designed different types of interaction situations: first, in retelling a cartoon film, the participants were expected to produce speech and sign or gesture, indeed the participants were explicitly told that it was possible to use both languages with a bilingual partner; in a second monolingual situation where a non-signer was the conversation partner, this was not encouraged. In a third situation, the participants were asked to use Sim-Com (simultaneous communication), that is, a form of sign supported speech, to communicate with their bilingual addressee. In the bilingual situation, the authors report that nine of the ten participants used mainly English: 95% of ASL signs co-occurred with English words as did 23% of the English words with an ASL sign. Emmorey et al. distinguish between code-switching and what they call "code-blending". Code-switching between sign and spoken language is, in their definition, to "stop talking and switch to signing ASL" (2005: 665). This was a relatively low percentage, around 6% in the bilingual situation. They define code-blending as "ASL signs produced simultaneously with English words" (ibid.: 666). The notion of blend is useful in that it contains the image of two closely knit elements. We will continue to use this term here to refer to the simultaneous mixing of signs and words.

Emmorey et al. also explore the grammatical forms in which code-blending occurs. They found for English/ASL that verbs were the largest category in which code-blending occurred (ca. 37%), followed by nouns (ca. 25%), adjectives (11%), adverbs (8%) and 18% in a category ´other´. They explain the prevalence of blending in verbs by arguing that English and ASL inflectional morphology can easily be combined since it does not have to be integrated (ibid.: 667) or can be adapted to match each other.

Mallory, Zingle and Schein (1993) were among the first to show that this code-blending also commonly occurs in the interaction between deaf parents and their hearing or deaf children in ASL and English. The acquisition process for children growing up with code-mixing in two spoken languages has been argued to be more complex in terms of separation of the languages involved. For children growing up with such a code-blended input, the acquisition process might be more complex than in a monolingual situation, although the evidence to support this is minimal (for a detailed discussion of this topic, see Petitto et al. 2001; Plaza-Pust this volume).

In the acquisition of Sign Language of the Netherlands (NGT) and spoken Dutch (Van den Bogaerde 2000), code-blending was also shown to occur to a considerable extent between deaf parents and their young children. Three deaf and three hearing children at ages between 1;0[1] and 3;0 were studied in interaction with their deaf mothers. The deaf children acquired their language milestones for NGT within the usual range, that is, they produced their first sign around one year and combined signs before two years (Van den Bogaerde 2000: 173; see also Baker, Van den Bogaerde & Woll 2005). However, they were only at the one-word stage in Dutch at age 3;0. The hearing children reached the same milestones for NGT at comparable ages to the deaf children. Their milestones in Dutch were comparable to those of Dutch monolingual children (see Van den Bogaerde 2000: 174–5). Both groups of children were bilingual (Van den Bogaerde & Baker 2002). The language input to the deaf children differed, however, from that to the hearing children in that more code-blending was produced with the latter group. The production of the hearing children reflected the amount of code-blending in their input; the deaf children produced less code-blending than was present in their input. This is seen as being related to their slower development of Dutch up to age three (Van den Bogaerde & Baker 2005).

Petitto et al. (2001) studied young children acquiring French and Quebec Sign Language (LSQ). The children were all hearing and aged between 0;10 and 4;3. On the basis of their findings, the authors argue that the children are not delayed in the acquisition of their early linguistic milestones, that is, their acquisition of their first word and word combinations in French and equivalents in LSQ (ibid.: 490). The children and adults both produce code-blending, which in their definition also includes the use of voice. Petitto et al. argue that the children are not confused in their acquisition, but differentiate between the two language systems from the initial production of signs and words. The code-blending observed (around 94% of the mixed utterances) is

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1.   1;0 means one year and 0 months.

primarily semantically congruent. By this, they mean that the same semantic content is expressed in the simultaneously produced sign and word. They also argue that the code-blending is semantically principled, which supports their argument for a differentiated system in the children from early on.

In this chapter, we wish to further analyse the code-blending in the input to and output of deaf and hearing children. The children involved in this study are the same children used in the research of Van den Bogaerde (2000), but here we cover the ages three and six years. We wish to compare the influence of hearing status on the development of code-blending. As was argued in Van den Bogaerde and Baker (2005), the lesser competence in Dutch in the deaf children may influence their use of code-blending. The input to the children will also be related to the children's output. In earlier research, the amount of code-blending in the input was shown to be of influence on the children's output (Van den Bogaerde 2000; Petitto et al. 2001). In this chapter, we will first quantify the amount of code-blending occurring in the input to, and the output from, the deaf and hearing children at the two ages. Secondly, we will further analyse the code-blending in terms of the base language used in as far as this can be determined. This will be done on the basis of the language that carries the full proposition of the utterance. Thirdly, we will explore the grammatical categories used in code-blends. Since the children are becoming more proficient in the two languages with age, there may be a change in the frequency of grammatical forms combined in blends.

2.   Method

2.1   Procedure

The data we discuss in this chapter are the result of a longitudinal study, in which four deaf mothers were filmed in interaction with their deaf or hearing children until the children were eight years old. Usually, the sessions lasted approximately 30 minutes. The participants were free in their choice of toys and typically sat at a low table with the toys or books on the table. The filming was done with a Panasonic Camcorder M7 CCD with a JVC monitor by the second author (for a detailed description see Van den Bogaerde 2000: 41–56).

2.2   Subjects

In Table 1 we present some background information on the four deaf mothers and the three deaf and the three hearing children participating in this study. Only two children (Mark and Jonas) were studied at age 6;0. They come from the same family and are in interaction with the same person, their mother.

Table 1. Information on the subjects participating in this study

	Hearing status	Age at filming	Mother	Father	Comments
Carla	deaf[2]	2;10:29	Deaf[3]; hearing parents	Deaf; hearing parents	one older deaf brother
Laura	deaf	2;11:11	Deaf; hearing parents, one deaf sister	hearing; Deaf parents	twin sister of Mark; younger sister of Jonas
Mark	deaf	2;11:11 6;00;06	Deaf; hearing parents, one deaf sister	hearing; Deaf parents	twin brother of Laura; younger brother of Jonas
Jonas	hearing	2;11:25 5;09:00	Deaf; hearing parents, one deaf sister	hearing; Deaf parents	brother to Laura and Mark
Alex	hearing	3;00:04	Deaf; hearing parents	hard of hearing; hearing parents	two older hearing siblings
Sander	hearing	2;11:12	Deaf; Deaf parents	Deaf; Deaf parents	two older hearing twin brothers

2.3   Analyses

Ten minutes of interaction were transcribed for each child from each of the recordings.[4] All utterances of the mothers and the children were transcribed and coded for language or type of language combination (see below). Unintelligible utterances and minors were excluded from analysis.

A string of signs and/or words that form a unit on a syntactic, semantic, and pragmatic level is considered an utterance (see Baker et al. 2005). For signed utterances, the utterance boundary was further established by noting when the hands went to a rest-position, for instance the lap, or in front of the body, on an object or on a person (see also Bos et al. 1988). For spoken utterances, pause-length and intonation were further indicators. For complex utterances, we followed the definition of Hunt (1970: 4) "one

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2.   According to Dutch convention, we use deaf for a hearing loss of 80dB or more. See Commissie NGT, *Méér dan een gebaar* (1997). We do not use a capital D in the case of small children since this would presuppose their cultural choice (Tijsseling 2005: 32).

3.   Deaf (capital D) is used for people who consider themselves part of the linguistic minority of Deaf people and use a sign language as their main means of communication.

4.   The session of Mark at age 3;0 lasted 6 minutes, 6 seconds.

main clause plus any subordinate clause or non-clausal structure that is attached to or embedded in it".

Furthermore, we looked at the following word classes in the signed and in the spoken production: verbs, nouns, pronouns, adjectives or adverbs and question words. Subsequently, we calculated the proportion of each word class produced bimodally, that is, in word and sign.

2.4   Coding

In the first instance, the analysis was carried out at the utterance level. Each utterance of mother and child in the ten minutes transcribed from each recording received a code according to the presence in the utterance of words and/or signs. There are three categories of utterances: Dutch, NGT and Code-blended.

I.   Dutch
An utterance that consists only of spoken words, with no signed elements present is classified as Dutch. This definition was applied very strictly, so gestures like pointing, head shakes or head nods when co-occurring with the spoken forms meant that the utterance was excluded from this category.

II.   NGT
An utterance that consists only of signs, no spoken (or mouthed) elements present (with or without voice) is classified as NGT.

III.   Code-blended
An utterance that consists of signs and words (produced with or without voice), in whatever combination is classified as code-blended.

For the subsequent analyses, all code-blended utterances were then subdivided in four types. This was done on the basis of the semantics of the utterance as is common in work on code-mixing in spoken languages where the notion of semantic congruence is often used. In this study, the proposition is a crucial concept for determining what we want to call the base language. This term originates in the area of creole languages, in which a creole is seen as, for example, English-based when the bulk of the vocabulary is drawn from this language (see Tracy 2000: 17–21 for a discussion of the problems of using different definitions in the context of language acquisition studies). Here we use the idea of a semantic base – for example, where the proposition is expressed fully in words with only semantically congruent signs, the code-blended utterance is classified as Dutch Base Language or Dutch BL.

Morpho-syntactic criteria were not used for this classification since we are dealing with emerging linguistic knowledge in children. The use of morphological elements to determine the Matrix Language in the terms of Myers-Scotton (1993a, b) could lead to an incorrect classification, since these elements are in the process of being acquired by the children. In the adult deaf mothers there is also incomplete competence in spoken

Dutch. All three mothers could be seen as being in a category between an L1 and L2 learner of Dutch (see Berent 2004). Furthermore, during the recording sessions the mothers were in interaction with their children and could be using a child-directed register that may involve the omission of certain structural elements. Verb morphology in a sign language, for example, is produced less frequently in child-directed input than in adult-adult interaction (Van den Bogaerde 2000; Baker et al. 2005).

The four types of code-blended utterances are:

1.   Code-blended, Dutch Base Language

A Code-blended, Dutch Base Language utterance is an utterance in which the proposition is expressed entirely in the words (used here as abbreviation for "oral words") and where the signs do not contribute additional meaning to the utterance (see example 1); in other words, each sign occurring is semantically congruent with one word. The utterance is usually structured more or less according to Dutch morpho-syntactic rules, but this is not a crucial criterion as discussed above. The examples are taken from our database unless otherwise specified.

> (1)   Mother of Jonas (age 3;0), utterance 105[5]
>
> | Signed | | | VALLEN |
> |-------------------|-------|-------|--------|
> | translation | | | fall |
> | Spoken | die | gaat | vallen |
> | translation | that | goes | fall |
> | Free translation | 'That [doll] is going to fall' | | |

In example (1)[6] the sign VALLEN ('fall') and the word *vallen* belong to the same word class, and are semantically congruent in the lexical meaning of the verb. However, the form of the verb VALLEN offers more information than the Dutch verb *vallen* since a classifier is used and indicates the category of the subject of the verb. We will return to this aspect later and discuss its relevance for the interpretation of the data. The Dutch part of the utterance is a perfectly grammatical Dutch utterance and the sign does not contribute any extra component to the meaning of the utterance. Dutch is the base language of the utterance.

2.   Code-blended, NGT Base Language

A Code-blended, NGT Base Language utterance is an utterance in which the proposition is expressed entirely in the signs, and where the words do not contribute additional meaning to the utterance (see example (2)); in other words, each word occurring is semantically congruent with a sign. The utterance is usually structured more or less according to NGT morpho-syntactic rules, but this is not a crucial criterion as discussed above.

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5.   Numbers refer to the utterance number per transcript.

6.   In the line 'signed' the signs are glossed in Dutch, in the line 'spoken' the spoken components are written (mouthings, see Boyes Braem and Sutton-Spence 2001). For convenience sake, the signed and spoken elements are translated into English in the examples. In the final line we give a free translation of the whole utterance.

(2)   Mother of Jonas (age 3;0), utterance 57

Signed	INDEX$_{hij}$	JAS	BLAUW
translation	he	coat	blue
Spoken			blauw
translation			blue
Free Translation	'He has a blue coat'		

The sign BLAUW and the word *blauw* ('blue') belong to the same word class and are semantically congruent. The word can be considered semantically redundant in this utterance. The utterance is structured following the grammatical principles of NGT. NGT is clearly the base language.

3.   Code-blended Mixed

A Code-blended Mixed utterance is an utterance where both the signs and words are necessary to make up the full proposition (see examples (3a) and (3b)). There are two possibilities here with the simultaneously uttered elements, i.e. the sign and the word can belong to the same word class, but are semantically different (example (3a)) or they can belong to different word classes as in example (3b).

(3)   a.   Jonas (3;0), utterance 60

Signed	POLITIE	ANDER	MENSEN	SCHIETEN
translation	police	other	people	shoot
Spoken	politie	andere	mensen	doodmaken
translation	police	other	people	kill
Free translation	'The police shot the other people'			

In example (3a) the NGT verb SCHIETEN ('shoot') is a semantic specification of the Dutch verb *doodmaken* ('kill') since the way the killing took place is made specific in the NGT verb. It is also interesting that the verb is in final position in both the Dutch and the NGT parts of the utterance. This is not the usual Dutch structure since main verbs are in V2 position; verb final is a common structure in NGT. It would seem that, in this example, syntactic congruence has been achieved by the reordering of the Dutch verb. However in this chapter, we do not take such structural adaptations as an indication of which language serves as the base language (but see Nortier & Van den Bogaerde 2005).

(3)   b.   Mother of Jonas (6;0), utterance 81

Signed	DAN	HARD	GENOEG
translation	then	hard	enough
Spoken	dan	als	genoeg
translation	then	when	enough
Free translation	'Then, when [the fish] is hard, it is enough'		
	(the fish is cooked)		

Example (3b) indicates the simultaneous production of a Dutch function word *als* ('when') and a NGT content word HARD ('hard'). The Dutch part of the utterance is not complete since the lexical element 'hard', essential for understanding that the fish needs to be hard to be cooked, is missing. In the NGT part an explicit temporal marking is not present, which should have the form of a non-manual marker expressed simultaneously with the signs DAN and HARD. The Dutch part lacks a main verb and an explicit subject, and a verb in the subordinate temporal clause.

4.   Code-blended Full
In these utterances the full proposition is expressed in both modalities (see example (4)). The utterances do not have to be complete structurally in either NGT or Dutch. In example (4) we see that the subject 'we' is missing in the Dutch part. These elements are not necessary in the NGT structure, so here we see that the structure is syntactically contingent. For the interpretation of the utterance either the spoken or the signed parts are sufficient.

(4)   Mother of Mark (2;11), utterance 60b

Signed	ALLEMAAL	KAN-NIET
translation	all	cannot
Spoken	allemaal	kan niet
translation	all	cannot
Free translation	'None of us can do [that]'	

3.   Results

3.1   Dutch, NGT, or code-blending?

We will first present our analysis of the language input of the mothers and the language output of the children at ages 3;0 and 6;0 to see what their language choice is at these ages. The question is how much Dutch and NGT are used and how much code-blending occurs. Then, we will consider the different types of code-blending.

Figures 1 and 2 show the relative frequency in the language choice of the deaf mothers, the deaf children, and the hearing children, respectively at age 3;0 (see Table A in the Appendix for the raw data). The data on Mark and Jonas and their mother at age 6;0 are presented in Figure 3.

On comparing the language input provided by the deaf mothers to the deaf children with that to the hearing children, we see quite different patterns.
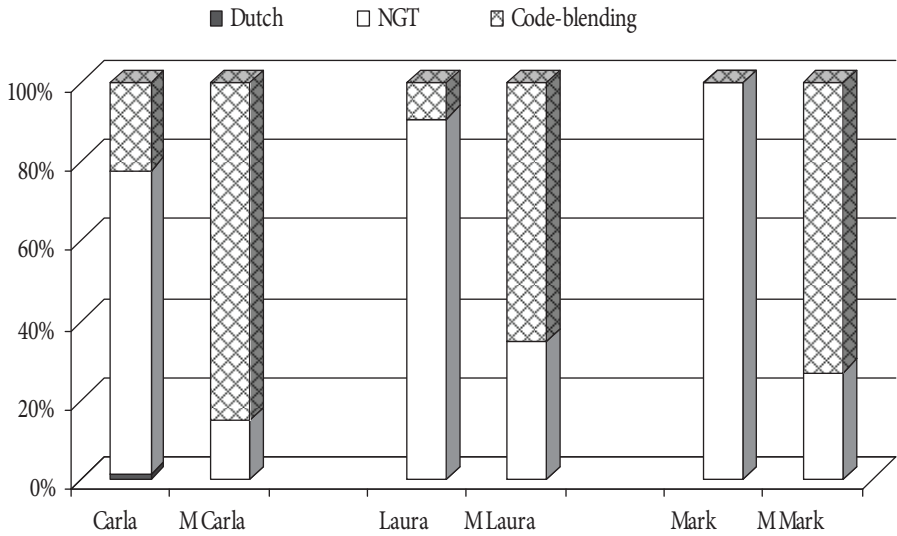
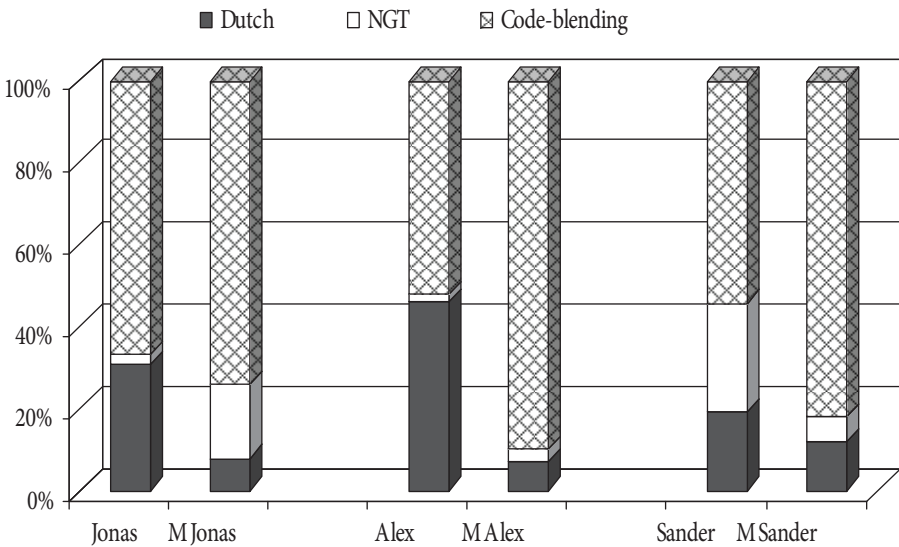**Figure 1.** Language production of the deaf children (Name) and their mothers (M Name) at age 3;0

Figure 2. Language production of the hearing children (Name) and their mothers (M Name) at age 3;0

At age 3;0 we can clearly see that the deaf mothers provide predominantly code-blending in their input to both the deaf and the hearing children. The percentages range from 65% to 85% with the deaf children and 75% to 90% with the hearing children. There is no clear difference here in the amount of code-blending in the input. However, there is a difference in the remaining input: with the deaf children NGT is used but hardly or no Dutch, whereas with the hearing children the mothers use both Dutch and NGT.

Of the deaf children, Carla, Laura and Mark, only two, Carla and Laura, produce code-blending and they differ in the amount (22% and 9% respectively). Otherwise, they all predominantly use NGT. The hearing children, in contrast, produce a great deal of code-blending (52% to 67%), and all three use a considerable amount of Dutch with their deaf mother varying between 19 to 42%. Only Sander uses a greater amount of NGT (22%) than Dutch.

Comparing age 3;0 with age 6;0 (see Figure 3), we can see that the amount of code-blending in the input is somewhat less to both Mark and Jonas at age 6;0 (60% and 57%), but not essentially different. NGT is preferred to Dutch at both ages. We do, however, still see a difference in the production of the children. Jonas prefers code-blending and otherwise Dutch with very little NGT. Mark now produces some code-blending (23%), which he did not at age 3;0, but otherwise prefers NGT.

Only one instance of (sequential) code-switching was found in the whole corpus analysed here, and this was from Jonas at age 6;0. This corresponds to the low 5% found in Emmorey et al.'s (2005) corpus from adult signers. Code-switching seems to be unusual where the two modalities, sign and speech, are involved. Emmorey et al. (2005: 671) relate this to being in a bilingual mode of communication, which would
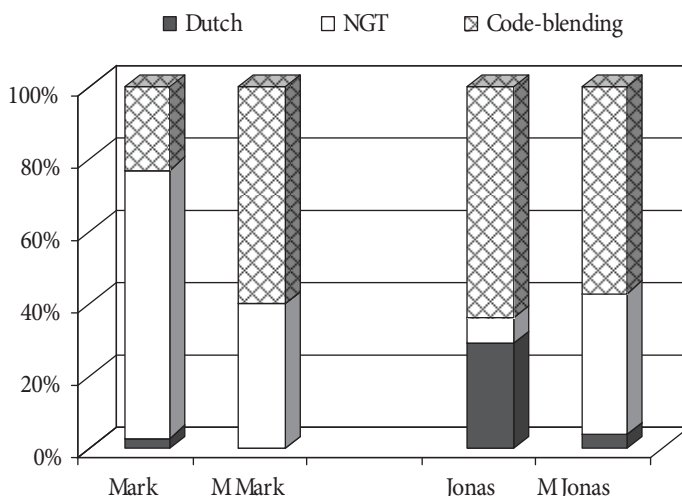

Figure 3. Language production of Mark (D) and Jonas (H) and their mother (M Name) at age 6;0

certainly seem to be the case here for the deaf mothers and to some extent for the children. The amount of code-blending found in this study for the deaf mothers appears to be less than that for the hearing bimodal bilinguals studied by Emmorey et al. (2005) although in that study the percentage was calculated at the word/sign level. The amount of code-blending found in the hearing children is more than that reported as mixing in Petitto et al.' s (2001) study in which they found between 19% and 44% of mixing of LSQ and French and 94% of this mixing was simultaneous. An important distinction, however, is that in the present study, we included words both mouthed without voice and articulated with voice. This makes a comparison of figures problematic, and since we take a wider definition of code-blending here, higher amounts could therefore be expected.

The explanation for the differing amounts of code-blending between the deaf and hearing children can be sought in their stages of development in the two languages. As discussed above, a greater knowledge of both languages can lead to a higher amount of mixing, but the input could also be important. The data reported in Van den Bogaerde (2000: 119) showed that the MLU (Mean Length of Utterance) in Dutch of the deaf children at age 3;0 (based on very few utterances) was 1.0; their NGT MLU was between 1.8 and 2.3 (ibid.: 173). The MLU in Dutch of the hearing children at the same age was between 1.5 and 2.1 and for NGT (based on few utterances) between 1.0 and 1.4. This suggests that the deaf children are more advanced in NGT than in Dutch, and the hearing children more advanced in Dutch than NGT. However, we must consider whether this is the case in the code-blended utterances. We will therefore focus our discussion here to the MLU of the code-blended utterances (MLUCB, henceforth). We will first compare the MLUCB and then the mean length of the NGT part and the Dutch part of these utterances. If the mean length of the two parts is different between the two groups of children, this may reflect their different knowledge of the two languages. A difference in the input could suggest a possible influence on the children's production.

In Table 2, the MLUCB is presented for the input from the deaf mothers and the output from the children at ages 3;0 and 6;0. This is calculated by counting semantically

Table 2. Input and output at ages 3;0 and 6;0: Mean Length of code-blended utterances (MLUCB)

Mothers	MLUCB at 3;0	MLUCB at 6;0	Children		MLUCB at 3;0	MLUCB at 6;0
MCarla	2.5	–	Carla	deaf	2.0	–
MLaura	2.5	–	Laura	deaf	2.7*	–
MMark	3.0	4.0	Mark	deaf	0	3.6
MJonas	3.0	3.6	Jonas	hearing	4.2	4.5
MAlex	2.7	–	Alex	hearing	3.0	–
MSander	3.7	–	Sander	hearing	2.7	–

*   note that this is based on less than 10 utterances.

Table 3. Input and output at ages 3;0 and 6;0: Mean length of word parts and sign parts in code-blended utterances

Mothers	ML at 3;0		ML at 6;0		Children	ML at 3;0		ML at 6;0	
	words	signs	words	signs		words	signs	words	signs
MCarla	1.7	2.2	–	–	Carla (d)*	1.1	1.8	–	–
MLaura	1.9	2.9	–	–	Laura (d)	1.5*	2.5*	–	–
MMark	1.9	2.6	1.9	3.8	Mark (d)	0	0	1.3	3.6
MJonas	2.3	2.1	2.3	3.0	Jonas (h)	3.9	1.8	4.0	2.4
MAlex	2.0	2.0	–	–	Alex (h)	2.2	1.3	–	–
MSander	2.8	2.4	–	–	Sander (h)	2.3	1.6	–	–

*   Note that this is based on less than 10 utterances; (d) means deaf, (h) means hearing

equivalent words and signs only once (see Van den Bogaerde 2000). In Table 3, the length of the parts in words and in signs are calculated separately.

From Table 2, it is clear that the length of the code-blended utterances in the input is not hugely different between the two groups of children, but the length of the code-blended utterances from the children shows a clear distinction. Not only do the deaf children produce fewer code-blended utterances than the hearing children (Figures 1, 2 and 3), but the deaf children's code-blended utterances are shorter. From Table 3, we can see that this seems to be related to the input in that the average number of words in code-blended utterances to the hearing children is greater than to the deaf children. However, the mean number of words produced by two of the hearing children, Alex and Jonas, is far greater than in the input, whereas the mean number of words produced by the deaf children is less. This suggests that the input can be a factor, but is not the only explanation. The deaf children's access to the spoken input is obviously less than for the hearing children as a result of only having access to speech-read information. Furthermore, the hearing children are acquiring Dutch from many other sources than their mother. Nevertheless, it is interesting to see that the length of the word part in code-blended utterances is longer than one word in all the deaf children.

An analysis of the code-blended utterances with regard to types promises more insights into how the words and signs are combined.

3.2   How are signs and words combined?

The code-blended utterances are now further analysed according to the more finely grained definitions given above into the four types: (1) Code-blended, Dutch Base Language, (2) Code-blended, NGT Base Language, (3) Code-blended Mixed, and (4) Code-blended Full.
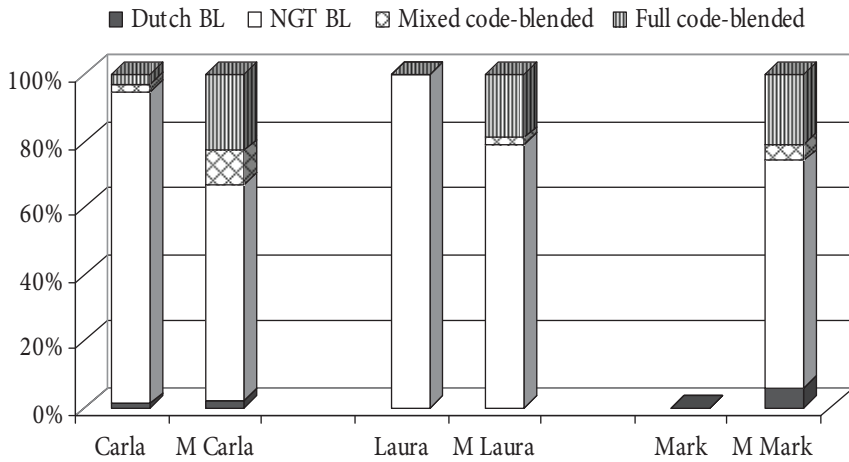
Figure 4. Code-blended utterances of the deaf children and their mothers (M Name) at age 3;0. BL means Base Language

3.2.1   *Deaf children at age 3;0*

Figure 4 shows the distribution of the four types of code-blended utterances in the mothers and their deaf children. The raw data are in the Appendix, Table B.

In the input to the three deaf children, the distribution pattern is quite similar with the type Code-blended, NGT Base Language being the most frequent. Hardly any Code-blended, Dutch Base Language is used by the mothers, although interestingly at age 3;0 none were used to Laura and some to Mark, her twin brother. In the input 11%, 4% and 7% of the bimodal utterances addressed to Carla, Laura and Mark respectively are of the type Code-blended Mixed (simultaneous semantically or grammatically in-congruent), see example (5).

(5)   Code-blended Mixed: Mother of Mark (age 3;0), utterance 31

Signed	<u> head nod</u>	<u>head nod</u>
	WIJ-TWEEËN	GAAN
translation	we-two	go
Spoken		mee ik
translation		with I
Free translation	'Yes together, I will go with you'	

The full bimodal utterances form a considerable part of the input. Their structure is usu-ally very simple at this age (e.g. one word combined with one sign), see example (6).

(6)   Code-blended Full: Mother of Mark (age 3;0), utterance 21

Signed	BLIJVEN
translation	stay

Spoken	blijven
translation	stay
Free translation	'[It] stays [there]'

The deaf children are clearly not following the input in which the four different types appear to some extent. It is not, however, the case that the mouthed input is not accessible to the children. The spoken words are seen by the deaf children at age 3;0 for 58% or more (Van den Bogaerde 2000: 79). As we saw earlier, Mark produces no code-blending at all, unlike his twin sister, Laura, who produces a few code-blended utterances – but almost exclusively of the type Code-blended, NGT Base Language (see example (7)). Carla shows a little more variation including 10% of the type Code-blended Mixed and 15% of the type Code-blended Full. As Table 3 indicated, both Carla and Laura are still basically in the one-word stage with regard to Dutch and this may be part of the explanation for this pattern.

(7)   Code-blended, NGT Base Language: Laura (3;0), utterance 27

Signed	ALLEMAAL	DROOG
translation	all	dry
Spoken	am-	ma
translation	all (1st syllable)	all (2nd syllable)
Free translation	'[They are] all dry'	

3.2.2   *Hearing children at age 3;0*

Figure 5 shows quite a different distribution pattern of types of code-blending, both in the language production of the deaf mothers and of the hearing children (see Appendix B for the raw data).

The mothers of Jonas and Alex are comparable in their use of the four types of code-blending but Sander's mother uses more of the type Code-blended Mixed and less of the type Code-blended, NGT Base Language. Only Sander shows a pattern of bimodal use very similar to his mother's and there is variation between the three children. In all three, the amount of the type Code-blended, NGT Base Language is low or absent in contrast to the type Code-blended, Dutch Base Language (see example 8) that is well represented and larger than in the input. The type Code-blended Mixed is present in all three children (26–56%).

(8)   Code-blended, Dutch Base Language: Jonas (3;0), utterance 57

Signed		AUTO		TREIN
translation		car		train
Spoken	is geen	auto	maar	een trein
translation	is not	car	but	a train
Free translation	'[This] is not a car, but a train'			
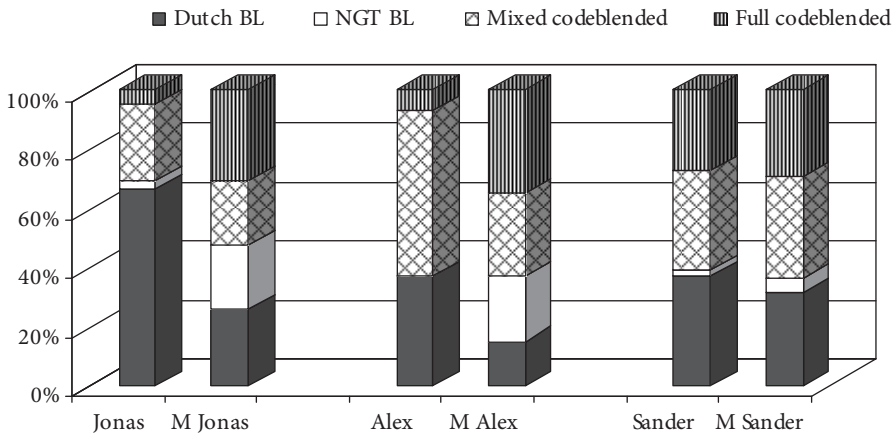
Figure 5. Code-blended utterances of the hearing children and their mothers at age 3;0. BL means Base Language

3.2.3 *Mark and Jonas at 3;0 and 6;0*

Figure 6 shows the distribution of code-blending types in the language production of Mark (deaf) and Jonas (hearing) and their mother at ages 3;0 and 6;0. Mark did not produce any code-blending at age 3;0, and at age 6;0 most of his code-blended utterances are NGT Base Language with a very small percentage in the type Code-blended Mixed (5%) and some Code-blended Full. The use of code-blending by the deaf child and by his mother is very similar at this age and the input from his mother has not changed much since age 3;0. Remembering that Mark and Jonas are brothers, we see that the same mother is using more Code-blended, NGT Base Language with her hearing child Jonas at age 6;0 and the type Code-blended, Dutch Base Language has decreased. Jonas uses more of the type Code-blended Mixed at age 6;0 than at age 3;0 (50%), and also slightly more Code-blended Full and Code-blended, NGT Base Language; Code-blended, Dutch Base Language is the type that greatly decreases.

The picture we gain of the different types of code-blending supports the arguments presented earlier on the basis of the length of utterance. The input appears to have some influence on the types of code-blending produced by the children in that the hearing children receive more Code-blended, Dutch Base Language than the deaf children. But on the other hand, the two groups of children are clearly also different from one another in that the hearing children make even greater use of code-blending with Dutch Base Language than their mothers and the deaf children even more with NGT Base Language. Access to spoken Dutch and the resulting ability in Dutch is certainly a factor with the deaf children. However, Jonas and his mother both use Code-blended, Dutch Base Language less at age 6;0 than at age 3;0. This seems to be related to his increasing use of signs, which in turn seems to encourage his mother to use more signs with him in return.
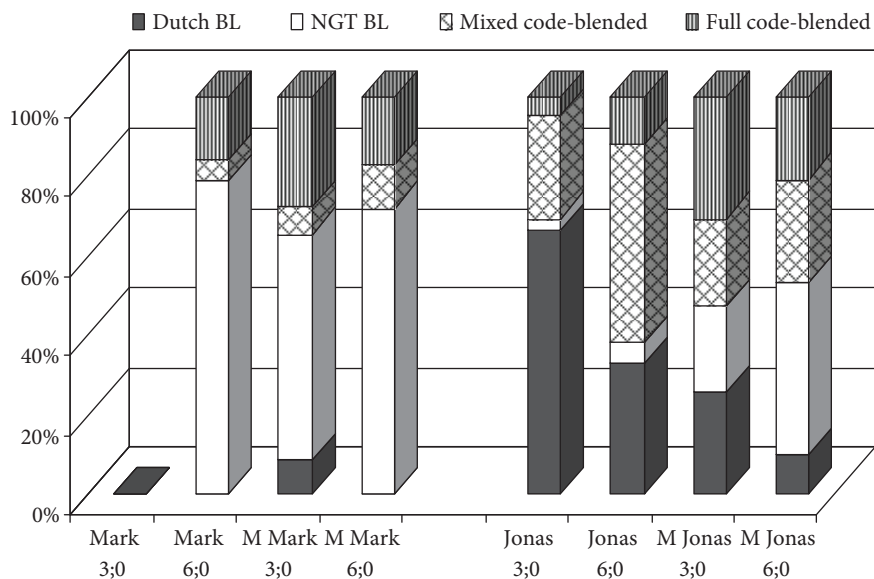
Figure 6. Code-blended utterances of Mark (D) and Jonas (H) and their mother (M Name) at 3;0 and 6;0 (see Appendix B). BL means Base Language

3.3   The status of the code-blended utterances

From the results of the analysis of the types of code-blended utterances (Figures 4, 5 and 6), we can see that NGT Base Language is most prevalent in the input to the deaf children and also in their own output, whereas Dutch Base Language is most prevalent with the hearing children, with the exception of the input to Jonas at age 6;0. Putting these findings together with our original figures on the use of NGT alone or Dutch alone (Figures 1 and 2), this difference between the two groups of children becomes even clearer. Taken over all utterances produced, the percentage of the incongruent code-blended utterances or, in our terms, the Code-blended Mixed type, becomes quite small for the deaf children in both input from the mothers (2–10%) and output from the children (0–2%). Proportionally, this type occurs more in the input to the hearing children (15–28%) and also in the production of the hearing children (17–32%).

The code-blended utterances were placed in the categories Dutch Base Language or NGT Base Language according to the modality in which the full proposition was expressed. In the literature on sign languages, there is little agreement on the status of mouthing (Boyes Braem & Sutton-Spence 2001). It is argued by some, for example Schermer (1990) for NGT, that spoken words are sometimes part of signs. For example in the NGT signs BROER ('brother') or ZUSTER ('sister') the manual part of the sign is identical (see Figure 7), but the two meanings are distinguished only through the mouthings 'broe' or 'zus'.
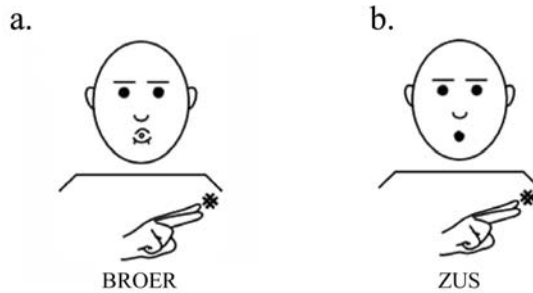
Figure 7. The manual component in the NGT signs a. BROER 'brother' and b. ZUS 'sister'[7]

In such cases, the mouthings are obligatory; the manual sign has no meaning on its own. These cases are, however, quite rare in NGT; the more usual scenario is that the mouthing of the spoken word is optional.

In the context of input from the deaf mothers to their children we have seen that these mouthings occur frequently. The factors that determine the occurrence of these mouthings are clearly related to the hearing status of the children and probably the children's knowledge of Dutch. Certainly, there could be other pragmatic or sociolinguistic factors involved (see Plaza-Pust 2005, for a discussion of contact issues), but it could equally be the case that linguistic factors play a part. It has been observed for NGT and some other sign languages that mouthings more often occur in adult signers with nouns than with verbs (e.g. in Swiss-German Sign Language, DSGS, Boyes Braem 2001: 123; in German Sign Language, DGS, Hohenberger & Happ 2001; and in British Sign Language, BSL, Sutton-Spence & Woll 2000). This observation has been related to the possibility of articulating a mouthing. Mouth gestures, that is, mouthed non-words, often accompany verbs as part of their morphology in order, for example, to mark an adverbial or aspect. The use of the mouth to articulate this non-manual gesture precludes the articulation of a mouthed word. In order to investigate the role of such linguistic factors in these data, a further analysis was carried out at the lexical level of the types of word/sign classes with which code-blending occurred, as will be discussed in the following section.

3.4   Word or sign classes in code-blending

As stated above, there could be linguistic factors involved in the occurrence of code-blending. Although in several sign languages it has been noted that signed nouns more often occur with a mouthing than signed verbs, Emmorey et al. (2005) found opposite results in their study discussed earlier. In hearing bilingual adults (ASL and English) they found (ibid.: 667) that verbs were the largest category (approx. 37%), next to nouns (approx. 25%), the category 'other' (approx. 18%), adjectives (approx. 11%), and

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7.   Drawings made with SALUTE software, see http://www.salute-software.com/nl/index.

adverbs (approx. 8%). They argue that verbs are easily code-blended in sign-speech combinations, because spoken tense inflections can remain while the signed verbs are produced with their own morphology. Thus, the two morphological systems do not impede each other. They are of the opinion that there are ways in which the languages can be adapted to match the morphology of the other. Thus, the aspectual marking for iterative, for example, involving reduplication of the ASL verb can be matched by repetitions of the English verb. This construction is possible in English, but usually involves the addition of 'and' between each repetition. Emmorey et al. also mention that nouns are possibly code-blended less, because subjects can be omitted in ASL. The authors see congruency as the driving force in the distribution of code-blends across word/sign types, which is in line with the assumptions concerning spoken language mixing. However, with respect to the categories involved, their results do not fit in with the results from code-mixing in two spoken languages. Muysken (2000, 2004) found that verbs were less involved in code-mixing than nouns to a considerable extent (see also Myers-Scotton 1993a; Poplack 1980). Muysken (2004: 153) posits a hierarchy in the categories used in code-mixing in spoken languages: nouns > adjectives > adverbs > verbs > adpositions > conjunctions (> means: more than).

In the situation of deaf mothers with their deaf or hearing children, it is possible that the level of grammatical proficiency in Dutch of the mothers and of the children in both languages may limit the role of congruency in determining the words or signs that are code-blended. In order to examine the distribution of word/sign types in code-blending, we analysed the simultaneous production of five categories: verbs, nouns, pronouns, adjectives or adverbs and question words. In this analysis, we included only those elements that had the same semantic content in sign and in word. The data from the different types of code-blended utterances were pooled for this analysis. The percentages of code-blends were calculated over all spoken or signed forms of that category (see Table 4). We collapsed the data from the input to the three deaf children and across the two ages and to the three hearing children in the same way, but kept the distinction between the two groups of children in order to be able to compare the two groups. The data from the production of the deaf children and of the hearing children were pooled in the same way.

Table 4. Grammatical categories of code-blends expressed as a percentage of all forms in that category in children and mothers (collapsed data)

	Verbs	Nouns	Pronouns	Adj/Adv	Question words
Deaf children	50%	56%	0	47%	(0)[*]
Hearing children	38%	52%	36%	24%	(50%)
Mothers with deaf children	63%	75%	4%	56%	59%
Mothers with hearing children	43%	61%	13%	37%	65%

[*]   Figures provided in brackets are percentages calculated on fewer than 10 instances in total.

We can see the following patterns for the relative use of code-blended forms in all subjects for the categories noun, verb, adjective/adverb and pronoun. We have omitted the category 'question word' since question words are produced relatively infrequently (> means: more than).

Deaf children	Noun > Verb > Adj/Adv
Hearing children	Noun > Verb > Pronoun > Adj/Adv
Input to Deaf children	Noun > Verb > Adj/Adv > Pronoun
Input to Hearing children	Noun > Verb > Adj/Adv > Pronoun

For all groups, nouns are produced most often as code-blends. This is comparable with the findings from code-mixing in two spoken languages (Muysken 2004). However, verbs also occur quite extensively in code-blends (38–63%) and more often than the category adjective/adverb. This last category occurs less often than in spoken languages, which does not correspond to the hierarchy Muysken proposes. The class 'verb' does not emerge as the most strongly associated with code-blending in any of the groups studied here. This is in contrast to Emmorey et al. 's findings (2005) with hearing bilingual adults. Although Emmorey et al. present their results in terms of percentages of the total code-blends in a particular class as opposed to our calculation as a percentage of the total use of that word/sign class, it can be seen from their data (ibid.: 667) that verbs were more common than nouns. The argument that the verbs in both languages could be made morphologically congruent does not seem to apply here. In fact we know that the morphological complexity of the signed verbs in the input to the children at age three years was not great; 85% of these verbs in code-blended utterances were in the citation form (Van den Bogaerde 2000: 212). The verb morphology that is often non-manual and articulated with the mouth, thus making a spoken articulation impossible, does therefore not seem to be the explanation either. In Dutch there is more use of inflection in code-blended utterances with the hearing children (70%) than with the deaf children (56%) (ibid.: 214). Therefore we must conclude on the basis of these data that morphological incongruence is not the explanation for verbs being less often code-blended than nouns. This issue requires a more detailed analysis including the many different factors that might be involved related to distinct linguistic levels and the characteristic properties of the languages involved (see, for example, Muysken 2004 for a detailed discussion of these).

It is intriguing that, although the deaf children produced fewer code-blended utterances than their mothers and fewer than the hearing children, the percentage of individual verbs and nouns that are code-blended is around 50%, like their deaf mother's. It would seem likely that the input is important here – at the lexical level – for what the children produce. To examine this possibility, we considered the percentage of the total number of lexical items always presented in the code-blended form, that is, always as a combination of a sign and a word (see Van den Bogaerde 2000: 109–142, for further lexical analyses). Between the ages of one and three years, this percentage is around 69% (range 63–74%) in the mothers' input to the deaf children. This is more

than the average of 60% with the hearing children (range 56–65%). This aspect requires deeper analysis with more data on lexical acquisition to puzzle out whether the children learn such code-blended forms also as a unit or whether they extract the sign or spoken elements from the code-blend.

Another influence from the input to the deaf children can be seen in pronouns. Very few of these are code-blended in the input and none in the production of the deaf children. In fact, Mark at age 6;0 does not produce any Dutch pronouns in our data. It might be thought that this low frequency could be explained on the basis of the difficulty of combining an index gesture that is deictic in nature with a personal or demonstrative pronoun that can be deictic or anaphoric. However, this explanation seems unlikely since the deaf mothers do produce code-blended pronouns more with the hearing children and the hearing children produce them even more often (38%). Simultaneous production, whether the pronoun is anaphoric or deictic, is therefore clearly a possibility. The explanation for the low frequency in the deaf children does not seem to lie in the linguistic elements, but rather in the input.

In summary, the analysis of grammatical classes in code-blending with this population shows similar tendencies to those in spoken language code-mixing. The children seem to be predominantly influenced by the input.

4. Discussion

The data from the six children studied and their mothers show clearly that there is a considerable amount of code-blending in the input to the children and also in the production of the children. In the two children studied at age 6;0, the amounts of code-blending decreased slightly in the input (from the same mother), but increased in the children – in the hearing child somewhat, and in the deaf child considerably. There are clear differences between the three hearing children and the three deaf children: alongside similar amounts of code-blending in the input, the mothers use above all NGT with the deaf children, and NGT as well as Dutch with the hearing children. A further analysis of the code-blended utterances into types (NGT Base Language, Dutch Base Language, Mixed and Full) also showed distinctions between the hearing and deaf children. In the input to the deaf children, the type Code-blended, NGT Base Language dominates and even more so in the production of the deaf children themselves. In the input to the hearing children all four types are present with much more Code-blended, Dutch Base Language than in the input to the deaf children. The hearing children themselves also use all four types, showing a considerable amount of Code-blended, Dutch Base Language and the type Code-blended Mixed. We see this pattern in the same person, the mother of the deaf children – Laura and Mark – and of the hearing child, Jonas. The input is clearly being influenced by the hearing status of the child and probably by the ability of the child in both languages.

We suggest then that the amount and type of code-blending in the children is affected by at least three factors: the children's ability in both languages, the input to the children and their own language choice. It is also likely that there is an interaction between these factors. We have argued that the deaf children at age 3;0 were just emerging from the one-word stage in Dutch and that this would restrict the amount of code-blending produced in general and the small amount of Code-blended, Dutch Base Language. At age 6;0, when Mark was further in Dutch, he produced (more) code-blending, but still no Code-blended, Dutch Base Language. The input could be important here too since the mothers in general also use this type of code-blending very little, but language choice of the children themselves might be playing a role. The hearing children produce considerable amounts of code-blending at ages 3;0 and 6;0 – it would not appear that they have a low ability in NGT, as the figures from their length of signed parts of utterances (Figure 5) indicate. The very small amounts of Code-blended, NGT Base Language can be better explained by their own language choice since it is clearly present in the input in two of the three children.

The role of input cannot yet be described specifically enough. The presence of lexical items in the input that are regularly presented to the child in a code-blended form would be likely to affect the lexical form that the child learns. However, the child is also simultaneously learning the pragmatics of code-blending that might affect the choice of forms that are code-blended. Hence, it is possible that the influence from input is operating at different linguistic levels. Such aspects need to be studied in greater detail.

When we compared the deaf and hearing children in terms of the word/sign classes involved in code-blends at the lexical level, we found few differences. The data showed that both verbs and nouns occurred in code-blends to a considerable extent, but that nouns were more frequent than verbs for both groups of children. This was also true for the input. It was not the case that code-blending was supported in verbs by the possibilities of morphological congruency as Emmorey et al. (2005) have suggested on the basis of their results with adult hearing ASL/English bilinguals. Nor was it the case that the grammatical structure of verbs was severely impeding code-blending as has been suggested in the literature on adult-adult signing, although it could be the case that, as morphological marking increases, this starts to play a part.

One clear difference between the hearing and deaf children lay in the code-blended class of pronouns: the hearing children produced a considerable amount of these, but the deaf children did not. The deaf children had not acquired the Dutch pronominal forms, even Mark at age 6;0, and they were barely present in the input to either group. The deaf children do not yet have the ability to produce these forms and the hearing children seem to be working primarily from Dutch, their preferred language choice. A more detailed study needs to be done to explore the relationship between the type of code-blending and the use of code-blended forms.

Although these findings have given us more insight into the frequency and types of code-blending, there are many questions left unanswered. We have used a semantic measure to determine the types of code-blending. However, we need to look more

closely at the grammatical structures of these code-blended utterances. Are the utterances coded here as Code-blended, NGT Base Language, for example, following the principles of NGT grammar or are there influences from Dutch? A preliminary analysis of the Code-blended Mixed type from the data of Jonas and his mother was done following Myers-Scotton's Matrix Language framework (1993a, b). This analysis suggests that in the Code-blended Mixed utterances of the mother the Matrix Language was predominantly NGT, but for the hearing child, Jonas, the structure fitted the grammar of both NGT and Dutch, meaning that for most cases no Matrix Language could be determined (see Nortier & Van den Bogaerde 2005). Future research should shed light on the distribution of mixed elements in consideration of the type of code-blend they appear in.

The pragmatics of code-blending in acquisition have also not been investigated. We know that most utterances are seen by the addressee in the interaction between mother and child (Van den Bogaerde 2000). We know on the basis of a study of the deaf child, Mark, between 2;0 and 3;6, that overlap between the deaf mother and the deaf child increases in the form of collaborative floor (see Baker & Van den Bogaerde 2005, 2006). It is possible that there is an interaction between code-blending and overlap. Since overlap can have different functions including repetition of (part of) the partner's utterance, code-blending may be increased in this function. This needs to be analyzed.

The exact description of simultaneity is also an interesting aspect of code-blended utterances. Boyes Braem (2001) records that the timing of code-blending is complex in that signs can be reduplicated to fit the spoken part of an utterance and the spoken part also stretched to fit the signed part. We do not yet know what these aspects look like specifically in the input to children or how these more intonational aspects are acquired in the early pre-linguistic and linguistic bimodal productions of children (Baker in prep.).

In other words, there are still many questions to be answered with regard to code-blending in the acquisition situation. As is clear here and in the other chapters in this volume, there is frequently contact between the sign language and the spoken language, particularly in Western sign languages. Deaf children acquiring language in such a contact situation are growing up exposed to both languages and the two languages are very much interrelated. The forms the children learn will, as they become adults, affect the adult system and the possibilities of variation in the sign language community.

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Appendix

Table A. Total number of Dutch, NGT and code-blended utterances of the mothers and the children at ages 3;0 and 6;0. These data refer to Figures 1, 2 and 3

Age 3;0	Dutch	NGT	Code-blending	Total number of utterances at age 3;0
Mother of Carla	0	25	141	166
Mother of Laura	0	60	110	170
Mother of Mark*	0	17	46	63
Mother of Jonas	7	16	70	93
Mother of Alex	10	5	130	145
Mother of Sander	14	7	93	114
Carla	1	69	20	90
Laura	0	60	6	66
Mark*	0	38	0	38
Jonas	18	1	39	58
Alex	24	1	27	52
Sander	11	15	41	67
Age 6;0	**Dutch**	**NGT**	**Code-blending**	**Total number of utterances at age 6;0**
Mother of Mark	0	54	82	136
Mother of Jonas	4	42	62	108
Mark	2	60	19	81
Jonas	26	6	56	88

*   This session lasted 6 min.

Table B. Total number of the four code-blended categories of the mothers and the children at ages 3;0 and 6;0. These data refer to Figures 4, 5 and 6

Age 3;0	Dutch BL	NGT BL	Code-blended Mixed	Code-blended Full	Total number of code-blended utterances	Total number of utterances at age 3;0
Mother of Carla	3	83	16	39	141	166
Mother of Laura	0	74	4	32	110	170
Mother of Mark*	4	26	3	13	46	63
Mother of Jonas	18	15	15	22	75	93
Mother of Alex	20	29	36	45	130	145
Mother of Sander	29	5	32	27	93	114
Carla	0	15	2	3	20	90
Laura	0	6	0	0	6	66
Mark*	0	0	0	0	0	38
Jonas	26	1	10	2	39	58
Alex	10	0	15	2	27	52
Sander	15	1	14	11	41	67
Age 6;0	Dutch BL	NGT BL	Code-blended Mixed	Code-blended Full	Total number of code-blended utterances	Total number of utterances at age 6;0
Mother of Mark	0	59	9	14	82	136
Mother of Jonas	6	27	16	13	62	108
Mark	0	15	1	3	19	81
Jonas	18	3	28	7	58	88

*   This session lasted 6 min.

Does the knowledge of a natural sign language facilitate deaf children's learning to read and write?*

Insights from French Sign Language and written French data

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This chapter concerns the relationship between French Sign Language (LSF) and written French skills developed by Deaf children. Previous studies showed positive correlations between ASL and written English skills, with little analysis of the processes involved. In the investigation presented here, thirty-nine bilingual Deaf children, aged from 8 to 17, from the French-speaking/signing part of Switzerland, were studied. Their comprehension and production skills were tested at the morphosyntactic and narrative levels. Results show positive correlations between the skills developed in written French and LSF. These data provide new evidence that early mastery of a natural sign language facilitates the acquisition of a written language. In addition, sign language narrative and comprehension skills appear to play an important role in this relationship.

Keywords: reading, writing, French Sign Language, deaf children, language development

1   Introduction

Early exposure to a natural sign language is usually claimed to benefit profoundly deaf children. Bilingual programs for the Deaf argue that sign language provides richer language experiences and facilitates cognitive development within normal time-frame

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limits as well as access to academic contents (Singleton et al. 1998; Svartholm 1994).[1] While these claims have been widely accepted and supported by bilingual program evaluations in various countries such as Canada, New Zealand and Switzerland (Biederman 2003; Niederberger 2005; Vercaingne-Ménard 2002), the question of a possible interaction at a linguistic level, between sign language (hereafter SL) proficiency and written language skills, is still the focus of a heated debate. Indeed, some authors have suggested that the difference in modalities involved may not allow a direct interaction between the skills developed in the two languages, but rather indirect interactions (e.g., at a cognitive level), while others strongly support the idea of linguistic knowledge transfer from SL to written language, but with little explanation of the process and the type of knowledge involved.

This chapter specifically addresses the question of a possible *linguistic* interaction in the situations encountered in the context of bimodal bilingual language acquisition and deafness. Can the linguistic skills developed in a natural sign language be directly transferred to a written language? How can this happen? What specific linguistic skills could possibly be involved in such transfer processes?

The first section of the chapter presents the main theoretical hypotheses found in the literature about possible influences of knowledge drawn from SL on skills developed in reading and writing. Then, empirical findings gathered in psycholinguistic and educational studies are discussed in relation to these various theoretical positions. The second part of the chapter presents a study conducted in the French speaking/signing part of Switzerland which provides new insights on the relationship between SL and written language development. This investigation focuses on morphosyntactic skills and narratives skills, and attempts to determine the possible role of these specific linguistic skills. This study also takes into account other factors known for affecting the acquisition of reading and writing by the deaf, such as age, cognitive development, oral language development, degree of hearing loss, hearing status of family members, onset of SL exposure and languages used at home.

2   Reading and writing: The role of sign language proficiency in deaf children

Three theoretical positions about the possible interaction between SL skills and written language skills appear in the literature: (1) *the interference hypothesis* of a negative influence of SL structures on the acquisition of the written language structures (Maeder 1995), (2) *the double-discontinuity hypothesis* suggesting the absence of any direct relationship between SL skills and written language skills (Mayer & Akamatsu 1999, 2000; Mayer & Wells 1996), (3) *the hypothesis of a positive relationship* between the

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1.   Following the usual convention, the word *Deaf* with the capitalized letter D is used to refer to the children and adults who are part of the Deaf community and are familiar with its culture and language.

development of these two sets of skills, through linguistic transfer and/or indirect transfer at a metalinguistic level (Chamberlain & Mayberry 2000, 2005; Hoffmeister 2000; Padden & Ramsey 2000; Strong & Prinz 2000; Dubuisson et al. this volume).

2.1   Interference hypothesis

The hypothesis of a negative influence of SL structures on the acquisition of written language structures is based on the results of the study of frequent and specific errors found in Deaf individuals' written productions. The assumption is that some patterns of error, such as incorrect sentence word order, mirror the equivalent syntactic structure in SL (for a review, see Rodda et al. 1993: 344–345). Plaza-Pust (this volume) also found evidence of DGS borrowings in Deaf students' written German productions that she considers resulting from a (positive) temporary compensation strategy used in the course of the bilingual development, when the acquisition of both languages is not balanced. Regarding language comprehension, Maeder (1995) found that Deaf children, adolescents and adults tend to misunderstand French spatial and temporal markers in sentences where the French sentence order is different from the word order in French Sign Language (hereafter LSF) equivalent. The participants of Maeder's study included five Deaf children, four adolescents and five adults. Four of them were born to Deaf parents, three had a Deaf sibling and seven had no Deaf relatives. This author claims that Deaf readers process written French through their LSF syntactic filter. However, this interpretation has been rejected by Sero-Guillaume (1994: 59), who argues that the same kinds of errors are produced by French deaf individuals who do not sign. Similar objections were given by Wilbur (2000), Rodda et al. (1993) and Daigle and Dubuisson (1998) based on written English and French data collected from orally-educated deaf individuals in the US and Canada-Quebec. An alternate interpretation of these deaf-specific errors is suggested by Vincent-Durroux (1992), who argues that the linguistic productions of deaf individuals are shaped by their atypical and deaf-specific cognitive style, which is built on the unique way they organize the perceptions coming from the outside world.

2.2   Double-discontinuity hypothesis

The hypothesis of the absence of any direct influence of SL skills during the acquisition of written language has been put forward by Mayer et al. (Mayer & Akamatsu 1999, 2000; Mayer & Wells 1996). These authors, studying Deaf children and adolescents learning ASL, signed English and written English, claim that the linguistic structures of ASL and English are too far apart to allow linguistic transfer from ASL directly to written English. According to them, transfer is generally possible from one language (L1 oral) to the other in its written form (L2 written) only through one of the following two 2-step paths: (a) L1 oral – L1 written – L2 written or (b) L1 oral – L2 oral – L2

written (for a full description of the model, see Mayer & Akamatsu 2000: 399). In the specific situation of ASL and written English, none of these options is available (double discontinuity): (a) there is no standard written form of ASL;[2] (b) most deaf individuals do not master oral English enough to build their knowledge of written English on the basis of their oral skills. Mayer et al. therefore argue for the promotion of the use of signed English, representing English structures in the signing modality, as an educational tool that would help students to establish relationships between ASL and English. Signed English would make it possible for deaf students to "think in English" (Mayer & Akamatsu 2000: 400), which is essential, according to these authors, in order to write in correct English.

However, the hypothesis that ASL cannot facilitate the acquisition of literacy has been strongly criticized for lack of empirical support (Hoffmeister 2000: 146). On the contrary, data presented by this last author show advantages of ASL against English-based sign systems on reading achievement.

2.3   Hypothesis of a positive relationship

The hypothesis of a positive interaction between SL and reading and writing development has been claimed by many authors on the basis of Cummins' model of the *Common Underlying Proficiency* (Cummins & Swain 1986; Cummins 1989: 45; Cummins 2000). Although this model was originally conceived to account for the bilingual acquisition of a minority and a majority language by members of linguistic minorities in North America, researchers studying Deaf bilingualism have applied the model to the Deaf population, arguing that this specific group could also be considered a linguistic and cultural minority. According to Cummins' model, strong linguistic and cognitive skills developed in the L1/minority language of the students would promote the proficiency of the L2/majority language. Cummins underlines the role of academic skills in school achievement (reading and writing skills, literacy-related skills, ability to make complex meanings explicit, to name a few) built during pre-school and first years at school and further developed in relation to the increasing decontextualized language demands of school (Cummins 1989: 30). Although most of the minority students succeed in mastering L2 conversational skills rapidly after immersion, some struggle to develop age-appropriate academic skills in L2, which leads them to academic underachievement. Cummins argues that academic skills are similar across languages (*Common Underlying Proficiency*) and should be easily transferred to L2 once developed in L1. Instruction in L1 is therefore recommended to insure a better mastery of L2 and academic achievement in a long term perspective.

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2.   Although some SL transcription systems have been developed for linguistic purposes, with some successful applications in educational contexts (for example SignWriting), none of those systems is currently used or considered as the standard written version of ASL.

Applying this model to sign bilingualism, some authors make the assumption that early exposure to SL (= L1) enhances the acquisition of reading and writing a written second language. First, developing strong skills in SL is considered crucial for the linguistic and academic development of the deaf child, since hearing loss does not permit full access to an oral language, limiting therefore the role of this language in linguistic and academic development (Hoffmeister 2000; Nelson 1998). Moreover, contact with SL poetry and narratives should prepare the students to approach L2 literature. Some authors also suggest that mastery of a first language allows the development of metalinguistic skills, that is the ability to manipulate and think about the structure of language, that can be used to learn a second language (Strong & Prinz 2000) and to compare explicitly the structures of L1 and L2 (Vercaingne-Ménard 2002). Metalinguistic development is also known as a major factor in successfully learning to read and write (Rieben 1993). Only a few authors describe more explicitly the type of linguistic skills that could possibly be directly transferred from SL to written language. For instance, Wilbur (2000: 92) suggests that Deaf children may transfer their knowledge of narrative skills and story grammar developed in ASL (such as creating the setting, introducing the characters) into written English. Padden and Ramsey (2000) consider that fingerspelling and initialized signs, both of which referred explicitly to word spelling (before the transformations involved during the process of borrowing), can be used to create the necessary "bridges" at the lexical level between ASL and written English. However, it has been mentioned by educators that these signs historical link to spelling often needs to be reminded through explicit instruction to first language learners, who are usually not aware of their written-based roots.

In summation, what this brief presentation of the three theoretical positions on the interaction of SL and written language reveals is that these hypotheses do not only differ in the way they consider a possible interaction, but also differ with respect to the linguistic levels and phenomena taken into account in their argumentation. Thus, the interference hypothesis bases its claims on errors found at the syntactic level (word order, syntactic constituents), whereas the hypothesis of a positive relationship highlights the common aspects of SL and written language both at the lexical level (fingerspelling and word spelling) and at the narrative level (story grammar). Moreover, the hypothesis of the absence of a relationship between SL and written language does not deny the benefit of SL at a cognitive or academic level, but only rejects direct linguistic transfer. In this sense, these later arguments are not very far from the claims drawn from Cummins' model about the transfer of academic skills. The debate would clearly benefit from a more structured analysis, differentiating more accurately the factors and types of knowledge/skills that might be involved (cognitive, metalinguistic and linguistic at different levels).

3   Previous empirical findings

To address the question of a possible relationship between the development of SL skills and written skills, experimental studies were conducted in the US and Canada (Dubuisson et al. this volume; Chamberlain & Mayberry 2000; Hoffmeister 2000; Padden & Ramsey 2000; Strong & Prinz 2000) and empirical data were collected in educational settings in various countries such as Canada-Quebec, France and New Zealand (Vercaingne-Ménard 2002; Biederman 2003; Millet & Mugnier 2004). The main findings of these pioneer studies are briefly summarized in the next two sections.

3.1   Experimental studies

Most of these studies strongly support the hypothesis of a positive relationship between SL and written development, and show a high correlation between various SL skills and the reading/writing level reached by Deaf children and adults. For instance, a study reported in Chamberlain and Mayberry (2000) and conducted by themselves and collaborators, showed a high correlation between ASL narrative and sentence comprehension, and English reading comprehension for a group of 48 Deaf children, aged 7 to 15. Similarly, Hoffmeister (2000) showed a high correlation between ASL comprehension of synonyms, antonyms and plural markers and the reading scores obtained at the SAT-HI (*Stanford Achievement Test*), for a group of 50 Deaf children, aged 8 to 16. Similar results were found by the same author and colleagues in the areas of ASL vocabulary (Hoffmeister et al. 1997) and knowledge of mental states and their constructions (deVilliers et al. 2000), all these skills predicting reading/writing skills in Deaf children. Padden and Ramsey (2000) found other correlations between ASL verbal agreement production, ASL sentence order comprehension, ASL sentence repetition, fingerspelling, knowledge of initialized signs and the scores obtained at the SAT-HI by a group of 31 Deaf children, grades 4 and 7. Finally, Prinz and Strong (1998) and Strong and Prinz (1997, 2000) who studied a population of 155 Deaf children (ages 8–15), found a high correlation between a group of six ASL comprehension and production measures and a group of English reading and writing measures.

Only two studies go beyond the first step in demonstrating a link between certain SL skills and reading and writing skills. These studies looked for the best SL predictor of reading/writing development by comparing the effect of different SL measures. The first one, reported in Chamberlain and Mayberry (2000), and previously mentioned, contrasts the degree of mastery at the narrative and syntactic levels and reveals that ASL narrative comprehension measures correlate more strongly with reading measures than ASL sentence comprehension measures. The second one, a complement of the study conducted by Prinz and Strong (1998), shows a similar effect in both comprehension and production, with a higher correlation between ASL narrative comprehension and production measures and English reading and writing measures than between ASL morphosyntactic comprehension and production measures focusing on classifiers,

spatial and temporal markers, and the same written English measures. In addition, the effect appears to be stronger in comprehension than in production (Prinz et al. 2001).

3.2   Educational settings

Data collected in educational settings show similar results. For example, Vercaingne-Ménard (2002) found a link between the reading improvement of 3rd grade Deaf students and their ability to repeat Quebec Sign Language sentences with multiple spatial markers (see also Dubuisson et al. this volume). Millet and Mugnier (2004) showed that a group of eight 3rd grade Deaf students developed a more in-depth comprehension of written French fairy tales when a Deaf teacher participated in the activity, giving the LSF equivalent of some French idioms and suggesting crosslinguistic comparison of the linguistic structures of both languages. By demonstrating at a practical level how one can use one language to support the acquisition of a second language, the Deaf teacher encourages the students' back and forth movements between LSF and written French, and helps them to build strategies such as explicit comparison of the two languages at lexical/semantic level, morphological/syntactical level and narrative level. Biederman (2003: 160) described how eight first-graders use New Zealand Sign Language during literacy activities in the classroom. In particular, she observed that they use SL in meta-cognitive and metalinguistic activities, in order to plan and monitor their written productions, to discuss ideas for story topics, and to recall rules of written English. They also spontaneously use SL to explicitly compare the two languages.

To summarize, all these studies show a strong relationship between various SL skills, ranging from fingerspelling and knowledge of synonyms to narrative production skills, and reading/writing skills. The search for the best predictor seems so far to lead towards SL narrative and comprehension skills, in contrast to the areas of morphosyntax tested, although a more comprehensive comparison, including more areas of morphosyntax as well as lexical/semantic areas, would be necessary to get a full picture of this interaction. In addition, the educational studies demonstrate the benefit of explicit crosslinguistic comparisons, as well as the benefit of the use of L1 to organize the written information into a meaningful context. These findings support the hypothesis of a positive relationship between both languages and are consistent with both Cummins' model of academic/linguistic skills transfer and Wilbur's hypothesis about narrative linguistic transfer.

4   The relationship between French Sign Language proficiency and written French proficiency

The experimental study presented in this chapter, conducted in the French-speaking/signing part of Switzerland (Niederberger 2004; Niederberger & Frauenfelder 2005), sought to establish whether there was a positive relationship between LSF skills and

written French skills, a question that had not yet been addressed.[3] It was thought to be of particular interest to see whether the correlations found for ASL and English acquisition can be observed for other pairs of SL/written languages. Indeed, a similar relationship found between LSF and written French and ASL and written English would give stronger support to the bilingual educational programs implemented in various countries. In the Swiss-French context, such results would support the education policy that developed sign bilingual education in all the public schools for the Deaf of the French-speaking/signing area for the last 25 years and would provide scientific local data to advocate in favor of their continuation and improvement (for a detailed description of Swiss sign bilingual programs, see Niederberger 2005).

In addition, the study of the relationship between LSF acquisition and written French acquisition, by the specific linguistic characteristics of these two languages, could bring new insights to the general assumptions about the SL and reading and writing interaction drawn from the ASL/English studies. French orthography is considered the least transparent system after English orthography among the alphabetic systems (Jaffré 2004). Only 85% of graphemes are related to oral French phonology whereas the remaining graphemes carry morphological information (approx. 4%) or refer to etymology. Learning to spell in French is a challenging task that requires integration of these three dimensions and involves phonological, morphological and visual strategies. It would be of particular interest to examine how the knowledge of a SL can help master such a complex orthographic system.

Moreover, although ASL and LSF are usually considered to be part of the same SL family (Woodward 1979), they differ nowadays in many ways, including sentence word order. LSF also uses much less fingerspelling than ASL: with the exception of a few rare signs deriving from fingerspelled written French words, fingerspelling is mostly used to introduce new names and specific words for which no signs have been yet created. Therefore, a similar relationship found in LSF/French bilinguals would shed new light on the hypotheses proposed to explain the correlations of sign language and reading proficiencies. In particular, the hypothesis of Padden and Ramsey (2000), arguing that fingerspelling may function as a "bridge" between ASL and spelling, may not be generalised to all SL/written language situations.

The experiment used in the study presented here was especially designed to contrast the relationship of narrative vs morphosyntactic SL skills with reading and writing skills. Considering the results discussed in Chamberlain and Mayberry (2000) and Prinz et al. (2001), it was assumed that SL narrative skills should be more strongly related to reading and writing skills than SL morphosyntactic skills. Indeed, LSF and written French (like ASL and written English) share narrative grammar structures and devices such as

setting a plot and introducing main characters. These linguistic skills, similar in both LSF and written French, should be easily transferred from one language to the other, in a similar way as was suggested for ASL and written English by Wilbur (2000). On the contrary, at the morphosyntactic level, frequent SL specific devices such as classifier constructions simultaneously convey a "condensation of atoms of meanings" (Cuxac 2000: 23, our translation) that could only be translated by a much higher number of separate words in written French (mainly verbs, adverbs, and locatives). In consequence, direct transfer of skills in this area is less likely to happen (but see Plaza-Pust, this volume, for a discussion of contact phenomena involving this type of constructions), although the general morphosyntactic knowledge built on experiences in LSF (meta-morphosyntactic skills) can certainly contribute to master written French morphology and syntax.

Prinz et al.' s (2001) study also shows a stronger link between reading/writing skills and SL comprehension than between reading/writing skills and SL production, although these authors did not provide theoretical arguments to explain their findings. A possible hypothesis would be that students use their knowledge about languages (metalinguistic skills), built on the linguistic and cognitive skills developed through their experiences in SL, in order to process written texts and answer written comprehension questions. The SL comprehension tasks used by these authors might actually require more reflexive skills (e.g. multiple choices, making a judgement) than the SL production tasks (e.g. retell a story). Therefore, the higher correlation found between SL comprehension and written English tasks would reflect the involvement of similar metalinguistic skills. With this perspective, and because the study presented here used tasks similar to the ones used by Prinz et al. (see below), it was expected that SL comprehension skills would show a higher relation to reading and writing than SL production skills.

Finally, this study also intended to investigate the interaction of various demographic factors with the SL/written language relationship, which have been previously mentioned as playing an important role in reading and writing development in the Deaf, such as age, cognitive development, degree of hearing loss, parental hearing status, languages used at home and socio-economical background (Moores & Sweet 1990; Prinz et al. 2001). Although this chapter focuses on the SL/written language relationship, these results of the study will be briefly mentioned in section 4.4.4. Finally, the mastery of oral language receptive skills is known to be a major predictor of reading and writing for hearing and deaf children (Alegria 1999). Since the participants of the study were regularly trained by speech therapists (see next section), oral skills were analyzed to control for a possible other source of linguistic knowledge than SL.

4.1   Participants

Participants were thirty-nine bilingual Deaf children from the French-speaking/signing part of Switzerland, learning LSF and French, aged 8 to 17 (mean age 12). There were 26 girls and 13 boys, from various socio-economical backgrounds. All of them were severe ($n = 6$) or profoundly ($n = 32$) deaf, except one student with 60dB degree

of hearing loss, who was kept in the study because her results showed a similar pattern as the rest of the sample. Seven were using a cochlear implant, 30 were using hearing aids and two did not use any amplification devices. With one exception, they were all born to hearing parents. Eight of them had Deaf signing siblings. Most of them were exposed to LSF and French before the age of 4, through their family and early intervention programs involving hearing and Deaf educators. Participants were enrolled in one of the three public bilingual LSF/French schools for the Deaf in the area (schools 1, 2 and 3). In these school programs, LSF is used as the main language of instruction, although some classes might be taught in French with LSF translation given by an interpreter. LSF is considered as a first language and taught as a subject itself, with classes focusing on expressive skills, vocabulary and grammar. Written French is taught as a second language by Deaf and/or hearing sign bilingual teachers, at times working in teams (*team teaching*). Oral French is trained by sign bilingual speech therapists through daily sessions (for more details about speech therapy in a sign bilingual context, see Niederberger 2005). All participants with the exception of one declared that their preferred language is LSF.[4]

4.2   Method

All the participants were tested individually for LSF, written French, oral French and cognitive tests, in separate sessions. The LSF sessions were conducted exclusively in LSF, by Deaf educators specifically trained for this testing. French and cognitive sessions were conducted by sign bilingual hearing researchers.

Matching tasks in LSF and written French were designed to contrast linguistic skills on two dimensions (a) the expressive/receptive dimension, contrasting comprehension skills with production skills and (b) the linguistic-level dimension, contrasting morphosyntactic skills with narrative skills. Thus, four tasks in each language were created by crossing these two dimensions: a narrative comprehension task, a narrative production task, a morphosyntactic comprehension task and a morphosyntactic production task. The four LSF tasks were based on the adaptation of the *Test of ASL* (*TASL*) (Prinz et al. 1994) into LSF (*TELSF, Test de LSF*) (Niederberger et al. 2001); the four written French tasks were specifically created for the purpose of this study (for a more in-depth description, see Niederberger 2004). Similar tasks were created in oral French.[5]

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4.   The number of participants was limited because of the small size of the Deaf population in the Swiss-French area and our defining criteria of early sign bilingualism (development before the age of 5) and degree of hearing loss. Only one family refused to participate in the study. The small number of Deaf children of Deaf parents is surprising since the literature usually reports a percentage of 10, but reflects the reality of this particular population at the time of experimentation.

5.   The research team included psycholinguists and students from the University of Geneva and staff members of the Geneva School for the Deaf (*Centre pour Enfants Sourds de Montbrillant*): Deaf teachers, LSF interpreters and speech and language pathologists.

4.2.1   *Narrative comprehension tasks*

Students were presented a videotaped LSF story (about a child telling how he spent a day on the beach with his uncle), in 10 parts, each followed by a question in LSF, to assess their comprehension of the story. Some of the questions were focused on a specific element of the story (e.g. where does Paul go with his uncle?) whereas others required a more in-depth comprehension (e.g. how do you think the uncle feels at the end of the story?). The participants' answers were videotaped and later scored by a Deaf researcher.

In the written French task, students were asked to read a one-page story (about a turtle eating all Grandma's salads) and answer 10 questions similar to the LSF questions, using a multiple-choice format, with the story in front of them.

4.2.2   *Narrative production tasks*

Participants were asked to tell a story in LSF based on a story picture book about a dog baby-sitting a child while the Mom is out running some errands (*Good Dog, Carl!,* Day 1985). This book was chosen for the typical grammatical structure of the story and the complex actions represented in it, requiring students to produce complex utterances and referential shifts. The signed productions were videotaped and later analyzed by a Deaf researcher (after reaching consensus with two other researchers for 10 narratives) for various linguistic criteria including story grammar (plot setting, sequences of events, conclusion), role taking (none, one, more) and cohesion (referents introduction and maintenance), each one being scored 0, 1 or 2, for incorrect/absent, fair, and good/excellent.

In the written French session, students retold the same story, after reviewing the book. Similarly, narratives were scored using a list of linguistic criteria relevant for the assessment of narrative development in written French (cohesion, story grammar, etc.) and scored 0, 1 or 2.

4.2.3   *Morphosyntactic comprehension tasks*

LSF morphosyntax comprehension was assessed by testing the comprehension of various dimensions of different types of classifier constructions, in particular the modulations coding information about the referents, such as semantic categories, physical properties of objects, and spatial relations among objects (see also next section). Participants were shown four different LSF videotaped descriptions and had to select the one matching the picture in front of them (e.g. for a picture of a thin sandwich, four classifier constructions were presented: "thin two dimensional object", "thin three dimensional object", "thick two dimensional object" and "thick three dimensional object"). This task contained 2 practice examples and 10 test items. Answers were scored 1 or 0.

French morphosyntax comprehension was assessed by a closure test adapted from a task created by Denys and Alegria at the Université Libre de Bruxelles (unpublished), focusing on number and gender agreement in nouns, adjectives and verbs. Eleven short

sentences were presented (one practice example and 10 test items). Participants were asked to select the correct answer among 5 alternatives. Responses were scored 1 or 0.

4.2.4   *Morphosyntactic production tasks*

LSF morphosyntax production was assessed by testing the production of classifier constructions. A cartoon movie was presented to the participants and they had to re-tell some story parts in LSF requiring the production of classifier constructions. Their productions were recorded and later analyzed by a Deaf researcher for various types of classifier constructions including handshape classifiers, motion verbs, location verbs, physical descriptions of an object, and spatial descriptions.

The French morphosyntax production task assessed the production of written pronouns. Participants were presented a booklet with a picture, a sentence and a question to be answered, or a second sentence to be completed, on every sheet (Niederberger & Berthoud-Papandropoulou 2004). Ten items were created to elicit either subject or object pronouns. The responses were scored only for appropriate pronouns (1 or 0) regardless of the other elements produced.

4.2.5   *Oral tasks*

In addition to these main tasks, participants were tested in oral French, using similar tasks as the written French ones. Narrative comprehension was tested with a story told in oral French (about a little bear lost in the woods), illustrated by a set of five pictures. After each part of the short story, participants were asked questions that required detailed or global comprehension of the story. Answers were accepted either in oral French or in LSF. Responses were video and audio recorded and later transcribed and analyzed by a hearing sign bilingual researcher. Narrative production was tested by assessing the production of an oral narrative based on a picture book story about a duck having an accident with his truck and looking for help (*Duck in the Truck*, Alborough 1999). Only 12 participants with an intelligible oral production, as demonstrated in the previous task, were included. Narratives were transcribed and analyzed by a hearing sign bilingual researcher. Morphosyntactic comprehension was tested by using a selection of twenty items of the ECOSSE (*Epreuve de Compréhension Syntaxico-Sémantique,* 'Test for the Comprehension of Syntax and Semantics' (Lecoq 1996), the French version of the TROG (*Test for Reception of Grammar*, Bishop 1983). Among a choice of four pictures answers were given by pointing to the one matching the sentence produced by the experimenter. Scoring followed the original guidelines. Morphosyntactic production was tested by using an oral version of the task used to assess written French production created for this study, with ten similar items eliciting the production of subject and object pronouns (Niederberger & Berthoud-Papandropoulou 2004). Answers were accepted either orally or in LSF and were video and audio recorded for later transcriptions and analyses by a hearing sign bilingual researcher.

4.2.6 *Cognitive tasks*

Finally, three standardized non verbal cognitive tests were used to rule out any major cognitive impediment among the participants and to measure the role of the cognitive skills in the LSF/French interaction (*PM38*, WISC-R's *Block Design* and *Pictures Arrangement*). All the participants met the study criteria (exclusion criteria was more than one score below one standard deviation).

4.2.7 *Psychometrics analysis*

Kroenbach's alpha provided a measure of internal validity for each task, with numbers varying between .80 and .93, except for the LSF morphosyntactic comprehension task that was below the .80 mark (see Niederberger 2004, for a discussion of these results). Correlations between the LSF tasks were all significant, as well as the correlations between the written French tasks and the oral French tasks, respectively. In addition, the scores obtained by the participants at the LSF tasks were reflecting their usual LSF performance in class, according to their teachers.

4.2.8 *Scoring*

Scores from each task were standardized in Z-scores. A global score of LSF, written French and oral French was then created by adding the four Z-scores obtained respectively in LSF, written French and oral French. Global production and comprehension scores were also calculated for LSF, written French and oral French (by adding the two Z-scores of the production tasks or of the two comprehension tasks in each language), as well as narrative and morphosyntactic scores (by adding the two Z-scores of the narrative tasks or of the two morphosyntactic tasks in each language). Correlations were then calculated between the LSF, written French and oral French global scores, the production scores, the comprehension scores, and the narrative and morphosyntactic scores. Correlation analysis, parametric and non parametric tests were used to assess the interaction of demographic factors (such as age, socio-economical background and cognitive skills) with the language measures.

4.3   Predictions

Following the assumption of a positive relationship between LSF skills and written French skills, a positive and significant correlation is expected between the global scores of LSF and written French. A stronger relationship is expected at the narrative level than at the morphosyntactic level, which would predict higher correlations between LSF narrative scores and written French narrative scores than between LSF morphosyntactic scores and written French morphosyntactic scores. Additionally, a stronger relationship is expected in comprehension than in production, which predicts higher correlations between LSF comprehension scores and written French comprehension scores than between LSF production scores and written French production scores.

4.4   Results

4.4.1   *Relationship between LSF skills and written French skills*
As expected, the correlation between the global scores of LSF and the global scores of written French is positive and significant (Pearson correlation: $r=.485$; $p=.002$). These results confirm the ASL/English data and show a strong relationship between SL skills and reading/writing skills. As previously mentioned, fingerspelling plays only a minor role in LSF, therefore Padden and Ramsey's hypothesis about fingerspelling functioning as a "bridge" between ASL and English spelling doesn't seem to be applicable in this situation. This investigation, focusing on narrative and morphosyntactic skills, demonstrates that these two linguistic levels are involved in the interaction between LSF and French. These findings are consistent with the ASL/English data gathered by Mayberry et al. and Prinz et al.

4.4.2   *Relationship at the narrative level vs at the morphosyntactic level*
As expected, the LSF narrative scores correlate significantly higher with the written French narrative scores than the LSF morphosyntactic scores with the written French morphosyntactic scores ($r=.641$; $p<.001$ vs $r=.343$; $p=.032$, see Table 1). These data confirm the ASL/English findings of Mayberry and collaborators and Prinz and collaborators (Chamberlain & Mayberry 2000; Prinz et al. 2001). These results also show a high correlation between LSF narrative scores and written French morphosyntactic scores that will be discussed in section 5.

Table 1. Pearson correlations between LSF/written French narrative and morphosyntax scores

	LSF narrative		LSF morphosyntax	
	r	*p*	*r*	*p*
Written French narrative	.641	<.001	.233	.153
Written French morphosyntax	.558	<.001	.343	.032

4.4.3   *Relationship in comprehension vs in production*
As predicted, the correlation between LSF comprehension scores and written French comprehension scores is significant and higher than the correlation between LSF production scores and written French production scores ($r=.539$; $p<.001$ vs $r=.439$; $p=.005$, see Table 2). This confirms the findings of Prinz et al. for ASL and English. Results also show a high correlation between LSF comprehension scores and written French production scores as well as a significant correlation between LSF production scores and written French comprehension scores; these results will be discussed in section 5.

Table 2. Pearson correlations between LSF/written French comprehension and production scores

	LSF comprehension		LSF production	
	r	p	r	p
Written French comprehension	.539	<.001	.402	.011
Written French production	.569	<.001	.439	.005

4.4.4 *Role of demographic factors, cognitive skills and French oral skills*

No significant effect was found with SL and reading/writing development for socio-economic level or cognitive scores. The age of the participants seems to play a role, with the older participants performing better than the younger in each of the four French written tasks (Pearson correlation: age with written French narrative production: $r=.416$; $p=.008$; morphosyntactic production: $r=.326$; $p=043$; narrative comprehension: $r=.413$; $p=.009$; morphosyntactic comprehension: $r=.442$; $p=.005$) and in the LSF narration comprehension task ($r=.489$; $p=.002$).

Interestingly, a school effect was also found for LSF production skills, with the participants of one school performing better than the participants of the two other schools in the two LSF production tasks (LSF narrative production: Student t-test: $t(21)=2.295$; $p=.032$ for school 1 vs school 3; LSF morphosyntactic production: $t(25)=2.295$; $p=0.30$ for school 1 vs school 2; $t(21)=4.330$; $p<.001$ for school 1 vs school 3). This phenomenon, which was not expected, might be related to a more intense exposure to LSF, either at school or during the after-school program/at home and would need to be more deeply investigated.

Finally, French oral comprehension scores correlate significantly with each of the four French written scores and also with the two LSF narratives scores (see Table 3 below).[6]

Thus, although all participants claimed that their preferred language is LSF (with the exception of one student preferring French), a good number of them did benefit from oral language training and developed oral comprehension skills that appear to interact with the other linguistic skills they developed in written French and LSF.

In order to better assess the interaction between oral French comprehension skills, written French comprehension/production skills and LSF comprehension/production skills, an analysis by subject was conducted. Participants were split in three groups for each language/modality, based on their written French global scores, LSF global scores and oral French comprehension scores. Thus, the 13 participants who obtained the highest global scores in written French were grouped in the "strong written French" category, the 13 participants who obtained the next highest scores in written French were grouped in the "medium written French" category and finally, the last 13

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6.   Oral French production skills were not related to other linguistic skills and seemed to be linked to the degree of hearing loss of the participants (Niederberger 2004).

Table 3. Pearson correlations between oral comprehension scores and LSF/written French comprehension and production scores

	Oral French narrative comprehension		Oral French morphosyntactic comprehension	
	r	p	r	p
LSF narrative production	.363	.023	.378	.018
LSF narrative comprehension	.452	.004	.556	<.001
Written French narrative production	.706	<.001	.699	<.001
Written French morphosyntactic production	.465	.003	.544	<.001
Written French narrative comprehension	.599	<.001	.589	<.001
Written French morphosyntactic comprehension	.688	<.001	.715	<.001

Table 4. Linguistic profiles of the participants

Written French production and comprehension	LSF production and comprehension	Oral French comprehension	N
strong	strong	strong	7
strong	strong	medium	1
strong	strong	low	1
strong	medium	strong	2
strong	low	strong	2
medium	strong	medium	2
medium	strong	low	1
medium	medium	medium	5
medium	low	strong	2
medium	low	low	3
low	strong	medium	1
low	medium	medium	3
low	medium	low	3
low	low	medium	1
low	low	low	5

participants, who obtained the lowest scores in written French, were grouped in the "low written French" category. Similar group divisions were conducted for LSF and oral French. Table 4 shows the different profiles found among the participants.

The profiles of the participants reveal that all the 13 students who obtained the best scores in written French demonstrate strong linguistic skills in either or both LSF and oral French, whereas only one participant of the "low written French" group shows strong skills in another language/modality. Thus, it appears clear, based on these data, that good competences in reading and writing are related to good linguistic proficiency developed either in an oral language and/or in a SL. Indeed, 7 participants of the "strong written French group" are also strong in LSF production/comprehension and oral French comprehension. The 6 remaining strong French readers/writers show high competences either in LSF production/comprehension ($n = 2$) or in oral French comprehension ($n = 4$). Mayberry et al. recently came to a similar conclusion, affirming that only quality and precocity of language exposure, not the modality of the language, is a necessary condition for literacy development (Chamberlain & Mayberry 2005; Ducharme & Mayberry 2005).

5   Discussion and conclusions

Does the knowledge of a natural sign language facilitate Deaf children's learning to read and write? The data collected in this study seem to lead to a positive answer to this question, by showing a strong relationship between LSF skills and written French skills developed by bilingual Deaf children. These results confirm the relationship found between SL and written language skills in experimental studies conducted in North America. Altogether, these findings strongly support the hypothesis of a positive relationship between SL and reading/writing development and suggest that Deaf children benefit from early exposure to a natural sign language for their literacy development. Although the correlations found between LSF scores and written French scores do not directly inform about the direction of the relationship, the fact that participants in this study were all exposed to LSF before the age of 5 and received literacy instruction later, beginning at the age of 6–7, indicates that, in this situation, LSF proficiency precedes written French proficiency and might have facilitated its development (Niederberger & Prinz 2005). However, this does not mean that the interaction might not become more bidirectional later. The skills developed in written French may strengthen and complement in return the language skills first developed in LSF. Clearly, further investigation needs to be conducted in order to analyze the direction of that relationship at different stages of literacy and SL development.

How does the knowledge of a natural sign language facilitate Deaf children's learning to read and write? The results of this study highlight the role of SL narrative and comprehension skills in the SL/written language interaction, confirming the findings of Mayberry et al. and Prinz et al. for ASL/English (Chamberlain & Mayberry 2000;

Prinz et al. 2001). Since LSF narrative skills correlate not only with written French narrative skills but also with written French morphosyntactic skills, it appears clear that the interaction involves more than only transfer at the narrative level as suggested by Wilbur (2000). Similarly, LSF comprehension skills correlate not only with written French comprehension skills, but also with written French production skills. Therefore, other kinds of mechanisms have to be considered, such as the role of metalinguistic/academic skills suggested earlier in this chapter. A possible explanation is that the participants used LSF as a metalinguistic tool to study and monitor written French language, in a similar way that Biederman (2003: 160) described for Deaf students in New Zealand, who seemed to use SL to plan and monitor their written productions, to discuss ideas for story topics and to recall rules of written English.

Altogether, these findings support Cummins' idea of common underlying processes that could be transferred from one language to another one. However, a more in-depth description of these processes is still missing. In particular, the distinction between the role of metalinguistic skills and academic skills remains unclear. There is an urgent need of more refined theoretical models that would describe more precisely the relationship between L1 and L2 in sign bilingualism situations, and that would integrate the latest findings about narrative linguistic transfer and metalinguistic and academic transfer. These models should also include all areas of morphosyntax as well as lexical/semantic knowledge to get a comprehensive picture of the complex interaction between SL and reading and writing acquisition.

The study presented here also provides a first window on LSF and French development interaction, a topic that has received little attention so far. It demonstrates a strong and positive relationship between the skills developed in both languages by bilingual Deaf children and therefore strongly supports the sign bilingual programs implemented in the French-speaking/signing part of Switzerland.

This study also reveals two interesting factors which play a role in the SL/reading and writing development interaction in the specific Swiss-French context. First, a school effect is observed in relation to LSF production skills development, which in turn affects reading and writing development. Although this phenomenon needs to be more deeply analyzed for a better understanding, it clearly shows that external factors, probably educational, affecting the quantity and the quality of language input provided, can affect the linguistic development of Deaf children of hearing parents. These findings should be of particular interest for educational policy makers and educators for the Deaf. Indeed, a comprehensive analysis of the variations in SL programs (school, after-school and home programs) and their effects on linguistic development would certainly lead to substantial improvements of the Deaf students' school achievement.

The second interesting observation pertains to the interaction between oral language skills, written language skills and SL skills. Oral skills were not assessed in the studies conducted in North America. However, in the Swiss-French context, where oral French training is part of the Deaf bilingual programs, these linguistic skills needed to be evaluated for their possible interaction with written French development.

Results show a strong link between oral French comprehension skills and written French skills, and also a relationship with LSF narrative skills.

Thus, data gathered in the Swiss-French context suggest that sign bilingual models should also take into account the type of SL instruction provided to the students and describe its impact on reading and writing development at different points in time (what should be highlighted in SL and when). The role of oral language skills must also be evaluated as all the Deaf students are exposed to it and may use some (passive) knowledge of it, even when its instruction is not emphasized by the school program in which the students are enrolled. In particular, a better understanding of the role of oral language receptive skills in the development of reading/writing by bilingually raised Deaf children is needed. In addition, the possible interaction between oral language skills and SL skills needs to be evaluated: Does the knowledge of SL facilitate the development of oral language skills? Is there an interaction, and if so, is it bidirectional or unidirectional? Finally, further investigation should diversify the methods employed. For instance, in order to determine the direction of the SL/written language relationship at different stages of the learning process, cross-sectional studies, developmental studies or case studies seem particularly appropriate.

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Bilingualism and deafness

Correlations between deaf students' ability to use space in Quebec Sign Language and their reading comprehension in French

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In this chapter we try to determine whether there is a relationship between the mastery of LSQ (*langue des signes québéoise* 'Quebec Sign Language') and written French, acquired respectively as L1 and L2 by Deaf children educated bilingually. More precisely, we evaluate reading comprehension in French and mastery of space in LSQ. Indeed, the use of space in that language is hypothesized to be an appropriate indicator of global competence because it is not only involved in all forms of co-indexation but also is the means by which the language establishes relations between lexical elements. Reading comprehension is evaluated through the ability to locate and infer information in a text. Statistical analysis (Spearman correlations) show that mastery of LSQ is related to reading comprehension.

Keywords: bilingualism, language evaluation, LSQ, correlations, use of space, reading comprehension, assignment, reference, inference

1. Introduction

Prior to September 1998, no bilingual educational programme for Deaf children existed in the province of Quebec. At the request of the Deaf Children's Parents Association, the Quebec Ministry of Education authorized the experimentation, under the supervision of a group of researchers, of a bilingual approach over a six-year period (1998–2004) in a special school for the Deaf. The implementation and development of the project were supervised by the *Groupe de recherche sur la LSQ et le bilinguisme sourd* ('Research Group on LSQ and Deaf Bilingualism') from the *Université du Québec à Montréal*.

The bilingual teaching in LSQ and written French was organised in such a way that, from kindergarten onward, children would develop in a setting that would provide them with the possibility of learning LSQ 'naturally' through spontaneous interaction with Deaf teachers. Starting at 1st grade, spontaneous interaction in LSQ was gradually supplemented by explicit teaching of LSQ (by a Deaf teacher) and of written French (by a hearing teacher with an excellent command of LSQ). The necessity of explicit teaching of sign language grammar prior to the teaching of oral language grammar is justified by the fact that, because early exposure to sign language is relatively rare for these children, "there is often no real L1 for L2 French to build onto" (Tuller et al. 2007: 374). Further, deaf students have no direct access to an oral language and therefore lack a natural input of an oral second language environment, which makes them typically different from hearing second language learners (see Berent 2006, for a discussion on types of ASL-English Deaf learners, and Tuller et al. 2007 on LSF-French Deaf and hearing learners). Therefore, special attention was put on the cognitive maturity of the children and the acquisition of a basic vocabulary in LSQ as requisites for French instruction (for more information on the bilingual programme implemented, see Dubuisson & Vercaingne-Ménard 1999; and Vercaingne-Ménard, Parisot & Dubuisson 2005).

Our study was motivated by the fact that the elaboration of the assessment methods and instruments, necessary for an appropriate evaluation of the bilingual development of Deaf children acquiring both a signed and a written language, currently represents one of the central issues in the field of sign bilingualism research. When the programme began in 1998, no test was available for the assessment of LSQ (neither for production, nor comprehension), and we thus faced the challenge of developing methods for the assessment of LSQ proficiency in Deaf students. Furthermore, the ongoing linguistic description of LSQ imposed constraints on the development of assessment instruments, as did the lack of studies on the acquisition of LSQ by Deaf children of Deaf parents (DCDP). As for the assessment of reading comprehension in French, we also faced the challenge of developing an appropriate tool that would meet the criteria imposed by the research goals.

This chapter addresses the question of a possible relationship between specific skills in LSQ and reading comprehension in French in a context were both the methods and the instruments of evaluation were to be developed. Moreover, the researchers had to deal with the constraints imposed by the implementation of a new bilingual programme with a small and varying number of Deaf children. The text is organized as follows: after a brief overview of the available hypotheses concerning the interaction of sign language and written language in bilingual development, we will discuss the tests elaborated to assess Deaf children's abilities in LSQ and in French reading. We will then present the results of the tests undertaken during a two-year investigation and discuss them in the light of the current hypotheses.

2.   The relationship between L1 sign language and L2 literacy

One of the central questions in the domain of bilingualism research concerns the nature of the relationship between the two languages in the course of the bilingual development. Regarding the acquisition of literacy in linguistic minority children, the evidence gathered in studies of hearing bilinguals suggests that mastery of a first language (L1) facilitates literacy development in the second language (L2) (Cummins 1991). Given the specific acquisition situation of the participants in this study, which involves the acquisition of a signed language as a primary language and a written language without access to the spoken modality it relates to, the question arises as to whether the assumption of a facilitating role of the L1 would also extend to this type of cross-modal bilingualism.

In the course of the last two decades various hypotheses have been proposed about the relationship between a signed language and a written language in the bilingual development of Deaf students (see Hoffmeister 2000, Niederberger this volume, and Tuller et al. 2007 for a detailed discussion). Three main hypotheses were distinguished, i.e. the Interference Hypothesis, the Double-Discontinuity Hypothesis, and the hypothesis of a positive relationship between L1 and L2. We will not dwell on the studies at the origin of an interference or a negative influence of the sign language as L1 on the written language as L2 because, as Niederberger shows, they were submitted to several criticisms. Moreover, several studies from our Research Group since Dubuisson and Nadeau (1994) show that the errors made by deaf children when writing French cannot be attributed to the influence of LSQ (Daigle & Dubuisson 1995; Daigle & Dubuisson 1998; Dubuisson & Daigle 1998).

As for the Double-Discontinuity Hypothesis, besides the criticism by Niederberger of several studies, we will point out a methodological shortcoming that points to the relevance of a careful development of the tests used in the comparison of performance in L1 and L2. Indeed, Moores and Sweet (1990), who studied the relationship of conversational skills in ASL and English literacy performance measured by the Test of Syntactic Ability and the Peabody Individual Achievement Test, found no correlations between ASL skills and English literacy performance. However, as pointed out by Hoffmeister (2000), Moores and Sweet did not, in fact, find any correlations, because their study focused on conversational skills in ASL and could not, therefore, capture the relationship between ASL and written English in an academic setting. In a study on sophisticated knowledge of ASL lexical and morphological rules, Hoffmeister showed that such knowledge was related more directly to reading and writing than conversational skills in ASL. As we will explain later, such findings have led us to compare sophisticated LSQ knowledge to equally sophisticated reading abilities in French.

The third hypothesis states that knowledge of sign language is related to reading and writing development. Several North American studies showed, for instance, that Deaf children with Deaf parents performed better in English literacy than Deaf children with hearing parents. What seems to be relevant is that DCDP acquire a strong

linguistic background that gives them a better understanding of the world, which is very important to reading comprehension. Indeed, Bebko (1998) observes that, while reading, DCDP focus on finding meaning instead of decoding specific details of information while children relying on a poor linguistic background are limited in their search for meaning. Therefore, we took into consideration the importance of learning LSQ 'naturally' through spontaneous interaction with Deaf teachers since kindergarten, supplemented later by explicit teaching of LSQ. We hypothesized that would develop the strong linguistic background needed to become a good reader.

Also within the scope of a positive relationship between L1 and L2, Padden and Ramsey (2000), using material developed by Suppala et al., tested specific ASL skills, such as verbal agreement and word order. They found that the results of the two tests were correlated to the scores obtained at the SAT (Stanford Achievement Test) in reading vocabulary, which focuses on world knowledge, and reading comprehension, thereby measuring how well students understand what they read. Padden and Ramsey's research established a connection between specific skills in L1 ASL and reading comprehension in L2 English, findings which led us to investigate the relationship between specific skills in L1 LSQ and reading comprehension in L2 French.

To summarize, the above mentioned studies on the relationship between sign language and written language in bilingual Deaf children vary largely concerning the level of comparison (communication skills vs. specific syntactic skills in both languages). They also take different levels of interaction between the languages into consideration. The difference of modality of the languages seems to make impossible a direct transfer (but see Plaza-Pust this volume, for a different position) and to support an indirect type of interaction, at the metalinguistic level. Further research is necessary to specify the types of skills involved.

3.   Method

This section is devoted to the description of both the participants in the experiment and the elaboration of the instruments to evaluate the mastery of LSQ and the comprehension in reading French.

3.1   Participants

All of the children who participated in the experimental bilingual classrooms investigated were diagnosed as profoundly or severely deaf. Their level of proficiency in LSQ varied substantially at the time of their admission into the bilingual programme. Not all children surveyed participated in the programme as of preschool, and therefore some may have had less overall exposure to LSQ than others. Among those who joined the programme later, some had a very basic knowledge of signs. Despite this difference

Table 1. Number of students in the bilingual classrooms

Year	Students 1st Group	New Students	Total
2001–2002	24	-	24
2002–2003	13	7	20

in LSQ proficiency at the children's entrance into the programme, and despite the fact that most children had hearing parents, LSQ was considered to be their L1 because it was the language they had come to know best and used most at the time of the evaluation (see Skutnabb-Kangas [2000: 106, 112] for a discussion of the notion of L1, particularly concerning the situation of Deaf children who have hearing parents). The children had various socio-economic backgrounds. There were no specific selection criteria and all Deaf children whose parents so desired were admitted to bilingual groups. Throughout the experimentation of the bilingual approach, the number of children taking part in the project varied because new children were admitted every year, and some children changed schools or were placed in a different educational programme. Therefore, in the 2001–2002 school year, there were 24 children divided into 1st cycle (preschool, 1st and 2nd grade), 2nd cycle (3rd and 4th grade) and 3rd cycle (5th and 6th grade) involved in the study. In 2002–2003, 13 children from the original group continued in the bilingual programme, and 7 children joined the cohort.[1] This variation in the groups of children participating in the study explains the lack of continuity in the data presented below.

3.2   Instruments and measures

The following subsections present in detail the development of the assessment instruments for LSQ and French reading comprehension.

3.2.1   *Assessment Instruments for LSQ Skills*
Because no assessment instruments existed to measure LSQ skills, we drew inspiration from previous research on the assessment of skills in other sign languages in order to develop our own instruments.

Several studies had reported on the use of different assessment methods for sign language proficiency, but they mainly dealt with ASL (e.g. for ASL, Hoffmeister 2000; Padden & Ramsey 2000; Strong & Prinz 1997, 2000; for Australian Sign Language –Auslan-, Schembri et al. 2002). To assess ASL knowledge, Hoffmeister (2000) tested the comprehension of synonyms, antonyms and quantifiers. Padden and Ramsey

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1.   We use the terms "cycle" and "grade" because these terms correspond to those used in the standard school system. However, in the case of schools for special communities, the homogeneity implicit in such terms does not always correspond to reality because the children vary considerably in their levels of acquisition of knowledge.

(2000) used a battery of five tests to evaluate ASL proficiency. Two of them assessed fingerspelling and initialization. Two other tests (developed by Supalla et al. in the 1980s, see Singleton & Supalla 2003) evaluated verb agreement and comprehension of sign order and had been adapted for Auslan by Schembri et al. (2002). The last of the five tests assessed general language skills and consisted of an imitation task. To evaluate ASL proficiency, Strong and Prinz (1997, 2000) used comprehension and production tests. They assessed the ability to produce classifiers and narratives and the comprehension of stories, classifier constructions, temporal markers and spatial markers.

Tests using synonyms and antonyms (as in Hoffmeister 2000) were not considered in this study, because we wanted to assess morpho-syntactic knowledge in LSQ rather than lexical knowledge. It was not possible to elaborate tests using quantifiers because the description of these elements was not available. We did not use tests of initialization and fingerspelling (as in Padden & Ramsey 2000) because these phenomena are less frequent in LSQ than in ASL (Dubuisson et al. 1996); neither did we test word order because it is less constrained in LSQ than in ASL (Bouchard et al. 2000).[2]

Prior to the present study, as in Strong and Prinz (1997, 2000), the LSQ narrative skills of the children in the experimental classrooms had been evaluated (Vercaingne-Ménard et al. 2001; Vercaingne-Ménard 2001). This type of narrative data collection was found to provide an accurate evaluation of (a) children's comprehension of a story (presented on video without signs and speech), (b) their capacity to use LSQ to tell the story in a coherent manner, and (c) their mastery of the production of narrative structures. However, the material used for this data collection (an animated movie of *Félix le chat*) did not permit to test LSQ comprehension but was chosen because it allowed the production of a classic narrative schema, providing clues about children's ability to use linguistic elements in LSQ such as spatial marking. The use of spatial narrative markers had been previously shown to play a central role regarding cohesion in the narrative structures of native adult LSQ signers (Dubuisson et al. 2001). However, this kind of test did not permit a structured evaluation of the use of space, since the absence of certain types of spatial markers in the productions could not be interpreted as a lack of mastery, given the spontaneous nature of the data. Due to this shortcoming, it was decided to use (as in Padden & Ramsey 2000) an imitation test to assess the participants' skills regarding the use of space, in particular, verb agreement and classifier constructions. Our test placed special emphasis on the assessment of verb agreement structures, for these often involve a grammatical use of space. Items assessing classifier constructions were also included in the test. Therefore, the test developed takes into account a distinctive feature of sign languages, including LSQ: the use of space to express syntactic and semantic relationships between the elements of a sentence (Pettito

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2.   Studies on sign order have shown that grammatical relations in LSQ are established spatially rather than by linear order. This explains why there are many possible orders for signs in LSQ. The same has been described for French Sign Language in different frameworks (Cuxac 2000; Millet 2005).

& Bellugi 1988), including all forms of coindexation (pronominal reference, verb agreement, noun determination, etc.) (Parisot 2003). Given the fundamental role played by the use of space in LSQ grammar, it was hypothesized that the degree of mastery of this property would be an indicator of global proficiency in this language.

The test was an imitation task – based on the third test used by Padden and Ramsey (2000) – for which the participants had to reproduce a series of sentences as accurately as possible. This type of task is often used in studies on language acquisition to verify the mastery of particular language structures. For example, Mayberry and Fischer (1989) utilized this type of test and found a correlation between the results of the imitation task and the ability of children to predict upcoming signs using syntactic structure and contextual clues. In more general terms, it has been shown that the ability to repeat a sentence is linked to the participants' understanding of the language (Pearson 1990) and their knowledge of the grammatical properties involved. On the one hand, if a sentence is understood, but the signs or the syntactic structures used are not mastered, children will tend to replace them by signs or syntactic structures they know and intuitively consider as equivalent (Brown & Brewer 1996). On the other hand, it has also been shown that children are able to repeat sentences that they would not produce spontaneously (Gallimore & Tharp 1981). Therefore, imitation tests seem to be an adequate way to assess children's mastery of specific structures in a language.

Development of the First Version of the LSQ Test. As mentioned previously, our test focussed primarily on the phenomenon of verbal agreement. More specifically, it aimed at assessing the two linguistic devices used for verbal agreement in LSQ: locus assignment (the act of attributing a locus in space to a particular noun) and spatial reference (the act of referring to a locus previously assigned). For this purpose, in the analysis of the data, only spatial markers were examined, and only those that were identical to the model were considered to be correct answers.[3]

The examples below show the type of spatial markers investigated in the present study and included in the stimulus material. In example (1), a locus x is assigned to the entity a GRENOUILLE ('frog') through the adjective GROS ('big'). The locational verb ATTENDRE ('to wait') is produced on the locus x which has been previously assigned to its agent, and the final index is a pronoun that assigns a locus y to the entity b MOUCHE ('fly').

In example (2), a locus x is assigned to the entity a MARIE by signing it at a specific point in space, while a locus y is assigned to the entity b FILLE ('girl') by means of the determiner INDEX3(by). The plain verb AIMER ('love') is followed by two indexes which act as pronouns referring to the loci y and x.

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3. This first-pass analysis was a "strict" analysis. A second, more lenient analysis was also applied to the data from the first testing session with Q1; half the points were given when a child had produced a spatial marker equivalent to the one produced by the experimenter instead of reproducing the model. A comparison of both types of analyses showed that the children produced very few acceptable substitutions.

(1)   GRENOUILLE(a) GROS(ax) MOUCHE(b)
      frog   big   fly
      3*a*-ATTENDRE-3*b*(*x*)-INDEX3(*by*)
      wait
      'The big frog is waiting for the fly'

(2)   MARIE(ax) FILLE(b) INDEX3(by)
      Mary   girl   the
      AIMER-INDEX3(by)-INDEX3(ax)
      love
      'The girl loves Mary'

Although non-manual components play an important role in the use of space in LSQ, we decided to investigate only manual spatial markers. A pilot study we carried out previously had shown that while reproducing a signed sentence children tended to look at the Deaf experimenter for feedback, and this visual contact was found to interfere with their production of non-manual components. The types of spatial markers investigated in the present study were chosen from those found in spontaneous narrative productions of native signers (Dubuisson et al. 2001) and their frequency in the test was matched to the frequency of the same markers in those narratives. The actual number of spatial markers included in each stimulus sentence varied because we hypothesized that the level of difficulty of a sentence would be related to the number of spatial markers it contained. Finally, there was a substantial difference in the number of signs contained in the stimulus sentences because of the varying number of spatial markers.

The stimulus sentences were created and produced by a native signer of LSQ who utilizes this language as her primary mode of communication. The vocabulary used was basic and familiar to the youngest children (5 years old). The stimulus sentences were pre-recorded on video, ensuring that all children saw identical sentences in the testing sessions. The recorded sentences were presented using the software MultimediaFusion™ and were shown one at a time to the children on a laptop computer.[4] The children's productions were recorded on video by a native Deaf signer of LSQ in order to make sure the children were in a LSQ stimulating linguistic setting encouraging spontaneous production in this language, for it has been shown that in conversational settings, speakers adapt to the language of their interlocutors. Thus a Deaf signer will tend to sign differently when in presence of a Deaf than of a hearing interlocutor (Lucas 1996).

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4.   The sentences could be seen repeatedly at the child's request or if there was a technical problem (a frozen computer or a discontinuous video flow). In order to be able to distinguish memory processes (recall of the entire target to be reproduced) from linguistic processes (production of morpho-syntactic structures), a child was allowed to view a video as many times as needed before reproducing it.
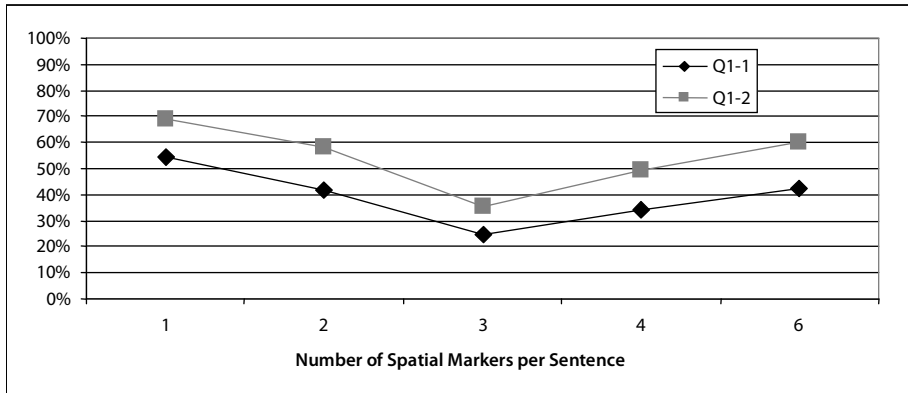
Figure 1. Percentage of accurate reproduction of spatial markers as a function of their number in a sentence

Modifications of the First Version of the Test. After two test sessions, our measure was validated and appeared accurate. The children's progress showed that they performed better during the second test session, but the inter-item level of accuracy was comparable in both tests (test-retest reliability). However, following the analysis of the data collected with the first version of the test (Q1), it was noted that certain elements had to be modified. The hypothesis that the level of difficulty was a function of the number of spatial markers in a sentence was not supported. For example, certain sentences containing up to six spatial markers were reproduced by the children with greater accuracy than some sentences containing only one or two spatial markers. Figure 1 shows that the stimulus sentences that were reproduced least accurately were those containing three spatial markers. The sentences containing six spatial markers were reproduced with equal or greater accuracy than those containing two spatial markers.

A closer look at the data showed that level of accuracy was linked to the type of spatial marker rather than to the number of spatial markers involved in the stimuli. The sentences that were most accurately reproduced contained semantic classifiers, verbs used in classifier constructions (see example 3), and involved a topographic use of space.[5]

(3) SALON(ax) CUISINE(by) CHAMBRE(cz) CHAT(d) ALLER(xyz)
      living room kitchen   bedroom   cat   go
      'The cat goes from the living room towards the kitchen and the bedroom'

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5. Topographic space in sign languages consists in a transposition of real-life scenes in order to provide a detailed description of spatial relationships or of the spatial arrangement of elements. Syntactic space is an abstract use of space to establish a setup for the realization of reference in a discourse (Emmorey 1996; Emmorey, Corina & Bellugi 1995).

Table 2. Summary of the differences between both versions of the LSQ test

	Q1	Q2
Number of sentences (items)	22	26
Number of signs/sentence	3 to 7	5 or 6
Number of spatial markers/sentence – topographic space	1 to 4	0
Number of spatial markers/sentence – syntactic space	1 to 4	3 or 4
Total number of spatial markers/sentence	1 to 6	3 or 4
Total number of locus assignment markers	44	54
Total number of reference markers	33	42

Because of this finding, we decided to elaborate a second version of the test, with new stimulus sentences. The lexical items were selected on the basis of the same criteria used for Q1 (i.e. basic and familiar vocabulary) but, unlike in Q1, all the stimulus sentences had 5 or 6 signs and 3 or 4 spatial markers. The sentences in Q2 also differed from those in Q1 in that they only involved the use of syntactic space and not topographic space. Table 2 summarizes the differences between the first (Q1) and the second version (Q2) of the LSQ test.

Table 3 presents the distribution of locus assignment and reference markers in both versions of the test. In Q1, eight types of assignment markers and five types of reference markers were included. In Q2, not only did we remove any stimuli involving the use of topographic space, but we eliminated possessives and locational verbs which would assign a locus (see example 4).[6] However, we kept the locational verbs that also function as reference markers, as illustrated in example (5).

(4)   PÈRE(a)   LIVRE(b)   POSS(ax)   ÉCRIRE(y)-INDEX3(ax)
       dad   book   his   write
       'My dad is writing his book'

(5)   GÉRANT(a)   INDEX3(ax)   ENTENDANT(b)   PETIT(by)
       manager   the   hearing person   short
       3b-CONNAÎTRE-3a(y)-INDEX3(ax)
       know
       'The short hearing-person knows the manager'

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6.   There was much variation in the children's ability to reproduce 3rd-person possessives in the first two test sessions of Q1 (Q1-1 and Q1-2). This variation may be explained by the fact that when a sign expressing possession is present in a sentence, a constraint is imposed on the order of signs (Bouchard et al. 2000). This constraint appears to interact with the degree of difficulty in using space while signing.

Table 3. Distribution of assignment and reference markers in Q1 and Q2

		Q1	Q2
Assignment Markers	Noun localization	16	16
	Determiner Index	8	13
	Directional Verb (Final Place of Articulation)	2	7
	Semantic Classifier	5	0
	Pronominal index	5	3
	SASS[†]	2	15
	Possessives	4	0
	Locational verb	2	0
Reference Markers	Pronominal Index	8	19
	Locational verb	4	8
	Directional verb (Initial Place of Articulation)	7	6
	Directional verb (Final Place of Articulation)	6	9
	Classifier Verb	8	0
Total		77	96

[†]   Size and shape specifiers (SASS) correspond to signs such as SMALL or BIG which are used to specify the size or shape of a referent.

The second version of the test also contained more spatial markers overall than the first version; they were better distributed across the different types of verbs, and either involved a modification of the initial and/or final place of articulation of a verb or the addition of pronouns.[7]

3.2.2   *Assessment of Reading Comprehension in French*

Part of our supervision mandate for the implementation of the bilingual programme involved carrying out an assessment of the children's comprehension of written French. We had to take into consideration both the particular situation of the experimental approach and comply with the requirements of the Quebec Ministry of Education.

There is a long tradition in the assessment of deaf children's reading comprehension (for an analysis on the relevance of different types of reading tests for deaf children, see Dubuisson & Bastien 1998), which has often relied on normalized tests such as *the Woodcock-Johnson Psychoeducational Battery* (Strong & Prinz 1997) and the Stanford Achievement Test-Hearing Impaired (SAT-HI). While biases related to the

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7.   The agreement of directional verbs is generally expressed by the modification of the signs initial and final place of articulation, whereas the agreement of locational verbs is expressed by the modification of the signs' place of articulation and by the addition of a pronoun. Finally, the agreement of plain verbs does not involve the modification of the place of articulation (compared to the citation form of the verb), but instead the use of one or two pronouns is required. For more details on verbs in LSQ, see Parisot (2003).

modality have been eliminated (e.g., the use of speech or the presence of lengthy questions with complex syntactic structures, etc., see Strong & Prinz 1997, 2000), the SAT-HI remains subject to criticism. Hoffmeister (2000), for example, highlights the fact that the SAT-HI has considerable limitations which make it unsuitable for a thorough assessment of reading comprehension because it only uses decontextualized, and often unfamiliar, reading passages or sentences.

It is important to point out that in the province of Quebec, no reliable standardized reading test comparable to the SAT exists. In the test we developed, we took into account the criticism mentioned above. The text presented to the children was about topics specific to their reality (e.g., Halloween), most of the vocabulary was familiar to them and the syntactic structures were rather simple. Assessment questions were also formulated simply, in written French, and if necessary, the instructions and the questions could be given in LSQ.

In order to ensure that the test would comply with the requirements of the Quebec Ministry of Education we developed it on the model of existing tests administered in elementary schools in the province of Quebec to assess children's reading comprehension. These tests are designed in such a way that in order to answer the questions, children have to use four mental operations that play a role in the comprehension of written texts: locating, grouping, selection and inference. The children are asked to locate information clearly expressed in the text (locating); a question relating to this type of mental operation would be, for example: *What is the color of the princess's dress*? The correct answer would involve the location of the relevant information in the text sentence: *The princess has a pink dress.* Further, children are required to group together different elements in the text; for example, they have to identify all costumes appropriate for Halloween (grouping). To demonstrate their ability at the level of 'selection' they must choose among several pieces of information and classify them in two or more sets; for example, they have to put together articles of clothing that make up a princess's costume or that of a sorcerer. Finally, they have to find out information that is not expressed in words but is suggested in the text and needs to be deduced from contextual clues (inference). For example, following a text in which the story begins on Saturday morning, one of the test questions asks: *Why are the children not going to school today?*

We elaborated a multilevel reading comprehension test (L1–1) which was to be used with children from grade 1 to grade 3. The difficulty level of the questions had to be graded in order to distinguish the reading levels of the children from grade 1 to grade 3. However, the vocabulary and the sentence structures had to be simple enough for the children in the 1st grade to be able to take the test.

Since we were aware from previous studies that children did not perform adequately if the same test was administered twice during the same school year, a second version of the test was developed (L1–2). In order for us to better assess progress in reading comprehension, we ensured that both versions of the test would be of the same linguistic level, that is, the two different stories involved similar sentence structures, and in both cases, the vocabulary was familiar to the participants.

Table 4. Mental operations assessed and global marks for the French reading tests

	Locating	Inference	Global
L1–1	8	8	20
L1–2	8	8	20
L1–3	3	7	14

Additionally, it was also deemed necessary to develop a third, more difficult version of the test, for the children who achieved nearly perfect scores during the second testing session. This new version (L1–3) assessed the same mental operations (locating, grouping, selection and inference), was longer, used more complex sentence structures and contained a more advanced vocabulary.

For L1–1, L1–2 and L1–3, a scoring template was developed, in which each of the four abilities tested (locating, grouping, selection and inference) was listed and used for the grading of each answer on the basis of the following scale: *not acquired* (0 points), *partly acquired* (1 point) and *acquired* (2 points).

Table 4 presents the number of mental operations relating to 'locating' and 'inference' assessed in the three test sessions along with the number of items used in each test. Since only a few questions assessed grouping and selection, the scores associated with these mental operations did not have a sufficient weight to be used as categories for statistical analyses. Thus, these categories do not appear in table 4, but are taken into account in the global mark. The global mark is therefore the sum of the results obtained for locating, grouping, selection and inference.

Table 4 also shows that the number of questions assessing the ability to locate information in a text was reduced in the L1–3 test because the assessment of this ability was no longer necessary as the results indicated that it was already mastered by the children at the end of the 2002–2003 school year.

3.3   Test sessions

Table 5 summarizes the test sessions and the periods of assessment for both languages.

As we explained earlier, since our study was conducted in a school setting involving authentic situations of Quebec Deaf school reality, we had to deal with a small number of participants and the circumstance that from one year to the next new students joined the bilingual programme while others left.

Table 6 shows the number of children who participated in language testing sessions. All the children participating in the bilingual programme at the time took the first LSQ test in 2001 (Q1–1: 24 children), and the same children took the test again in 2002 (Q1–2: 24 children). In 2003, the LSQ test (Q1–3) was administered to 20 children (13 from the preceding year and 7 new ones, see Table 1) and the new revised LSQ test (Q2–1) was administered to 18 children (several children were absent at different moments and five of the students took only one of the two tests).

Table 5. Test sessions for LSQ and French

School year	Period of Assessment	LSQ Test	French Reading Test
2001–2002	Autumn 2001	Q1–1	L1–1
	Spring 2002	Q1–2	L1–2
2002–2003	Spring 2003	Q1–3	
	Spring 2003	Q2–1	L1–3

Table 6. Number of participants for each test session

	LSQ Tests				French Reading Tests		
	Q1-1	Q1-2	Q1-3	Q2-1	L1-1	L1-2	L1-3
2001-2002	24	24			15	15	
2002-2003			20	18			9

Since the preschool children were too young to participate in the French reading test sessions, in 2001–2002, 15 out of the 24 children took the L1–1 and L1–2 tests. In 2003, only 9 of those children took L1–3.

To verify that the tests reflected the students' progress, we compared, on the one hand, the results of the four LSQ testing sessions and, on the other hand, the first and the third French reading testing sessions (because of a probable bias, as explained in 4.2, we could not take the results of L1–2 into account). To establish correlations between the results in LSQ and those in French reading, we used the results of participants involved in each pair of tests that we compared (see the grey boxes in table 6). As shown in table 7, for the LSQ testing sessions, 24 participants were the same in 2001 and 2002, 13 in 2002 and 2003, and 15 for the two tests of 2003. For French reading comprehension, 8 children were given both L1–1 and L1–3. For comparison of LSQ and French tests, 15 students took both tests in 2001 and 9 in 2003. Here again, the variation in the number of participants is explained by the instability of the cohort and by the exclusion of the preschool students for the LSQ/French comparison.

Table 7. Number of participants for the correlation analysis

Between LSQ test sessions		Between reading test sessions		Between LSQ and reading test sessions	
Q1–1 vs. Q1–2	24			Q1–1 vs. L1–1	15
Q1–2 vs. Q1–3	13				
Q1–3 vs. Q2–1	15	L1–1 vs. L1–3	8	Q2–1 vs. L1–3	9

4. Results and discussion

We will first present the results of the LSQ tests and the results of the French reading tests. We will then compare the successive test sessions. Finally, we will show the correlations between the mastery of LSQ and French reading comprehension.

4.1   Results from the LSQ test

Altogether, the results of Q1–1, Q1–2 and Q1–3 show that the children became better at using spatial markers in LSQ, either when assigning a locus or when referring back to it.[8]

    A paired Student *t*-test shows a significant improvement in the scores obtained in the second testing session compared to those of the first one, for locus assignment ($p=0.009$) and for reference ($p<0.0001$). Likewise, a paired Student *t*-test shows a significant improvement in the scores obtained in the third test session compared to those of the second one for locus assignment ($p=0.0454$) and for reference ($p=0.0251$). Modifications to the first version of the test (Q1) made the second version (Q2) more difficult, and a ceiling effect was therefore avoided for the more advanced children. The average score obtained for assignment markers in the Q2 test was 51.3 (SD=20.7), whereas it was 61.1 (*SD*=21.6) in Q1–3. Furthermore, the average score obtained for reference markers in Q2 was 44.1 (*SD*=28.4), whereas it was 61.5 (*SD*=26.4) in Q1–3. However, the Pearson correlations between the scores in Q1–3 and in Q2 are highly significant ($p<0.01$) for assignment markers as well as for reference markers. These correlations are presented in Table 8.

    Table 9 compares the results for assignment markers and reference markers for the tests Q1–1, Q1–2, Q1–3 and Q2. The scores for assignment markers are significantly higher than the scores for reference markers ($p<0.0001$ for Q1–1, $p=0.0170$ for Q1–2 and $p=0.0044$ for Q2). However, in the case of the Q1–3 test, scores for assignment markers and for reference markers do not differ (61.1% and 61.5% respectively).

Table 8. Correlations between Q1–3 and Q2 (Pearson correlation)

N=15	Q2 Assignment	Q2 Reference
Q1–3 Assignment	0.85**	0.75**
Q1–3 Reference	0.81**	0.70**

**   *p* < 0.01

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8.   For the comparative analysis presented in this section, statistics were computed from the results of subjects who had taken two tests: either Q1-1 and Q1-2 (*n*=24), Q1-2 and Q1-3 (*n*=13), or Q1-3 and Q2-1 (*n*=15).

Table 9. Accuracy of assignment markers versus reference markers in LSQ

	Assignment	Reference
Q1 – 1st testing session	+	–
Q1 – 2nd testing session	+	–
Q1 – 3rd testing session	=	=
Q2 testing session	+	–

These results suggest that assignment markers are easier to acquire than reference markers, an assumption that would have to be further verified in longitudinal studies on the acquisition of LSQ by Deaf children of Deaf parents in a natural acquisition situation. A possible explanation of the equal scores for Q1–3 may be a ceiling effect on assignment markers in the first version of the test (Q1).

4.2   Results of the French reading comprehension tests

The data analysis for French reading comprehension focused on the global scores and on the scores for the ability to locate and infer information when reading. A two-sided paired Student t-test comparing the results from the L1–1 and L1–2 tests shows a significant improvement in the reading test scores between the beginning and the end of the school year ($p=0.0155$). No improvement was found for the ability to locate information in a text ($p=0.6209$), however the scores were already quite high in the L1–1 test (75%). The general improvement was essentially due to the children's ability to infer information from the text ($p=0.0054$), but a confounding factor was later uncovered which may have biased the scores (the experimenter was a newcomer to the team and, without realizing it, partly gave the answers to the children of one of the groups while he was giving them LSQ instructions for L1–2). The observed progress in the children's performance could therefore not be taken into account and it was not possible to verify the children's progress between the spring of 2002 and the spring of 2003. Nevertheless, it was possible to compare the results of the L1–1 and L1–3 tests. This comparison only involved the ability to make inferences, since the L1–3 test did not include many questions targeting the ability to locate information in a text. A one-sided paired t-test showed that the children's ability to make inferences improved between L1–1 and L1–3 ($p=0.0470$).

4.3   Relationship between the use of space in LSQ and French reading comprehension

In this section we present the results of statistical analyses that show how, on the basis of the tests presented above, mastery of the use of space in LSQ is related to reading comprehension.

As summarized earlier in Table 6, the tests taken into account in the analyses are the LSQ and reading tests administered in 2001 and the LSQ[9] and reading tests administered in 2003.

The Spearman test (for the tests taken in 2001) shows a highly significant correlation between global reading comprehension in French (locating, grouping, selection and inference) and global ability to use space in LSQ (assignment and reference). More specifically, there is a correlation between the ability to assign loci in LSQ and the ability to infer information in reading, and also between assignment in LSQ and global reading skills. Furthermore, there is a correlation between the ability to refer to a pre-established locus in LSQ and the ability to infer information in reading, as well as between reference in LSQ and global reading comprehension. There is no correlation between locus assignment in LSQ or reference in LSQ and the ability to locate information in a text when reading. Finally, there is a correlation between the level of global ability in the use of space in LSQ and the ability to make inferences in reading. Table 10 shows the correlations for the tests taken in 2001.

For the tests administered in 2003, the results of nine children who took both tests (L1–3 and Q2–1) were also analyzed using a Spearman correlation test. The results of eight out of nine of these children were included in the analysis of the results for the tests taken in 2001. As seen in Table 11, the significant correlations that were found are the same as those found in 2001 (see Table 10). However, Table 11 also shows two new significant correlations between locus assignment in LSQ and locating skills in reading, as well as between the global skill level in LSQ and locating skills in reading.

Table 10. Correlations between the LSQ test (Q1–1) and the reading test (L1–1) (2001)

2001 (*n*=15)	Assignment	Reference	Global score
Locating information	0.41	0.34	0.43
Inference	0.68**	0.76**	0.77**
Global score	0.66**	0.62**	0.71**

** $p < 0.01$

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9.   For the 2003 test session, only the second version of the LSQ test (Q2) is included in the analysis. Because of the possibility of a ceiling effect on the performance for the assignment markers category (as discussed above), the Q1-3 test was removed from the analysis.

10.   The statistical analyses were performed by the SCAD, a service offered by the University to assist researchers in the analysis of their data. Only the results of the Spearman correlation tests are presented because the analyses are based on the rank of the children rather than on their scores. Such a test avoids putting too much emphasis on the great variation between scores, and also allows getting around the influence of outliers.

Table 11. Correlations between the LSQ test (Q2) and the reading test (L1 – 3) (2003)

2003 (*n*=9)	Assignment	Reference	Global score
Locating information	0.79**	0.52	0.67*
Inference	0.59*	0.75*	0.64*
Global score	0.70*	0.92**	0.84**

* $p < 0.05$ and ** $p < 0.01$

Because the groups were small and because the correlation coefficients were too close to one another, particularly in the case of the data from the 2001 test sessions, the confidence intervals were too wide to allow us to determine whether there was any difference between them (for instance, whether the correlation between reference in LSQ and inference in the reading of French was more significant than assignment in LSQ and inference in the reading of French). However, the overall analyses we conducted showed consistent correlations between the level of global ability in using space in LSQ and the level of global comprehension in the reading of French. Furthermore, the analyses also showed that proficiency in the use of space in LSQ is correlated to the ability to make inferences rather than to the ability to locate information in a text. In particular, no correlations were found between the ability to locate information in a text, which is used very early by learners, and the ability to refer to a pre-established locus in LSQ, which is learned later. It would be interesting, in a future study, to test the correlations found here and to determine to what extent the mastery of locus assignment and of spatial reference in LSQ are related to higher-level processes in reading (e.g. inference).

5.   Conclusion

In a bilingual education setting, the assessment of sign language proficiency is an essential aspect of the curriculum for determining the level of acquisition of certain components of sign language structure. However, an evaluation can only be carried out on elements of the language for which a linguistic description is available. LSQ grammar has not yet been fully described, and we therefore chose to consider the use of space as representative of the degree of proficiency in LSQ. Because the description of LSQ is ongoing, there is a constant back and forth movement between descriptive research and language assessment, hence the need for caution in the interpretation of what may be considered a global measure of language skills in sign language.

The study presented in this chapter contributes to a better determination of the elements to be considered in the assessment of language skills in LSQ. It also shows that there are correlations between Deaf children's mastery of spatial elements of LSQ and their reading comprehension level. We cannot assert, from a bilingual acquisition perspective, that there is a unidirectional link between mastery of LSQ and French reading.

Nonetheless, the results of our analysis have shown that there is a relation between specific LSQ structures and cognitive tasks implied in the reading process. As this relation involves specific skills at different linguistic and non-linguistic levels, an adequate interpretation will only be possible once a more comprehensive model of bilingualism becomes available. Existing hypotheses on the facilitating effects of the knowledge in the L1 for the acquisition of the L2 do not sufficiently expand on the origins of such effects. It would be interesting to conduct further research to examine the question of directionality in the relationship between signing and reading proficiency.

Despite the many methodological and descriptive limitations of this study, the results lead to a new stage in the development of evaluation instruments and the analysis of the language skills of Deaf children in Quebec. The study was conducted in a school setting, which implied real-life factors such as the coming and going of students from one year to another. Despite these conditions, however, the results provide interesting leads for further research, particularly on the relationship between a specific aspect of sign language proficiency (spatial reference) and a specific aspect of reading comprehension (inference). It seems, as Hoffmeister (2000) suggests, that sophisticated measures of sign language skills such as spatial reference are related to reading skills. Furthermore, it is interesting to note that in our study, a specific ability in LSQ (referring to a pre-established locus) is explicitly correlated to a higher-level reading process (making inferences). This brings us a step farther in our efforts to understand the interaction of both languages.

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Why variation matters

On language contact in the development of L2 written German

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Based on a collection of written narratives gathered in the context of a broader longitudinal investigation of the bilingual acquisition of German Sign Language (DGS) and written German by bilingually educated deaf students, the study presented in this chapter explores the main milestones in the development of German in order to (a) identify the commonalities and differences between the deaf students' and other learners' development of German, and (b) determine the range of intra-individual variation (including language contact phenomena) and its relation to reorganisation phases in the learner grammars.

The analysis of the data reveals the structure-building processes underlying the students' development of German sentence structure. Further, it is shown that the deviances in the written productions pattern with the errors produced by learners of German in other acquisition situations, which provides additional support for the assumption that deaf learners' acquisition of written German as an L2 is bound, too, to underlying language specific learning processes. Regarding language contact phenomena, the lexical and structural borrowings identified occur at specific developmental phases whereby structural borrowings decrease as learners progress in their development of the L2.

Keywords: sign bilingualism, language contact, language mixing, written language development, variation, learner grammars

1. Introduction

> *"Whatever claims we want to make about bilingual acquisition of English and ASL will require that we view language acquisition as the development of interacting systems, each of which has specific social uses".*
> (Carol Padden 1998: 103)

The question of whether or not the human mind is well equipped to deal with a multi-lingual competence is not only of interest to linguists and psycholinguists (Meisel 2004). Whether multilingualism constitutes an exception or a deviance from the norm continues to be a controversial issue in the educational and political domains (Baker 2001; Meisel 2004; Plaza-Pust & Morales-López, this volume). In the area of deaf education, language contact is widely conceived of as a phenomenon that would negatively and holistically affect the development of the spoken/written language as a second language which is one of the reasons the bilingual approach remains an exception rather than the norm worldwide (Plaza-Pust 2004). While monolingual myths continue to abound, studies on language mixing in interactions among adult bilinguals, including bilingual signers, have shown that our understanding of language contact phenomena is closely tied to the organisation of language, on the one hand, and the functional and sociolinguistic dimensions of language use, on the other hand (Grosjean 1982; Plaza-Pust 2005; Tracy & Gawlitzek-Maiwald 2000; Winford 2003).

However, while cross-modal (signed/spoken) language mixing in interactions among adult bilingual signers and between deaf parents and their deaf children (Baker & Van den Bogaerde, this volume) is commonly assumed to show how bilinguals skilfully exploit their linguistic resources, there is little consensus on the potential interaction of a signed and a written language in the bilingual development of deaf children. There is some agreement about the positive effects deriving from an *interdependence* of sign language and spoken/written language at the global levels of pragmatic knowledge and metalinguistic awareness (Niederberger, this volume; Dubuisson et al., this volume). With respect to the interaction of both languages at the grammatical level, some scholars acknowledge in somewhat general terms that L1 sign language knowledge which draws on universal grammar (UG) might reduce the complexity of the task of acquiring the written language as an L2 (Wilbur 2000: 90), but do not consider the possibility of cross-linguistic influence or borrowing in terms of a "pooling of resources" (Gawlitzek-Maiwald & Tracy 1996), i.e. a skilful combination of the structures available in the respective languages. As theories about second language and bilingual language acquisition have been refined over the last three decades, they shed a new light on this topic. If, as is currently assumed, language mixing occurs as a developmentally constrained phenomenon that affects specific linguistic properties during specific phases in the bilingual development of two spoken languages, the question arises as to whether this would equally hold in the acquisition of two languages of different modality.

The study presented in this chapter aims at clarifying the role of language contact in the acquisition of the written language by bilingually educated deaf students. In the following section, we discuss the available hypotheses about the interaction of a signed language and a written language in the light of current assumptions in the broader field of bilingualism research. We will then examine the data obtained in the context of a longitudinal study of the bilingual development of deaf students. Here, we will portray the individual developmental profiles and determine the common characteristics of the

participants' developments before proceeding to the discussion of what inter- and intra-individual variation might reveal about the underlying language learning processes and the role of language contact in the acquisition of the written language as an L2.

2.   Language contact in (cross-modal) bilingual language acquisition

2.1   Deaf learners' L1 signed language and L2 written language

Commonly, the notions of *mother tongue* or *first language* are bound to the criteria of age (first language acquired) and environment (language used at home), while full access to the language learned is taken for granted. In the case of deaf children, however, *accessibility* needs to be considered as the defining criterion of their base or primary language given that they can only fully access and naturally acquire signed languages (Berent 2004; Günther 1999b; Leuninger 2000; among others). Age of exposure to sign language is also a critical issue for the majority of deaf children born to non-signing hearing or deaf parents. Whether they acquire sign language successfully through contact with signing peers or adult signers depends on multiple factors (cf. also Yang, this volume; Morales-López, this volume). In the decision making process of the language choice for their deaf child, parents are commonly not alone as medical advice and early intervention play an important part. The pathological view of deafness and related *monolingual* oralist method in deaf education continues to prevail in the medical and educational areas (cf. Plaza-Pust 2004; Massone, this volume). Thus, many deaf children are not exposed to a signed language during the sensitive period for language acquisition. While it seems plausible to assume that the full accessibility of the language may accelerate the delayed learning process, more evidence is needed to conclusively establish whether late learners (ages 5–10) can attain the subtle properties of the target signed language (see Morford & Mayberry 2000 for a discussion of the effects of a late exposure on the processing of signed language in comprehension and production). Another issue that remains largely unexplored concerns the potential impact of the early use of an artificial signed system (at home and/or in the kindergarten) on the later development of a signed language. Despite these caveats, we will use the label of L1 throughout this chapter to refer to signed language as the primary language used by bilingually educated deaf children.

With respect to deaf children's acquisition of the written language the numerous studies undertaken reveal a complex picture.[1] While there is some consensus about the

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1.   Until recently, the research was almost exclusively dedicated to the acquisition of written English (cf. Wilbur 2000; Musselman 2000, for an extensive discussion of the studies undertaken in the course of the last decades). As pointed out by Schäfke (2005) with respect to the situation in Germany, the research gap is due to the persistent focus on the *spoken* language in the domain of deaf education. Her recent study is the first to provide a comprehensive picture of the writing skills of deaf students based on a nation-wide collection of written narratives.

assumption that the written language is acquired by bilingually educated deaf children as a second language (Goldin-Meadow & Mayberry 2001; Günther 2003; Leuninger 2000; Leuninger et al. 2003; Schäfke 2005; Vercaingne-Ménard et al. 2005; Vorköper 2005),[2] there is little agreement on whether they can compensate the lack of access to the spoken modality the written language relates to by taking other pathways in the learning of the written code and successfully attain the target L2 grammar (Musselman 2000; Musselman & Szanto 1998; Paul 1998; Perfetti & Sandak 2000; Vorköper 2005; among others).

The few scholars that discuss and explain their findings about deaf children's acquisition of the written language in the light of linguistic theory distinguish several internal and external sources of the errors in the written productions (Wilbur 1987 2000; Berent 1996). As the types of deviances encountered are similar to the rule-based errors (i.e. omissions or overgeneralisations) found in the learner grammars of other (hearing) L2 learners (Wilbur 2000: 83), it is assumed that they are developmentally constrained. However, the characteristic long-term persistence of these errors which is reminiscent of the plateau or fossilisation effects in second language learner grammars suggests that the development of the written language by deaf students might be delayed or truncated due to (a) a restricted *quantity* of the input available to them, and (b) a deficit in the *quality* of the input they are exposed to in the classroom. Following this line of reasoning, the traditional teaching of written language structures in isolation with a focus on formal correctness (ibid.; Günther et al. 2004; Schäfke 2005) occurs at the expense of a creative use of language which would allow deaf children to acquire subtle grammatical and pragmatic properties (cf. also Leuninger et al. 2003). If the hypothesis of the written language as an autonomous system is correct (Günther 1999b, 2003; Schäfke 2005), it seems plausible to assume that learners are faced with the task of "cracking the code" along the lines proposed for other acquisition situations, i.e. they have to identify the relevant units of each linguistic level, the rules that govern their combination as well as the inter-relation of the different linguistic levels of analysis. Both innate knowledge and linguistic environment conspire in this process.

Additionally, where written language is attributed the status of a second language, the question of the potential role of signed language (L1) in the development of the written language (L2) is fundamental for an appropriate understanding of how bilingually educated deaf children may profit from their linguistic resources in the course of their bilingual development.

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2.   Cf. Berent (1996) for a discussion of the status of the written language as "L1.5" in non-signing deaf children, whereby "1.5" aims at capturing the circumstance that these students take up their incomplete L1 development of the spoken or written language in the formal school setting, where they study it as an L2.

2.2   Hypotheses about the interaction of signed language and written language

In the investigation of the bilingual acquisition of a signed language and a spoken/ written language in deaf children three distinct linguistic levels at which an interaction of both languages might occur are commonly distinguished, i.e. the linguistic (interaction at the level of grammar), metalinguistic (interaction at the level of knowledge about language) and metacognitive levels (interaction at the level of the cognitive requisites for language acquisition). The results obtained in the studies dedicated to the latter two dimensions coincide in the positive effects of an early exposure to sign language for the acquisition of literacy in young deaf signers in the sense of Cummins' Interdependence theory (see the contributions of Dubuisson et al., this volume; and Niederberger, this volume; for a strong critique of the use of this model, see Mayer & Wells 1996). However, with respect to a potential inter-relation at the grammatical level, there is less of a consensus.

2.2.1   *The assumption of a separate development*
According to the proponents of a strictly separate development, there is no evidence of an influence of signed language on the written language at the levels of morphology and syntax. The errors that occur in the written language productions of deaf students are assumed to be developmentally determined for their greater part (see section 2.1). As Wilbur (2000: 81) puts it "ASL is not the source of the problem", whereby 'problem' refers to the "specific errors in deaf students' English" (ibid.). According to Fabbretti et al. (1998), this assumption is additionally corroborated by the finding that children with and without sign language exposure would produce the same error patterns. However, on the basis of a comparison of deaf and hearing native signers' written texts they conclude that "difficulties in the acquisition of written Italian are best explained by deafness itself" (ibid.: 242). More specifically, they claim that morphological errors of deaf writers' productions are related to their limitations in acoustic perception (ibid.).

Other authors have emphasised a general positive effect of the interaction between both languages given the more advanced knowledge in signed language L1 which would reduce the complexity of the acquisition task (Wilbur 2000: 91). The possibility of cross-linguistic interference, as it occurs in other types of second language acquisition, is acknowledged by some scholars. However, as Fischer (1998: 4) puts it, "although a first language can interfere with the learning of a second language, it will facilitate much more than it interferes because the second-language learner has an idea of what a language is like and what it can do". Further, Vercaingne-Ménard et al. (2005) point out that the potential influence of signed language on the written language needs to be taken into consideration in the conception of bilingual education models. As they state in their report of the development of the bilingual education programme established in Québec,

> même si l'influence que peut avoir la LSQ sur le français n'explique pas toutes les
> erreurs que font les élèves sourds en français écrit, il était important d'en tenir

compte parce que nous abordions l'enseignement du français par le biais de la LSQ (ibid.: 15).[3]

2.2.2 *The hypothesis of a promoting function of sign language*

Following the assumption of the promoting function of sign language (Günther 1999a,b; Günther & George 1999) sign language *qua* base language assumes a pioneering role in the bilingual development of deaf students. Based on a study of the written productions of deaf students attending the Hamburg bilingual programme, the proponents of this hypothesis claim that deaf students profit from their more advanced DGS (*Deutsche Gebärdensprache*, 'German Sign Language') knowledge in two respects. First, children benefit from the general knowledge attained through this language (general 'world knowledge' but also knowledge about story grammar) in their production of written narratives (Günther et al. 2004). Secondly, they compensate temporary gaps in the written language grammar by borrowing sign language structures. Crucially, DGS influence along these lines was shown to be a temporary phenomenon in the written data collected. As the learners' knowledge of the written German increased, the incidence of DGS borrowings decreased (cf. ibid.; Schäfke 2005). Further, the longitudinal study revealed that learners differ with respect to whether or not they make use of DGS borrowings. Unfortunately, these studies only provide a global picture of language mixing at the grammatical level given their focus on narrative development. However, the hypothesis that DGS borrowings serve the function of a *relief strategy* is in line with current assumptions in the field of bilingualism research as explained in the following section.

2.3   Bilinguals' pooling of resources: Current assumptions in bilingualism research

Following a longstanding debate about the question of the separation or fusion of language systems in bilingual first language acquisition (Tracy & Gawlitzek-Maiwald 2000; Meisel 2004), there is a consensus today that both languages develop separately early on. This assumption is supported by the evidence gathered in longitudinal studies (De Houwer 1995; Genesee 2002; Lanza 1997; Meisel 1989, 1994, 2004; Tracy 1994/5) which show that the "course of the development in each of the languages of bilingual children does not differ qualitatively from the acquisition of the respective languages by monolinguals" (Meisel 2004: 100, cf. also Petitto et al. 2001; Petitto & Holowka 2002). While the issue of a separate development has been settled, some scholars have recently turned their attention to the evidence of language mixing in young bilinguals and concluded that both languages may temporarily interact in the course of the bilingual development (Gawlitzek-Maiwald & Tracy 1996; Genesee 2002;

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3.   "Even if the influence LSQ can have on French does not explain all the errors deaf students make in written French, it was important to keep this influence into account because we approached the teaching of French via LSQ." (My translation)

Hulk & Müller 2000; Müller et al. 2002). Example (1), an utterance of an English-German bilingual child reported in Tracy and Gawlitzek-Maiwald (2000), provides further illustration of the type of interaction encountered when both languages do not develop at parity. At the time of its production, the structure available to the child in English was a bare verb phrase, while more sophisticated grammatical structures, including constructions with periphrastic verb forms, were available in German. By merging both structures in this utterance the child skilfully "pools her resources" (Gawlitzek-Maiwald & Tracy 1996). From a developmental perspective, the possibility of a pooling of resources might also have an accelerating effect on the language that lags behind as the properties that have already been acquired in one language might "trigger" the corresponding ones in the other language (hence the term of *bilingual bootstrapping* as proposed by Gawlitzek-Maiwald & Tracy 1996).

(1) ich hab ge-climbed   up
     I   have PAST-PART.-…
     (Tracy & Gawlitzek-Maiwald 2000: 524)

Structural borrowing as in (1) is easy to detect because the child uses lexical material of both languages. What needs to be kept in mind, however, is that the interaction of two languages in language mixing may not involve all linguistic components. The range of potential combinations of elements of two languages (*contact continuum*) in bilingual speech suggests that different degrees of co-activation and co-production of information from different levels of linguistic analysis need to be conceived of (cf. Grosjean 1997; Tracy 2000).

The abstract combination of morphosyntactic features of two languages, commonly referred to as *interference* (Muysken 2004) or *cross-linguistic influence* (Winford 2003: 12; Kellerman & Sharwood-Smith 1986), involves lexical material from one language only which is the reason why this type of mixing often goes unnoticed as "it is much easier to spot lexical borrowing and code mixing" (Muysken 2004: 149). In the domain of adult second language acquisition, particular attention has been paid to structural borrowing from the L1. Consider, for example, the utterance of an Italian adult learner of L2 German (2) which involves the borrowing of Italian word order (SVO) (in target German, the object would appear inside the verb bracket in the main clause, and the infinitive verb would appear sentence-finally in the embedded clause[4]) (Plaza-Pust 2000a: 177).

(2) aber ich brauch vergessen meine sprache   für
     but I   need to.forget my   language for

     lernen die deutsch
     learn   the German
     'But I need to forget my language in order to learn German'

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4. See section 3.3 for a sketch of German sentence structure.

Two further observations concerning language mixing in this acquisition situation are important for present purposes, namely, (a) structural borrowing in L2 acquisition is a temporary phenomenon to the extent that learners succeed in restructuring the target-deviant (L1) properties borrowed to conform to the *target* (L2) language, and (b) reorganisation in L2 grammars is commonly tied to variation, i.e. there is an apparent co-existence of target-like and target-deviant properties. For example, in the development of L2 German by the Italian learner mentioned previously, we observe the alternate production of target-deviant and target-like constructions with periphrastic verb constructions (cf. (3) and (4) produced during the same recording session) prior to the eventual implementation of the target German word order.

(3) oweh   wir haben schon   gehabt viele   fragen
     oh-dear we   have already had   many questions
     'Oh dear, we had many questions already'

(4) in akzehn jahren hast du   nicht gute freunde gehabt
     in eighteen years   have you not   good friends had
     'For eighteen years you did not have good friends'

(ibid.: 183)

Crucially, the progressive uncoupling of the L2 from the L1 grammar is tied to the developmental milestones in the acquisition of the target L2 grammar (Karpf 1990; Plaza-Pust 2000a) (see section 3.4 for a summary of the main developmental steps in the acquisition of German).

In conclusion, the progressive convergence of the different lines of research in the domain of bilingualism has provided evidence of how language mixing relates to the organisation of multilingual knowledge. The sophisticated combination of two distinct grammars in mixed utterances indicates that bilinguals know, by virtue of their innate language endowment (i.e. UG), that grammars are alike in fundamental ways. Thus,

> language mixing, either temporarily as a help and bootstrapping mechanism in acquisition or as the permanent potential of the proficient bilingual is only a natural consequence of that (tacit) assumption. (Tracy 1994/5: 484)

The evidence gathered with respect to cross-modal (signed/spoken) language mixing in interactions among adult bilingual signers and between deaf parents and their deaf children (Baker & Van den Bogaerde, this volume) provides support for the assumption that this holds equally of the bilingual acquisition and use of a signed and a spoken language. The question that remains open thus far is whether deaf students acquiring a *written* language as an L2 equally benefit from a pooling of linguistic resources in the sense outlined. The evidence gathered in the Hamburg studies seems to suggest that this is the case. The study presented in the following sections seeks to further clarify this issue, in particular, the question of whether language mixing is developmentally constrained and restricted to specific grammatical areas.

3.   The study

The present study is part of a broader investigation of the bilingual acquisition of DGS and written German by bilingually educated deaf students attending the bilingual education programme established at a special school for the deaf in Berlin since September 2001. The children are being instructed in DGS by a deaf teacher and in spoken German and LBG (*Lautsprachbegleitendes Gebärden*, i.e. 'Signed German') or LUG (*Lautsprachunterstützendes Gebärden*, i.e. 'sign supported German') by a hearing teacher. The bilingual team teaching method applied in this programme implies that during 15 hours per week classes are taught in collaboration by the deaf and the hearing teachers. The curriculum includes DGS/Deaf Studies as a separate subject. Another feature of this programme is the explicit promotion of written language skills, with a focus on text level processes, an approach that is adopted from the first German bilingual education programme implemented in Hamburg (Günther et al. 2004: 231ff.). This means that while children are taught the target grammar of German, it is not formal correctness but the ability to produce and comprehend narrative structures which lies at the centre of the teaching.

3.1   Participants

At the time of the implementation of the bilingual programme, the number of students participating was 9, 5 boys and 4 girls. All of them are children of hearing parents. Two boys with additional learning problems are not included in the study presented here and, for one girl, Luise, data are only available until April 2005 when she changed school. Table 1 provides an overview of (a) the children's age at kindergarten, preschool and bilingual programme enrolment respectively, (b) the vehicular languages or communication systems used in these institutions, and (c) the language(s) used at home. As we can see, the children' s age of exposure to DGS ranges from 2 to 4 years. With the exception of Luise all of them attended the preschool located at the premises of the school in which the bilingual programme is run. The students' age at the beginning of the bilingual programme (1st year primary school) ranged from 6–7 years. Regarding the language(s) used at home, we can see that some of the children have a non-German background (e.g. Arabic, Turkish) and that some parents have learned DGS or LBG which they use in the communication with their children. Two children, Hamida and Simon, have deaf siblings.

Table 1. Participants' profiles with respect to their home languages, ages at enrolment and language(s) used at kindergarten, preschool and bilingual programme

	Kindergarten (vehicular language)*		Preschool (vehicular language: DGS**)	Primary school / bilingual programme	Home language(s)
Hamida	3	(LBG)	4;02	07;00	Arabic, German (parents use German in interactions with Hamida) (Hamida has two deaf siblings)
Muhammed	2,5	(DGS)	3;02	06;02	Turkish, home-sign
Simon	4	***	4;04	07;04	LUG with mother, DGS with deaf sister
Luise	2	(DGS, LBG)		06;03	LBG and DGS with mother and sister
Maria	2	(DGS, LGB)	6;05	07;07	German, DGS and LBG with mother
Christa			3;00	06;00	DGS, LBG, German
Fuad	2;2 ***		4;11	07;03	Farsi, German (Fuad was CI implanted age 3;7)

(* in years, **LBG used in specific activities, *** no information on vehicular language available)

3.2   Method

The empirical basis of the ongoing longitudinal investigation consists of signed and written narratives elicited on the basis of the famous picture story "Frog, where are you?" (Mayer 1969). Sessions are scheduled every 5–6 months for the period of 4 years (beginning April 2004). The study presented in this paper is based on the written narrative productions of the first 5 sessions (May 2004–March 2006). All data were entered into a data base that permits analyses of error frequency and distribution (including deviances at the lexical, morphological and syntactic levels). The developmental profiles described in section 4 are based on the generalisations established for each of the written narratives (henceforth *files*) following a qualitative analysis of the data. The participants' development of German syntax was analysed on the basis of a descriptive framework of the major developmental milestones in the acquisition of German, on the one hand, and, on the other hand, on a descriptive framework of the contrasting grammatical properties of DGS and German. The areas of contrast that are relevant to the present study are summarised in section 3.3. Section 3.4 is dedicated to a brief portrayal of the acquisition of German sentence structure.

3.3   L2 German and L1 DGS: A sketch of the relevant areas of contrast[5]

3.3.1   *Word order*

German. While the underlying word order of German is SOV, main and embedded clauses differ with regard to the placement of the finite verb: it obligatorily appears in second position in main clauses, but appears sentence-finally in complementiser introduced embedded clauses.[6] The restriction regarding the placement of the finite verb in the second position in declarative main clauses is commonly referred to as the *V2 constraint*, and holds of all Germanic languages except English. The examples in Table 2 illustrate the placement of the finite verb and the diversity of elements that can appear in the preverbal position, i.e. subjects (5) and non-subjects as, for example, adverbs (6) or direct objects (7). Notice, additionally, that non-finite elements of the verbal complex (participles, infinitives and separable prefixes) obligatorily appear in sentence-final position. This position at the right periphery of the sentence (VE, *verb-end*) is assumed to be the base position of the verb in generative approaches to German word order which implies that, with respect to the verb-complement order or *VP headedness* (VP=Verb Phrase), German instantiates the head-final (OV) option[7]. Hence, in sentences

Table 2. Verb second (V2) in German main declarative clauses (VE=verb-end, V+fin=finite verb form, V-fin=non-finite verb form)

		Verb bracket					
		V2 **V+fin**					**VE** **V-fin / sep. prefixes**
(5)	Die Frau *the woman*	setzt *puts*	den *the*	Hut *hat*	nicht *not*			auf. *on*
(6)	Gestern *yesterday*	hat *has*	die *the*	Frau *woman*	den *the*	Hut *hat*	nicht *not*	aufgesetzt. *on-put*
(7)	Den Hut *the hat*	kann *can*	die *the*	Frau *woman*	nicht *not*			aufsetzen. *on-put*

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5.   The following sections are dedicated to a brief description of the properties of German and DGS that are relevant for the present study. While some background in linguistics, specifically syntax, is presupposed, I shall recapitulate the basic terminology for readers unfamiliar with the generative paradigm.

6.   We will disregard here the exceptions to this generalisation concerning verb placement and the main/embedded clause dichotomy. For a more detailed discussion see Plaza-Pust (2000a).

7.   Within the generative framework, the term *head* is used to refer to the main elements of syntactic constituents, namely, lexical or functional categories that determine the category of syntactic constituents (so, for example, the main element of the prepositional phrase (PP) *at the castle* is the preposition *at*, the head of the PP, cf. Haegeman 1994: 35). *Headedness*, in turn, is used to refer to the linear order of a head and the other elements of a phrase (i.e. initial or final).

Table 3. Verb final in German complementiser embedded clauses (C=complementiser).

		C						VE
(9)	(ich weiß),	**dass**	die Frau	den Hut	nicht	aufgesetzt	**hat**
	(*I know*)	*that*	*the woman*	*the hat*	*not*	*on-put*	*has*
(10)	(er weiß nicht,)	**ob**	die Frau	den Hut				**aufsetzt**
	(*he knows not*)	*whether*	*the woman*	*the hat*				*on-put*

with periphrastic verb constructions or separable verbs, adverbs, negators and verb complements appear inside the so-called *verb bracket* (cf. examples (5)-(7)).

In complementiser (=COMP or C) introduced embedded clauses finite verbs obligatorily appear in sentence final position (see Table 3).

The descriptive accounts of the verb placement asymmetry that characterises German word order differ with respect to whether or not main and embedded clauses are assumed to be generated on the basis of a common underlying structure (Gawlitzek-Maiwald et al. 1992; Grewendorf 1988; Vikner 1995; among others). In this study, we adopt the asymmetry hypothesis according to which main clauses are based on a head-initial IP (*Inflection Phrase*) (as in (11) and (12)), whereas complementiser introduced clauses are generated on the basis of a CP (*Complementiser Phrase*) with a head-final IP (as in (13)). In main declarative clauses, finite verbs move *viz. raise* from V to INFL (or I, for *Inflection*). Following the assumptions put forward in current generative linguistic theory, verb raising is motivated by the requirement that the temporal, aspectual and agreement features of the verb are picked up *viz. checked* in INFL (Haegeman 1994). As the preverbal position cannot remain empty, the subject or any other constituent (XP) is *topicalised* to the sentence-initial position. In complementiser introduced embedded clauses, verbs pick up the grammatical features in the sentence final INFL position. (In examples (11)-(13) finite verb forms appear in bold to highlight the different positions they appear in in main and embedded clauses).

$$[_{IP} \ \text{SpecI} \quad [_{I'} \ \text{I} \quad [_{Vmax} \ [_{VP} \quad \ldots \quad \text{V} \ ]]]]$$

(11)	Die Frau	**backt**	einen	Kuchen.
	the woman	*bakes*	*a*	*cake*
(12)	Heute	**backt** sie	einen	Kuchen.
	today	*bakes she*	*a*	*cake*

$$[_{CP} \ [_{C'} \ \text{C} \quad [_{IP} \ \text{SpecI} \quad [_{I'} \ [_{Vmax} \ [_{VP} \quad \ldots \quad \text{V} \ ]] \ \text{I} \ ]]$$

(13)	…,	dass die Frau		einen Kuchen	**backt**.
	…,	*that the woman*		*a cake*	*bakes*

DGS. The basic word order of DGS is SOV. Following current assumptions, the IP is head-final in this language (14) (Hänel 2005; Happ & Vorköper 2005; Pfau 2001)[8].

(14)
$[_{IP}$ SpecI $[_{I'}$ $[_{Vmax}[_{VP}$ …   V $]]$ I $]]$
 FRAU   KUCHEN SÜSS   BACK.
 woman   *cake*   *sweet* *bake*
'The woman bakes a sweet cake'

Sentence types are distinguished through the use of non-manual components. With the exception of the final position of the verb, the order of the other constituents in the sentence can vary following diverse grammatical and spatial requirements, as, for example, the figure-ground principle (15) (Happ & Vorköper 2006: 111).

(15) WAND$_1$ JACKE ICH HÄNG_AN$_1$
 wall   *jacket* *I*   *hang.on*
 'I hang up the jacket on the wall'
 (Leuninger 2000: 238, my translation)

There is no copula in DGS. The linking of the subject and the predicative adjective or other complements requires the use of a determiner, i.e. DET$_{LOK}$ (also transcribed as DORT) to express location (16), or DET$_{ART}$ in combination with predicative adjectives (17). Further, the determiner DET$_{EXISTENZ}$ (usually notated as DA) is used to express existence, presence or possession (18).

(16) BAUM$_A$ $[DET_{LOK}]_{AUF-A}$ VOGEL
 tree   DET   *bird*
 'The bird is on the tree'
 (Happ & Vorköper 2006: 111, my translation)

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8. The notation devices adopted for DGS examples are as follows (in the examples quoted from other authors, the original notation is used):

GEBÄRDE approximate German gloss of signs (where one sign corresponds to more than one word in German, the words are connected with underscores).

SIGN$_1$ subscripts (from the Latin or Greek alphabet, or in numbers) are used to mark agreement.

$_1$SIGN$_2$ verbs are marked at the beginning to indicate onset location, and/or at the end to indicate endpoint location.

VERB$_{AUF-A}$ German prepositions are used to mark movement from one location to another.

VERB$_{CL:\lambda}$ verbs with classifiers are marked with a subscript.

$[DET_{ART}]_1$ DET is used for determiners, pronouns, possessives, locatives. Happ & Vorköper (2006: 24) use the following subscripts for further differentiation: LOK for locatives, ART for articles, EXISTENZ for existential determiners. The object of the pointing is indicated after the square brackets.

$\overline{SIGN}$ a line above the glosses indicates the scope of non-manual markers that co-occur with the signs. *a+w* (from German 'Art und Weise') indicates manner.

CL: CL indicates classifier sign, followed by a description of the meaning.

(17)   HUND$_1$ [DET$_{ART}$]$_1$ KLEIN
       dog   *DET*   *small*
       'The dog is small'
       (ibid.: 106, my translation)

(18)   PROFESSOR$_1$ [DET$_{EXISTENZ}$]$_1$ WÖRTERBUCH
       professor   *DET*   *dictionary*
       'The professor has a dictionary'
       (ibid.: 114, my translation)

Another characteristic feature that is illustrative of the predominantly simultaneous organisation of a signed language like DGS is the phenomenon of classification (ibid.: 153ff.; Emmorey 2003). While unbound morphemes with the function of adjectives can be used to express the size and shape of objects (SASS, Size and Shape Specifier) or else their pattern and décor (19), physical properties of subjects or objects can be conveyed through modified verb signs. Finally, body part classifiers are bound morphemes of classifier verbs used to describe, for example, the movement of an animal. They imply a change of perspective as the signer assumes the role of the creature he is talking about (20).

(19)   VASE CL: FORM- GROSS BLAU
       vase *CL: form-* *big*   *blue*
       CL: STREIFEN- VON- OBEN- NACH- UNTEN

       CL: *stripes-*   *from- top-* *to-*   *bottom*
       ROT CL: PUNKTE- VERTEILT
       red   *CL:*   *dots-*   *distributed*

       CL: HENKEL- AN- VIER- SEITEN
       CL: handle-   *on- four- sides*
       'The big blue vase with vertical stripes, red dots and handles on four sides'

       (Happ & Vorköper 2006: 155, my translation)

(20)   _____ a+w: leise
       GARTEN$_A$ KATZE$_\Lambda$[[GEH$_{CL:\Lambda}$]$_{DURCH-A}$]$_{AKTIONSART:SCHLEICHEND}$
       garden   *cat*   *goes*   *through*   *crawling*
       'A cat crawls silently through the garden'
       (ibid.: 172, my translation [*a+w*=manner, *leise*='silently'])

3.3.2   *Inflectional morphology*
German. Inflectional suffixes in German provide information about person, number, tense, and mood. As we can see in Table 4 some forms of the German agreement paradigm overlap.

Table 4. German inflection paradigm (present tense)

person	number	suffix	example		transl.	
1st	singular	-e/-0	*ich*	*spiele*	'I	play'
2nd	singular	-st	*du*	*spielst*	'you	play'
3rd	singular	-t	*sie*	*spielt*	'she	plays'
1st	plural	-n	*wir*	*spielen*	'we	play'
2nd	plural	-t	*ihr*	*spielt*	'you	play'
3rd	plural	-n	*sie*	*spielen*	'they	play'

DGS. Following current assumptions, verbs are not overtly marked for tense in DGS (Happ & Vorköper 2006: 117ff.). Instead, temporal adverbials like ZUKUNFT ('future'), GESTERN ('yesterday'), and EBEN ('now') are used to express the time of an event or activity. These adverbials always appear sentence-initially and are not repeated in the course of the narrative or dialogue. With respect to agreement, DGS distinguishes between plain and agreement verbs (cf. Happ & Vorköper 2005 for a detailed discussion). Only the latter are overtly marked for agreement with subjects and/or direct or indirect objects. For example, a verb like GEBEN ('give') (see (21)) is a subject-object agreement verb.

> (21)   BUCH $_{ICH}$[GEB$_{CL}$]$_{DIR}$
> *book   give*
> 'I give a book to you'
> (ibid.: 99, my translation [$_{ICH=I}$ and $_{DIR=you.DAT}$])

3.3.3   *Word order and morphological case*
German. German is a language with a rich case system. The overt morphological realisation of case is marked on nouns, adjectives, determiners and on pronouns (Haegeman 1994: 157) (22).

> (22)   Der Lehrer hat   den Mann/Studenten gesehen.
> *the teacher has the man/student   seen*
> NOMINATIVE   ACCUSATIVE

DGS. In DGS, subjects and objects are not overtly case marked but are assigned abstract case in their respective structural positions (Happ & Vorköper 2006: 101). In constructions with plain transitive verbs (see (23)), case is assigned *via* PAM (for *Personal Agreement Marker*, also often notated as AUF ('on')) (Rathmann 2001; Happ & Vorköper 2006; Keller 1998). The other personal agreement marker BEM (*Benefactive Agreement Marker*) marks benefactive case (also notated as FÜR ('for')) (24).

(23)   MANN1 [DET$_{ART}$]$_1$ [MANN   ANDER]$_2$ KENN PAM$_2$.
       man   DET   man   other   know
       'The man knows the other man'

(24)   [PRON$_{PERS}$]$_{ICH}$ BUCH KAUF BEM$_{DU}$.
       PRO   book   buy   for
       'I buy a book for you'
       (Happ & Vorköper 2006: 101, my translation)

3.4   Acquisition of German: Major developmental milestones

Following the assumption of a *gradual* development of syntax (*Structure-building* or *Weak Continuity hypothesis*), we assume that the acquisition of the target German word order is determined by the interaction of innate principles (X-bar theory) and input data (see, for example, Plaza-Pust 2000a; Vainikka & Young-Scholten 1996, for adult second language acquisition; Siebert-Ott 2001 for child second language acquisition; and Fritzenschaft et al. 1991; Gawlitzek-Maiwald et al. 1992 for child first language acquisition). This hypothesis implies that learners start out with a minimal structure which they expand upon the evidence encountered in the input (hence the notion of *structure-building*). Summarising, the main developmental steps are as follows (cf. also the examples in Table 5, which illustrate the increasing structural complexity of the learners' productions).

VP structures. Learners' early word combinations reflect the availability of an elementary structural domain, the verb phrase (VP). The constructions are categorial-thematic in that they express the predicate-argument structures specified in the lexicon (cf. Radford 1990; Berent 1996). As grammatical processes that would constrain word order in full blown grammars run vacuous in VP grammars the order of elements may vary (Ouhalla 1991; Tracy 1991: 402ff.). However, most scholars agree in the observation of a preference for the verb final order by children acquiring German as their mother tongue (see (36) in Table 5). The position of the verb in the early utterances of child and adult L2 learners of German, in contrast, reflects the order of their respective L1 languages (i.e. OV in the case of (35) produced by a Korean L1 speaker).

IP structures. Research into the acquisition of German has shown that learners may take different avenues or strategies in structure-building (D'Avis & Gretsch 1994; Gawlitzek-Maiwald 2003). The variation encountered points to the relevance of paying attention to the changes in the learner grammars that might conspire in the projection of the *Inflection Phrase* (IP), i.e. the inclusion of auxiliary and modal verbs, the establishment of subject-verb agreement and the raising of finite verbs to a position at the left periphery in main clauses.

A fundamental step in the acquisition of German word order concerns the establishment of a relationship between the different positions verbs may appear in. The availability of the positions at the left and at the right periphery of the sentence is

Table 4. Developmental milestones in the acquisition of German*

CP structures (embedded clauses / questions)					

QUESTIONS

(25) [L2]	was hast	du	hier		gemacht?
	what have	*you*	*here*		*made*
(26) [L1]	was hol	ichn	jetzt?		
	what fetch	*I*	*now*		

EMBEDDED CLAUSES

(27) [L2]	ob	ich	der star		bin
	whether	*I*	*the star*		*am*
(28) [L1]	ob	ich	das		kann
	whether	*I*	*that*		*can*

	IP structures		(verb raising, finiteness distinction, subject-verb agreement, V2)		

V2 (preverbal non-subjects)

(29) [L2]		das	esse	ich	dir	weg
		that	*eat*	*I*	*you*	*away*
(30) [L1]		jetzt	hab	ich	ein	spritze\
		now	*have*	*I*	*a*	*syringe*

VERB RAISING (main verbs)

(31) [L2]		du	sagst	deine männer (…)		
		you	*tell*	*your men …*		
(32) [L1]		Julia	bringt	buch		
		Julia	*brings*	*book*		

VERB RAISING (aux / mod)

(33) [L2]		ich	habe	nur de kugelschreiber		gebracht
		I	*have*	*only the ballpoint-pen*		*brought*
(34) [L1]		ich	will	ein TROMmel		holn\
		I	*want*	*a drum*		*fetch*

		VP structures (*no evidence of grammatical processes*)	

(35) [L2] (L1 Korean)	hier jacke ausmachen
	here jacket off-make
(36) [L1]	Julia EIS essen
	Julia ice-cream eat

*   To illustrate the structure-building process, examples are provided "bottom-up", with early learner (VP) structures appearing at the bottom of the table and (target-like) structures for embedded clauses and questions at the top.

reflected in the production of sentences containing modal, auxiliary or separable verbs (see (33) and (34) for examples with an auxiliary and a modal verb respectively). In many L1 learners of German, the productivity of V2 constructions (cf. (30)) goes along with the acquisition of the agreement paradigm and the target-like distribution of finite and non-finite main verb forms in the sentence-initial *vs.* final positions (*finiteness distinction*). In some learners, however, the grammatical properties associated with the IP layer do not become productive at the same time.

CP structures. The production of embedded clauses introduced by a complementiser and target-like question formation reflect the expansion of the IP structure through the projection of the complementiser phrase (CP).[9]

Table (4) summarises the main developmental milestones described and includes examples from L1 and L2 learners for additional illustration ([L1]=examples for L1 acquisition, all taken from Tracy 1991; [L2]=examples for adult L2 acquisition, (25), (27), (29), (31), (33) from Plaza-Pust 2000a and (35) from Vainikka & Young-Scholten 1994: 280).

Note that this rough characterisation of the major developmental steps leaves enough room for individual variation in the progression toward the target grammar which is deemed necessary in view of the evidence gathered, in particular, concerning finite verb placement (at the left or right periphery of the sentence) prior to the availability of the full sentence structure (i.e. the complementiser phrase or CP layer). Other dimensions of individual variation are not captured in this figure but will be discussed in more detail in section 5. For example, grammatical properties relating to the distinct structural layers are collapsed, but might not appear simultaneously in all learner grammars. Further, the developmental milestones distinguished summarise the major changes in the learner grammars without taking into consideration potential "transition phases" in which old and new properties *viz.* grammars coexist.

4.   Results

In this section, we will present the main findings concerning the development the participants' German syntax during the two years of investigation covered in the present analysis. The summary of the main results is organised as follows: for each subject, we will sketch the characteristics of the learner grammar (word order, inflection morphology) at the beginning of the recording time (=file 1) before portraying the major developmental highlights. The description of the individual developmental profiles will be followed by a discussion of the common characteristics of the individual

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9.   Depending on the approach to German sentence structure this steps involves a restructuring of the IP to the head-final value or the availability of different structural formats for main and embedded clauses respectively.

developmental profiles and the range of variation encountered at both the inter- and intra-individual levels in section 5.[10]

4.1   Simon

Word order and verb forms in file 1. Word order in Simon's first written narrative included in this study adheres rather strictly to the SVX pattern. The few sequences in which the copula is dropped follow the pattern SPrepX (37). Against the backdrop of the elementary structures produced at the time, a sequence like (38) is remarkable in that it shows Simon knows that the verb *sehen* ('to see') can take a clausal argument. The juxtaposition of the two clauses, however, reveals the lack of the target selective properties of the verb (a target equivalent would require an embedded clause introduced by the complementiser *dass* ('that')). Regarding inflectional morphology and subject-verb agreement, Simon already uses the 3rd person singular form *ist* ('is') of the German copula verb *sein* ('to be') (38) – (40), but overgeneralises it to plural subject arguments (39). Main verbs appear in their infinitive form in this file (40) and throughout the whole corpus irrespective of the person and number of the subject. At times, infinitives are combined with the copula (41).

(37)   eine Eule auf Max   (DC10;00)
       an   owl on Max
       'An owl is on Max'

(38)   Timo sehern da   ist viele Bienen.   (DC10;00)
       Timo see   there is many bees
       'Timo sees that there are many bees there'

(39)   Max und Timo ist trauig.   (DC10;00)
       Max and Timo is sad
       'Max and Timo are sad'

(40)   Max machen Hand auf dem baum.   (DC10;00)
       Max make   hand on the tree
       'Max puts his hand on the tree'

(41)   Max und Timo ist schlafen   (DC10;00)
       Max and Timo is sleep
       'Max and Timo are sleeping'

Lack of evidence of the expansion of the VP. Simon's written narratives do not provide (unambiguous) evidence of the projection of an additional structural layer above the VP and verb raising to INFL. Main verbs appear with the infinitive marker –*en* or a default -*e* (42) suffix, and, at times, with no suffix at all (44) and there is no apparent

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10.   In the examples quoted the original punctuation has been kept as well as participants' deletions (elements are marked with the symbol #) and insertions (elements appear within slashes).

reason why one form is preferred over the other. He does not use periphrastic verb constructions in subsequent files, and adverbs (43) and the negator continue to appear in the preverbal position which leads us to assume that he has not expanded the VP structure by the end of the recording time.

(42)   Marukus schaue auf der Hund.   (DC10;11)
       Marukus look.at on the   dog
       'Marukus looks at the dog'

(43)   Reh schnell laufen.   (DC11;10)
       deer fast   run
       'The deer is running fast'

(44)   Der Junge und der Hund suchen   (DC11;10)
       the boy   and the dog   search

       auf ein Frosch nicht find.
       on a   frog   not   find
       'The boy and the dog look for a frog. They don't find it'

Word order variation and overgeneralisation of "auf". The adherence to a rigid, elementary SVX pattern is given up as of file 3, in which we observe an increase of V3 constructions (45), a higher frequency of verbless clauses some of which seem to involve a translation of DGS classifier expressions (46) and the occasional use of verb final patterns (47). Another remarkable phenomenon concerns the preposition *auf* ('on') which Simon uses to express a location (48), but also, it seems, to mark the grammatical relation between transitive verbs and their objects (49). As the morphological devices for object case marking are not mastered at this stage,[11] *auf* appears to serve the function of a case marker which is reminiscent of the function PAM (often annotated as AUF) would fulfil in DGS.

(45)   Am Morgen Markus schauen auf den Frosch.   (DC10;11)
       at   morning Markus look.at   on the frog
       'In the morning, Markus looks at the frog'

(46)   Der Hund Glas den Kopfen in.   (DC10;11)
       the dog   glass the head   in
       'The dog puts the head into a glass'

(47)   Markus Holz halt.   (DC10;11)
       Markus wood holds
       'Markus holds a piece of wood'

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11.   Case marked articles are produced, probably because of the formal teaching of these elements, but their use, as the examples show, is random.

(48) Der Hund falle auf Bode.   (DC10;11)
     the dog   fall   on floor
     'The dog falls on the floor'

(49) Der Hund suche auf Frosch.   (DC10;11)
     the dog   search on frog
     'The dog looks for the frog'

Concatenation of propositions. Sequences like (50) and (51), produced in file 4, illustrate how Simon combines different propositions to express a complex story event. In (50), a verb final clause is combined with a prepositional phrase (probably used to express that the frog "lands" on the floor after climbing out of the glass) and a conjoined V3 clause. (51) involves the combination of a copula sentence and the complementiser *weil* ('because') which Simon produces for the first time in this file.

(50) Der Frosch das ein Glas kletter
     the frog   the one glass climb

     auf dem Boden und Dann hüpfen.   (DC11;05)
     on the   floor   and then jump
     'The frog climbs out of the glass, lands on the floor, and jumps away'

(51) die viele bienen saure weil   bienenhaus
     the many bees   angry because bee.house

     ist kaukut   (DC11;05)
     is broken
     'The bees are cheeky because the beehive is destroyed'

4.2   Christa

Word order and verb forms in file 1. At the beginning of the data collection, Christa's written productions follow the SVX word order (52). She already produces some V3 constructions, in which adverbial temporal expressions appear in sentence-initial position (53) and one non-subject initial V2 sequence in which the subject is dropped (54), but this is an exception as she does not produce further instances of this word order in subsequent files. Further, (55) shows that she uses the complementiser *weil* ('because') at the time, however, in combination with a verbless clause. Christa produces finite main verb forms as of file 1 but continues to use many non-finite forms until the final sample included in this study. The examples illustrate the diversity of options used already in the first file: main verb infinitives appear alone (52)-(53) or in combination with the copula form *ist* ('is') (56). Some main verbs (e.g. *fällt* ('falls')) are correctly marked for the 3rd person singular (54) but are also used with plural subjects (57).

(52) Jung klettern auf dem ein Felsen.   (DF08;08)
      boy climbs   on the a   rock
      'The boy climbs on a rock'

(53) Am   Abend ein Frosch aussteigen
      at.the evening a frog   get.out

      auf dem Glas   (DF08;08)
      on the glass
      'In the evening a frog climbs out of the glass'

(54) plötzlich fällt auf der Hirsch.   (DF08;08)
      suddenly falls on the deer
      'Suddenly he falls on the deer'

(55) der Hund lauft. weil   Beien auf dem Hund.   (DF08;08)
      the dog   runs because bees on the dog
      'The dog runs because the bees follow him'

(56) Hund und Junge ruft der Frosch ist kommen   (DF08;08)
      dog   and boy   calls the frog   is come.INF
      'The dog and the boy call the frog to come'

(57) Hund und Jung fällt in der See.   (DF08;08)
      dog   and boy falls in the lake
      'The dog and the boy fall into the lake'

Word order variation and overgeneralisation of auf. Christa displays a more liberal use
of different word orders in file 2, including DGS-like sentential arrangements. These
follow the basic word order of that language (58)-(59) or involve the translation of a
DGS (classifying) description (60). (61) shows how she also overgeneralises the prepo-
sition *auf* ('on') to mark the relation between the verb and its complement.

(58) der Hund auf der Junge warten.   (DF09;01)
      the dog   on the boy   wait
      'The dog waits for the boy'

(59) auf Wiesen Sock Bieden ruft.   (DF09;01)
      on prarie (hive- bee)   calls
      '(The dog) calls on the beehive'

(60) der Hund Kopf im   Glas.   (DF09;01)
      the dog   head in.the glass
      'The dog has the head in the glass'

(61) Am   Morgen beiden such auf Frosch   (DF09;01)
      at.the morning both   search on frog
      'In the morning, both look for the frog'

Expansion of the VP structure. There is no evidence of the raising of main verbs to INFL until file 5 (before, separable verbs appear in their unanalysed form and adverbs occur preverbally as in (62) and (63) produced in file 3). However, periphrastic verb constructions with objects and adverbials inside the verb bracket appear 5 months earlier, in file 4 (64), providing evidence of a structural position above the VP which is further corroborated by the target-like placement of the negator after the copula in sequences like (65). The few verbless constructions in files 4 and 5 involve predicative constructions in which the copula is dropped (66) or expressions for which the target lexical devices are not fully mastered (67).

(62) Billy runter fallen.   (DF09;06)
      Billy down fall
      'Bill falls down'

(63) Dolly weglaufen, weil   Biene Beiß ihr.   (DF09;06)
      Dolly away.go   because bee   bites her
      'Dolly runs away because the bees bite her'

(64) Er hat ein froschen angenommen.   (DF10;01)
      he has a frog   accepted
      'He accepted a frog'

(65) Es ist auch nicht da.   (DF10;01)
      it is also not   there
      'He (the frog) is not there either'

(66) Der Jungen böse   auf seine Hunde.   (DF10;01)
      the boy   angry on his   dog
      'They boy is cheeky with the dog'

(67) er bescheid   auf Junge.   (DF10;01)
      he information on boy
      'He informs the boy'

The availability of the IP and verb raising in file 5 is corroborated by the target-like placement of the separable prefixes of the phrasal verbs in (68)-(69) (note, though, that the verb does not correctly agree with the subject argument in (68)). (70) is remarkable in that it involves target-like verb final placement in an embedded clause and the use of the complementiser *bis* ('until'). As this is the only instance produced, we can only speculate on the implementation of the head-final value of the IP at this stage. There is no evidence of target-like non-subject V2 constructions until the end of the recording time considered here. Regarding question formation, (71) is target-like, but patterns with the title of the picture story elicited so that we cannot establish whether the mechanisms necessary for question formation are productive at the time.

(68) Maivin zogen /Hose/ schnell an.   (DF10;06)
      Maivin put   trousers fast   on
      'Maivin rapidly put on his trousers'

(69) Kläff fällt runter.   (DF10;06)
      Kläff falls down
      'He falls down'

(70) der   wartet bis   beide schlafen sind.   (DF10;06)
      the.one waits   until both   sleep   are
      'That one is waiting until both go to sleep'

(71) Maivin rufe in ein Loch:
      Maivin calls on the hole

      Frosch Wo   bist du.   (DF10;06)
      frog   where are   you
      'Maivin is calling into the hole: frog where are you?'

4.3   Muhammed

Word order and verb forms in file 1. Muhammed uses a diversity of word orders in file
1. Apart from SVX constructions (72), he produces a range of V3 patterns that result
from (a) the failure of the verb raising to INFL (i.e. the sentence-internal adverb ap-
pears between the subject and the verb (73)), (b) the attachment of an adverbial phrase
in sentence-initial position as in (74), and, (c) the application of the figure-ground
principle which would hold in the equivalent DGS construction as in (75). Further,
there is one verb final sequence in this file (76) which occurs with a main verb infini-
tive. The examples also show that he already produces some verb forms that are cor-
rectly inflected for person and number (cf. (72)-(74) and (78)). However, apart from
the forms *geht* ('goes'), *sagt* ('says') and *schaut* ('looks-at'), all other verbs produced in
this file appear in their infinitive form (cf. (75), (76), and (78)) which suggests that
inflection is not rule-governed. The lack of the suppletive forms of the copula verb *sein*
('to be') is reflected in the question answer pair in (77). Note that Muhammed already
produces sequences with verbs that take clausal arguments but does not yet master the
target selective properties (in the case of (78) target German would require an infini-
tive clause).

(72) Paul geht der Wald   (DB08;10)
      Paul goes the   woods
      'Paul goes into the woods'

(73) Mama auch sagt Hallo.   (DB08;10)
      Mama also   says hello
      'Mum also says hello'

(74) am   Abend Paul schaut mit Max.   (DB08;10)
at.the evening Paul looks.at with Max
'In the evening Paul looks at (the frog) together with Max'

(75) der ein Hirsch Paul liegen mit Hirsch.   (DB08;10)
the a   deer   Paul lies   with deer
'Paul is lying on the deer'

(76) der ein Hirsch das ein Geweih (hoch) nehmen.   (DB08;10)
the a   deer   the a   antlers high   take
'The deer is raising his antlers'

(77) Wo   Max keint Da   Max   (DB08;10)
where Max no   there Max
'Where is Max? He is not there'

(78) Max Wünschen geht mit   der Wald.   (DB08;10)
Max wish   goes with the woods
'Max wants to go with (Paul) into the woods'

Modal verbs and complex clauses in file 2. Muhammed produces some constructions with modal verbs in file 2. However, as the object is placed after the verbal complex, these sequences remain ambiguous regarding the expansion of the VP by an additional structural projection, the IP. While (79) could result from a failure to correctly set the headedness of the VP, the word order in (80) (i.e. the placement of the negator after the modal verb and the object after the lexical verb) suggests that "*kann nicht + X*" may be used as a formula at the time. The sentence-final placement of the finite verb in Muhammed's first *weil*-introduced embedded clause (81) is target-like, but represents an exception as all other *weil*-clauses in subsequent files appear with main clause order.

(79) Law musst suchen der ein Frosch.   (DB09;03)
Law must search the a   frog
'Law must look for the frog'

(80) kann nicht finden der ein Frosch.   (DB09;03)
can   not   find   the a   frog
'He can't find the frog'

(81) Law sauer weil   Jach auf Law sitzt.   (DB09;03)
Law angry because Jach on Law sits
'Law is angry because Jach is sitting on him'

Coexistence of VP and IP structures. The first periphrastic verb constructions with a correct placement of objects inside the verb bracket appear in file 3 (82)-(83), providing evidence of a structural layer above the VP and the target-like fixation of the

VP-headedness.[12] It seems, however, Muhammed does not yet fully exploit the IP structure as main verb raising is not productive until the end of the recording time. Consider in this respect the preverbal placement of the sentence-internal adverb (84) and the negator in file 4 (85). Note, additionally, the (deictic) use of *da* ('there') which is reminiscent of the use of the Index (usually notated as DA) in equivalent DGS constructions. (86) illustrates the continuing production of verbless clauses in files 3 and 4.

(82)   Dayel und Kalle haben ein Frosch schaut.   (DB09;09)
       Dayel and Kalle have   a   frog   looks
       'Dayel and Kalle looked at a frog'

(83)   Lisa will   der Glas hinaus klehern.   (DB09;09)
       Lisa wants the glass out   climb
       'Lisa wants to climb out of the glass'

(84)   Paul da   auch fallen in Wasser.   (DB10;03)
       Paul there also   fall   in water
       'Paul also falls into the water'

(85)   Max sagt Bitte   nicht ruft.   (DB10;03)
       Max says please not   calls
       'Max says: Please, do not call (the frog)'

(86)   Max schaut und denke Frosch im   Baum
       Max looks   and think   frog   in.the tree

       aber nicht da   nur Uhu   da.   (DB10;03)
       but   not   there only eagle.owl there
       'Max looks and believes that the frog is in the tree.
       But it is not there. There is only an eagle-owl there'

V2 and complex clauses in file 5. Evidence of the integration of sentence-initial non-subject XPs into the main clause structure deriving target non-subject V2 sequences appears first in file 5 (87). In this file, too, he produces a series of complex clauses including the first instances of embedded clauses introduced by a wh-word in which, however, the verb fails to appear in the target final position (88) or is dropped (89). Note that Muhammed continues to produce verbless clauses such as (90)-(91) which result from remaining lexical gaps in German (90) or involve the calquing of a predicative DGS construction including the existential determiner translated into German as *da* ('there') (91).

(87)   Am   Abend haben Max und Paul ein
       at.the evening have   Max and Paul a

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12. Note that the lexical verb lacks the prefix *ge-* which shows that participle formation is not mastered at the time. Subsequent recordings show that the task remains to be tackled by the end of the recording time.

Frosch geschaut.   (DB10;08)
frog   looked.at
'In the evening Max and Paul looked at the frog'

(88) Max wollte   und sehen wer ist sie,
      Max wanted and see   who is she

      weil   Max wollte   denken wer ist es.   (DB10;08)
      because Max wanted think   who is it
      'Max wanted to see who they are because Max wanted to know who they are'

(89) Dann habe Max schau wo   ein Frosch.   (DB10;08)
      then   have Max look   where a   frog
      'Then Max looked where the frog was'

(90) Max sauber auf Paul.   (DB10;08)
      Max clean   on Paul
      'Max licks Paul('s cheek)'

(91) Frosch Eltern Da   sechs Froschkind.   (DB10;08)
      frog   parents there six   frog-kid
      'The frog parents (have) six kids'

4.4 Fuad

Word order and verb forms in file 1. Fuad produces a remarkable diversity of sentential patterns in file 1 including verbless clauses (92), SVX (93), V3 (94) and non-subject initial V2 constructions (95) which remain an exception, however, as V2 is not productive in subsequent files. Note that the arrangement of elements in a sequence like (92) is reminiscent of equivalent DGS-constructions in that it follows the figure-ground principle. While inflectional morphology is not productive at this stage, Fuad already uses the modal verb form *möchte* ('wants') as a main verb in the idiomatic expression "want to go home" (96), and as a modal verb (97) in combination with another finite main verb instead of an infinitive as would be required in target German. Sentence-internal adverbs occur in preverbal position in file 2 (98) and subsequent files which suggests that main verbs fail to raise to INFL.

(92) Dann Da   ein Resch auf den
      then   there a   deer   on the

      Kopf mit Geweih.   (DG09;11)
      head with antlers
      'Then there is a deer with antlers on its head'

(93) Tom und Hund schauen ein Frosch.   (DG09;11)
      Tom and dog   look.at   a   frog
      'Tom and the dog look at a frog'

(94)   Dann   Tom   gehen   im   ein   Felsen.   (DG09;11)
     then   Tom   go   in.the   a   rock
     'Then Tom goes toward a rock'

(95)   Dann   gehen   Resch   bis   im   Wasser.   (DG09;11)
     then   go   deer   till   in.the   water
     'Then the deer goes toward the water'

(96)   Dann   Tom   und   Hund   mochte   nach   Hause.   (DG09;11)
     then   Tom   and   dog   want   to   home
     'Then Tom and the dog want to go home'

(97)   Dann   Abend   Frosch   möchte   aus   macht.   (DG09;11)
     then   evening   frog   wants   off   makes
     'Then, in the evening, the frog wants to leave'

(98)   Der   Law   und   der   Kai   sehr   langweilen.   (DG10;03)
     the   Law   and   the   Kai   very   be.bored
     'Law and Kai are very bored'

Expansion of the VP, overgeneralisation of auf*, and complex clauses.* In file 3, two other modal verbs appear, *wollen* ('want') and *müssen* ('have to'). The correct placements of the adverb (99) or the negator (100) inside the verb bracket provide support for the availability of the IP level at this stage. Sentential patterns continue to include SVX, V3 and verbless clauses. At the same time, there is a remarkable increase of constructions with *auf* ('on') which he uses not only to case mark the object with verbs that subcategorise for this preposition (101), but also to mark the relation between transitive verbs and their complements (102). Note that the target-deviant use of *auf* with this function is observed until the end of the recording time. Two further characteristics of this file are the production of the first embedded *weil* ('because') clauses which display main clause word order (103) and the range of complex clauses involving psychological verbs (104). In the latter, clauses are combined paratactically. Note that subordination with the complementiser *dass* ('that') appears 5 months later in file 4 (105).

(99)   Tom   muss   schnell   suche   und   Paul
     Tom   must   fast   search   and   Paul

     suchen   auf   Glas   (DG10;09)
     search   on   glass
     'Tom must search fast and Paul searches in the glass'

(100) Paul   mochten   nicht   lassen   (DG10;09)
     Paul   want   not   let
     'Paul does not want to leave (the frog)'

(101) Paul   fällt   auf   dem   Boden   (DG10;09)
     Paul   falls   on   the   floor
     'Paul falls on the floor'

(102) Tom mag auf #Frosch# Frosch und
       Tom likes on   frog   and

       #ac# auch #Hu# Paul.   (DG10;09)
            also   Paul
       'Tom likes the frog and Paul (too)'

(103) Tom ist sauer auf dem Eole
       Tom is angry on the owl

       weil   Eole veile ströt   auf #mir# Tom.   (DG10;09)
       because owl many bothers on   Tom
       'Tom is cheeky with the owl because the owl has bothered him'

(104) Tom laube   ja das ist Frosch.   (DG10;09)
       Tom believes yes this is frog
       'Tom believes that that is the frog'

(105) Jason und Peter hat gehört dass
       Jason and Peter has heard that

       sie hat ruft machen.   (DG11;04)
       she has calls make
       'Jason and Paul heard that they called'

Coexistence of VP and IP structures. In contrast to his early use of modal verbs, Fuad produces the first constructions with the auxiliary verbs *haben* ('to have') (106) and *sein* ('to be') (107) in file 4 in which there is also evidence of a rule-based production of participle forms. While target-like sequences with separable verbs (108) provide evidence of the raising of main verbs in this file, preverbal placement of the adverb as in (109) shows that the process is not applied across the board. The examples produced in file 5 reveal a continuing discrepancy between the correct placement of the negator with auxiliary, modal or copula (i.e. non-thematic) verbs (110) and the target-deviant preverbal position with main verbs (111). Further, sequences like (112) are illustrative of the coexistence of more elementary patterns (compare with (110)). The target-like embedded clause introduced by a *wh*-word (113) remains an exception which is why we can only speculate on the availability of a head-final IP by the end of the recording time considered here.

(106) Jason hat auf Peter geschimpft.   (DG11;04)
       Jason has on Peter told.him.off
       'Jason told Peter off'

(107) Es war nass gewesen.   (DG11;04)
       it was wet been
       'It was wet'

(108) Plötzlich Reh steht auf.   (DG11;04)
       suddenly deer stands up

'Suddenly the deer stands up'

(109)   Peter schnell läuft weil   Bienen
        Peter fast   runs because bees

        sauer auf Peter.   (DG11;04)
        angry on Peter
        'Peter runs fast because the bees are cheeky with him'

(110)   es war auch nicht da.   (DG11;08)
        it was also not   there
        'But it wasn't there either'

(111)   Aber nicht schmerzen.   (DG11;08)
        but not   hurt
        'But it didn't hurt'

(112)   Am   Morgen sehen nicht da   Frosch leer.   (DG11;08)
        at.the morning see   not   there frog   empty
        'In the morning they see that the frog is not there (and the glass is) empty'

(113)   Tom und Tim möchten schauen
        Tom and Tim want.to look.at

        was   darin war.   (DG11;08)
        what therein was
        'Tom and Tim want to see what was inside'

4.5   Maria

Word order and verb forms in file 1. Maria' s syntactic constructions in file 1 provide evidence of the availability of the IP and verb raising as well as the CP level. Consider, for example, the target-like placement of the sentence-internal adverb after the finite verb in (114), and the periphrastic verb construction in (115).[13] Adverbs and negators appear inside the verb bracket, but are also placed after the non-finite verb form, as the alternation of both options in (115) shows, which calls into question whether the VP headedness order has been fixed to the target final value. The availability of both options is additionally reflected in the alternation of target-like (116) and target-deviant constructions with separable verbs (117)-(118). (115) illustrates Maria's use of main clause word order in embedded clauses which is target-like in this particular case as the complementiser *weil*

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13.   Note that Maria does not use the perfect tense in the narratives collected in this study but uses the present tense throughout. Thus, we can only speculate on the mastery of periphrastic verb constructions with auxiliary verbs. Yet given Maria' s structural development we assume that her choice is determined by narrative considerations. The assumption is in line with Berman and Slobin's (1994: 391) conclusion "…that certain linguistic forms may be mastered structurally, and applied in other discourse contexts, well before they are recruited for narrative functions."

('because') is the only one that allows for an SVX order. The only two verbless sequences Maria produces in the recordings covered in the present study occur in this file and they pattern with the recurrent verbless clauses encountered in the narratives of other participants in that they include the expression *Angst* ('fear') (119) or involve the drop of the copula in constructions with predicative adjectives. Regarding inflectional morphology, Maria produces many infinitives and default forms in file 1, but correctly distinguishes singular and plural forms of some verbs as is illustrated in (120)-(121).

(114)   Er läuft und der Hirsch läuft auch.   (DE10;03)
       he runs and the deer runs too
       'He is running and the deer, too'

(115)   Bello und Max will schlafen zusammen,
       Bello and Max wants sleep together

       weil Max und Bello mag nicht allei schlafen.   (DE10;03)
       because Max and Bello like not alone sleep
       'Bello and Max want to sleep together because they do not want to sleep alone'

(116)   Dann wir wachen auf.   (DE10;03)
       then we wake up
       'Then they wake up'

(117)   Max anieht ein Schuhe an.   (DE10;03)
       Max on.put a shoe on
       'Max puts on shoes'

(118)   Max anfasst an Geweih.   (DE10;03)
       Max touch at antlers
       'Max touches the antlers'

(119)   Bello Anst vom Bienkorb.   (DE10;03)
       Bello fear of beehive
       'Bello is frightened about the beehive'

(120)   Max und Bello sitzen am Bett
       Max and Bello sit at.the bed

       und schauen zum Bubi.   (DE10;03)
       and look.at to.the Bubi
       'Max and Bello are sitting on the bed and looking at Bubi'

(121)   Max sitzt auf der Hirsch.   (DE10;03)
       Max sits on the deer
       'Max is sitting on the deer'

Variation at the left periphery and complex clauses. While adverbial phrases in sentence initial position are attached to the available SVX format in file 1 (cf. (116) above), their

integration into the target V2 format occurs already in file 2 (122) (note, though, that the verb fails to correctly agree with the subject). The alternation of target V2 and target-deviant V3 in files 2–4 ((122)-(123) produced in file 2 and (125)-(126) in file 4) suggests that the availability of non-subject V2 does not go along with the immediate exclusion of alternative formats (besides, (123) is also illustrative of the use of verbs taking clausal arguments despite the lack of the target selective properties: target German would require the use of an infinitive clause or an embedded clause introduced by *dass* ('that')). (124) is an example of target-like question formation. Maria produces embedded clauses with the complementiser *dass* ('that') which display target-like sentence-final placement (127) in file 3. However, given that there is no further instance of such complex structures in the subsequent files 4 and 5 we can only speculate on the implementation of the target-like head-final IP.

(122)   Am   Morgen wacht Tim und Tom auf.   (DE10;07)
        at.the morning wakes Tim and Tom up
        'In the morning Tim and Tom wake up'

(123)   Am   Nacht Pia wünscht weg   läuft   (DE10;07)
        at.the night Pia wishes   away runs
        'In the evening Pia wants to go away'

(124)   Tom und Tim rufen wo   bist du Pia!   (DE10;07)
        Tom and Tim call   where are you Pia
        'Tom and Tim call: where are you, Pia?'

(125)   Dann sagt Tom: "Pss."   (DE11;08)
        then   says Tom …
        'Tom says "pss" to Tom'

(126)   Dann alle singen: "Tschüss!"   (DE11;08)
        then   all sing   bye
        'Then all sing "bye"'

(127)   Aber, klar daß Bella #m# mit   nach
        but   clear that Bella   with to

        Hause #gefe# gehen   (DE11;01)
        home   go
        'But it is clear that Bella goes home with (us)'

Implementation of V2. Eventually, in file 5, constructions with non-subjects in sentence-initial position adhere to the V2 constraint across the board. Sequences like (128) show that target-deviant subject drop continues to be produced until file 5, which suggests that the correct setting of the pro-drop parameter remains a task to be tackled. Finally, the target-like yes-no question in (129) is illustrative of the availability of the mechanisms for question formation (including verb raising and a structural layer above the IP, i.e. the CP).

(128) Tim will   auch mit   dann rennt plötlich
Tim wants also   with then   runs   suddenly

     steht   Hirsch.   (DE12;00)
     stands deer
     'Tim wants to go with (the boy) then he runs and
     suddenly the deer stops'

(129) möchst du mit uns zu Hause gehen? sagt Tom.   (DE12;00)
     want   you with us   to home go   says Tom
     'Do you want to come home with us?'

4.6 Hamida

Word order and verb forms in file 1. Hamida produces many sequences that adhere to the SVX pattern in file 1 (130), but also constructions with a sentence final placement of the finite main verb (131) or correct V2 in quotation environments (132) and a series of verbless sequences, including "*weil*+X" combinations (133). Note that word order in the verb final sequence in (131) follows the figure-ground principle as it would be used in DGS. Verbless clauses at the time typically involve predicative constructions or expressions for which the target lexical means are not fully available (134). Regarding the morphological realisation of subject-verb agreement, the examples show that Hamida produces non-finite forms (135) alongside a few target-like finite verb forms. However, the finite forms used do not always correctly agree with the subject arguments which is also observed with the suppletive forms of the copula verb *sein* ('to be') combined, at times, with main verb infinitives (136).

(130) Der Junge fällte im   Fluss.   (DA09;08)
     the boy   falls   in.the river
     'The boy falls into the river'

(131) Junge deine Hand da   Frosch sitzt   (DA09;08)
     boy   your hand there frog   sits
     'The frog is sitting on the boy's hand'

(132) Hallo sagt Frosch #froch# froh.   (DA09;08)
     Hallo says frog   happy
     'Hello says the frog happily'

(133) Der #Jun# Junge weg   weil   da   Eule.   (DA09;08)
     the   boy   away because there owl
     'The boy is gone because the owl is there'

(134) Der Inana auch Ansgt vielen Bienen damit.   (DA09;08)
     the Inana also fear   many bees   with.that
     'The Inana is also afraid of the bees'

(135)   Frosch aussteigen sind weg   (DA09;08)
     frog   out.climb   are   away
     'The frog climbs out (of the glass) and is gone'

(136)   der Junge sind schlafen   (DA09;08)
     the boy   are   sleep
     'The boy is sleeping'

Coexistence of head-initial and head-final IP structures. Constructions containing periphrastic verb constructions in file 2 are difficult to interpret in structural terms as the placement of auxiliaries alternates between the left (137) and the right periphery of the sentence (138). The production of clauses with complex verbs in which the object appears inside the verb bracket in file 3 (139)-(140) would suggest that Hamida established a head-initial IP alongside the target value of the VP headedness parameter at that time. However, the drop of auxiliaries as in (141) which continues to occur in subsequent files derives sequences that are ambiguous regarding the directionality of the IP (i.e. INFL at the left or right periphery) as the finite auxiliaries that would provide a clue are missing. The assumption that Hamida's IP remains "mobile", i.e. not fixed to either value, is corroborated by the verb final conjoined structures she produces about a year later in file 5 (142).

(137)   Die beiden haben suche#m#n zum
     the two   have   search   to.the

     wald   suchen zur   Frosch haben.   (DA10;00)
     woods search to.the frog   have
     'Both have searched in the woods to get the frog back'

(138)   und und Timo suchen wo
     and and Timo search   where

     ist frosch verschwinden ist.   (DA10;00)
     is frog   disappeared   is
     'and Timo is searching where the frog could be. (He) has disappeared'

(139)   Dann Junge hat #vielen Euelen# Eule angreifen.   (DA10;07)
     then boy   has   owl   attack
     'The boy attacked the owl'

(140)   Damit   Junge #und# /mit/ Hund einen Frosch gesucht.   (DA10;07)
     with.that boy   with dog   a   frog   searched
     'The boy and the dog looked for the frog'

(141)   Der Hund gefreut weil   sie Frosch gebracht   (DA11;01)
     the dog   pleased because they frog   brought
     'The dog is happy because they have brought the frog'

(142)   Plötzlich fallen ein Hund in Boden, und ein
     suddenly fall   a   dog   on floor   and a

Junge #erschrok# erschrocken sind.   (DA11;05)
boy   frightened   are
'Suddenly the dog fell on the floor and the boy was frightened'

Coexistence of V2 and V3 structures. As of file 3 adverbial phrases in sentence initial position are, at times, correctly integrated into the sentence structure deriving target-like non-subject V2 (143)-(144), but are also adjoined to the SVX format in other cases (145). Notice, additionally, that the verb-subject order is also used in the embedded clause introduced by *weil* ('because') (144), an order which is not possible in target German. The production of these advanced structures contrasts with the use of "*da*+X" and "neg+*da*" constructions she continues to use as "formulae" despite the availability of the copula (145).

(143) Dann steht   einen #Reh# Hirsche auf
       then   stands a   deer   on

       dem Wald und lauft im   wasser.   (DA10;07)
       the   woods and runs in.the water
       'Then there is a deer standing in the woods and walking toward
       the water'

(144) Plötlich   fällt Junge und Hund ist
       suddenly falls boy   and dog   is

       Angst weil   kommt einen Bienen.   (DA10;07)
       fear   because comes a   bees
       'Suddenly the boy falls and the dog is frightened because the
       bees come'

(145) Plötzlich #sehen# #Junge# #und# #Hun# Junge
       suddenly   boy

       sehen da   Frosch aber schon   #weg# nicht da.   (DA10;07)
       see   there frog   but   already   not   there
       'Suddenly the boy sees the frog, but he is already gone, not there'

4.7   Luise

Word order and verb forms in file 1. As mentioned previously, Luise left Berlin in April 2005 which is the reason why only two files are included in this study. Already in file 1, Luise demonstrates an advanced knowledge of German grammar. The diversity of word orders produced includes main clause SVX (146)-(147), non-subject V2 (148)-(149) and one V3 sequence (150). Note that (146) involves the target-like sentence-final placement of separable prefixes of phrasal verbs and (147) main verb raising past the adverb to INFL. Verb raising to a structural position above the IP, i.e. COMP, is correctly applied in question formation (cf. (151), for example, which

involves a periphrastic verb construction with an auxiliary verb). Further, (152) is re-
markable in that it shows how Luise uses the imperative in quotations and subject verb
inversion in quotation environments. Luise's use of the target inflectional morphology
is rule based. Notice, additionally, the production of correct imperative forms, the im-
perfect tense form of an irregular verb (i.e. *rief* ('called')) in (151), and the modal verb
form *darf* ('may') (153)). The few subject-verb agreement errors encountered in her
written narratives occur with conjoined subjects (148). The use of main clause word
order in the only embedded clause produced in this file (154) suggests that the CP
structure available at the time involves a head-initial IP.

(146)   Sosso geht leise   weg.   (DD08;11)
        Sosso   goes silently away
        'Sosso goes away silently'

(147)   Anton ruft noch   mehr.   (DD08;11)
        Anton calls (particle) more
        'Anton continues calling (the frog)'

(148)   Am   Abend schläft Anton und Lyssy.   (DD08;11)
        at-the evening sleeps Anton and Lyssy
        'In the evening Anton and Lyssy sleep'

(149)   Da   kommen die Bienen   (DD08;11)
        there come   the bees
        'There come the bees'

(150)   Morgen beide gucken an Sosso.   (DD08;11)
        morning both look   at Sosso
        'In the morning both look at Sosso'

(151)   Was hat du gesehen rief   Anton.   (DD08;11)
        what have you seen   called Anton
        '"What have you seen?" called Anton'

(152)   Lyssy warte auf mich ruft: Anton laut.   (DD08;11)
        Lyssy wait   on me   calls Anton loudly
        '"Lyssy wait for me" calls Anton loudly'

(153)   Anton darf ein Frochkind michnimen.   (DD08;11)
        Anton may a   frog-kid   with-take
        'Anton is allowed to take a little frog with him'

(154)   Und sieht das Sosso hat
        and sees that Sosso has

        eine Frau bekomen und Frochkinder.   (DD08;11)
        a   wife got   and frog-children
        'And he sees that Sosso has a wife and children'

Verb-final embedded clauses. Luise's target-like embedded clauses in file 2 (155)-(157) show that the task that remained to be tackled at the time of file 1 has been accomplished 5 months later. The only exception is a *weil*-introduced embedded clause (158). However, as remarked previously this is precisely the complementiser that allows for main clause SVX orders in target German.

(155) Komm wir schauen draußen ob der
      come we   look   outside if   the

Frosch da   ist.   (DD09;04)
frog   there is
"Come! We will look outside and see whether the frog is there."

(156) Der Junge schaut und sagte ",, #se#i
      the boy   looks   and said

Scheißt das der Frosch weg   ist.   (DD09;04)
shit   that the frog   away is
'The frog looks and says "shit, that the frog is gone"'

(157) Aber nur der Frosch ist
      but   only the frog   is

immer noch wach bis   der Junge
still   awake until the boy

und der Hund einschlafen.   (DD09;04)
and the dog   fall.asleep
'But only the frog is still awake until the boy and the dog fall asleep'

(158) Aber der Junge rüft Timi weil
      but   the boy   calls Timi because

der Frosch heißt   Timi.   (DD09;04)
the frog   is.called Timi
'But the boy calls Timi because the frog is called Timi'

5. Discussion

In general terms, the analysis of the written narratives of the bilingually educated deaf children reveals that their development of German syntax can be described on the basis of the developmental sequence commonly assumed to capture the major milestones in the acquisition of German (cf. section 3.4). Further, the individual developmental profiles sketched provide evidence of variation not only at the inter-individual level (participants vary as to how far they advance during the two years covered in this study indicating that their development proceeds at a different pace), but also at the intra-individual level: the inclusion of new target-like grammatical features does not

occur to the immediate exclusion of the previously available target-deviant ones which results in the coexistence of alternative grammatical options. In the following sections, we will try to determine what intra-individual variation reveals about the underlying language learning processes and the role of language contact in the organisation of the multilingual knowledge. For this purpose, we will discuss the range of variation, including potential candidates of language mixing, at the different developmental stages outlined in section 3.4: Section 5.1 concerns variation at the level of elementary structural domains, 5.2 the pooling of resources in the transition from VP to IP grammars, and 5.3 variation concerning the establishment of the full sentence structure (CP).

5.1   Elementary structural domains: Variation at the VP level

Learners first establish an elementary structural domain which allows for (a) the accommodation of basic sentential formats that mimic German main clause surface order SVX, and (b) the adjunction of functional elements such as *wh*-words or complementisers. These elementary structures pattern not only with basic sentential formats of L1 learners but also with the basic constructions of L2 learners which shows that the task of structure-building is common to learners in different acquisition situations (Diehl et al. 2000; Fritzenschaft et al. 1991; Plaza-Pust 2000a; Siebert-Ott 2001; Vainikka & Young-Scholten 1996). Furthermore, the data reveal that participants in this study differ with respect to a liberal use of sentential arrangements at this stage and also regarding language mixing from DGS.

SVX patterns. The potential of free word order at the VP stage is not exploited by learners like, for example, Simon, whose sequences containing a verb follow the SVX schema across the board. The adherence to a rigid sentence pattern comes as no surprise given the formal learning situation which, at least at beginning, tends to inhibit the learners' creativity by focusing on the learning of the canonical surface word order of German, SVX. In the domain of deaf education in Germany, including bilingual education programmes, there is, in fact, a general consensus that the mastery of this basic sentential format represents an essential step that allows learners (a) to produce elementary structures that conform to the surface canonical order of the target language and (b) to develop an awareness about the necessary separation of the two languages they are acquiring (cf., for example, Schäfke 2005: 292). From a psycholinguistic point of view, however, the alleged advantages of this didactic approach need to be questioned: learners are encouraged to use a syntactic format without the necessary grammatical processes that would generate it yet in place. Against this backdrop, the production of alternative word order patterns not encountered in the German input

deserves special attention as these constructions might reveal what is "within reach" to them in structural terms.[14]

Verbless or small clauses. Participants produce a series of combinations of elements that have a propositional meaning but lack a verb form. At the beginning of the investigation, Simon strictly adheres to the SVX pattern, but produces two verbless sequences that follow the pattern SPrepX. Christa, Hamida, Muhammed, and Fuad also use elementary SVX structures *and* sequences in which elements are combined without an overt verb. Consider, for example, the sequence in (159) involving the deictic expression *da* ('there'). Given the optional realisation of elements at the VP stage, the drop of the copula remains an ambiguous phenomenon concerning a potential mixing of DGS grammatical properties. While verbless clauses like (159) are similar to the early combinations of L1 learners of German (160) (Tracy 1991: 156) and L2 learners of German in a formal setting (161) (Diehl et al. 2000: 75), the hypotactic combinations with the complementiser *weil* ('because') (162) mark a difference to L1 acquisition in which complementisers tend to appear quite late, often after the production of preconjunctional clauses (Rothweiler 1993). The juxtaposition of verbless clauses is rather reminiscent of the early productions of L2 learners. After an initial stage at which functional elements are missing (see Klein 2000 for a concise summary of the so-called "basic variety" in natural second language acquisition situations) learners use L2 functional elements in their early productions despite the lack of the associated *target* grammatical properties. By assumption, learners borrow these elements from their L1, in this case signed language, and are confronted with the task of learning the target *structural* properties associated with these items (cf. also Plaza-Pust 2000a for a detailed discussion of the relation of lexical and syntactic learning).

(159) Da   ein veil   Frosch.   (Fuad, DG09;11)
      there a   many frog
      'There are many frogs'

(160) da   nase\   Stephanie, 1;10.1
      there nose   (Tracy 1991: 300)

(161) Das Wasser kalt.   Caroline C4/5, 4
      the   water   cold   (Diehl et al. 2000: 75)

(162) Der #Jun# Junge weg weil   da   Eule.   (Hamida, DA09;08)
      the   boy   away because there owl
      'The boy (goes) away because there is an owl'

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14. Cf. also Berent (1996: 490) who remarks on the difficulties of establishing a developmental sequence in such circustances which are, however, common to other learners of a second language in a formal context (see, for example, Diehl et al. 2000: 72 with respect to the acquisition of L2 German by L1 French students in a formal setting).

Language mixing. Some of the more complex verbless sequences reveal a sophisticated borrowing from DGS. (163), for example, involves the combination of two propositions, i.e. "there is a deer" and "the deer has antlers on his head", whereby elements in the latter are arranged by applying the figure-ground principle. Note that a target-like equivalent would involve the reverse order of 'head' and 'antlers' (164). The borrowing of this grammatical property of DGS is also illustrated in (165) which includes a finite verb in sentence-final position, as would be required in that language (as illustrated in (166)), and the use of *da* to assign a location, i.e. the function INDEX (or DET$_{LOK}$) would fulfil in DGS. (167) is an example of Christa's verb final sequences.

(163)   Dann Da   ein Resch auf den
         then   there a   deer   on   the

         Kopf mit Geweih.   (Fuad, DG09;11)
         head with antlers
         'Then there is a deer with antlers on its head '

(164)   Da   ist ein Reh mit einem Geweih auf dem Kopf.
         There is a   deer with a   antlers on the   head.
         'Then there is a deer with antlers on its head'

(165)   Junge deine Hand da   Frosch sitzt   (Hamida, DA09;08)
         boy   your hand there frog   sits
         'The frog is sitting on the boy's hand'

(166)   JUNGE HAND INDEX-Hand FROSCH
         boy   hand   INDEX-hand   frog
         CL:"sitzt auf der Hand"
         CL: "sits on the hand"

(167)   der Hund auf der Junge warten.   (Christa, DF09;01)
         the dog   on the boy   wait
         'The dog waits for the boy'

The previous examples show that language mixing may not only involve a relexification of DGS structural formats (e.g. figure-ground, SOV), but also loan translations of complex DGS meanings that would be simultaneously expressed in space. A remarkable example of the borrowing of a DGS classifier construction is produced by Simon in file 3 (168). Note the sentence-final placement of the preposition *in* ('in') to express the location of the THEME (=the head). Such cross-modal translations are illustrative of the lexical and structural adaptations of the expressions borrowed which are determined by the properties of the recipient language, as is the case in other types of borrowing (Winford 2003: 42ff.). Given the predominantly sequential organisation of German, cross-modal borrowing involves the analysis of DGS constructions into meaning units or thematic roles that are mapped onto German lexical items and arranged *sequentially*. Further, the selected "counterparts" produced by language learners reflect the lexical and structural means available in their L2 German. In (169), pro-

duced by Muhammed, the arrangement of elements follows the figure-ground principle (deer="ground" NP, Paul="figure") and involves the repetition of the full NP referring to the ground which reflects Muhammed's lack of the German pronominal system at the time. Against this backdrop, the sequence produced by Hamida (170) could be interpreted as a blend of a DGS and a German sentential format as the DGS-like setting of the "ground" is combined with an SVX clause.

(168) Der Hund Glas den Kopfen in.   (Simon, DC10;11)
      the dog   glass the head   in
      'The dog puts the head into a glass'

(169) der ein Hirsch Paul liegen mit   Hirsch.   (Muhammed, DB08;10)
      the a   deer   Paul lies   with deer
      'Paul lies on the deer'

(170) Bei Wasser. Der Junge sind #verlorn# verloren in Wasser.
      at   water   the boy   are   lost   in water
      'The boy is lost in the water'

                                                                 (Hamida, DA09;08)

Sequences like (171) and (173), produced by Christa and Hamida respectively, are more difficult to interpret. In both cases, a target-like equivalent of the propositions combined would require a juxtaposition of separate clauses or the subordination of a relative clause (as illustrated in (172)). Given the lack of the necessary lexical and structural means including cohesive devices that would allow for the establishment of relations among propositions, prepositional phrases are placed in a DGS-like fashion right to the "ground" PP complement of the main clause they refer to.

(171) Hund und ein Junge sehen auf dem
      dog   and a   boy   see   on   the

      Glas in ein Frosch.   (Christa, DF08;08)
      glass in a   frog
      'A dog and a boy look into a glass in which there is a frog'

(172) Ein Hund und ein Junge schauen
      a   dog   and a   boy   look

      das Glas an, in dem   ein Frosch ist.
      the glass at in which a   frog   is
      'A dog and a boy look into a glass in which there is a frog'

(173) Der Junge klettern im   Baum im   eine
      the boy   climbs   in.the tree   in.the an
      Eo Eule der Junge Ansgt
          owl the boy   fear
      'The boy climbs up the tree, in which there is an owl. The boy is frightened'
                                                            (Hamida, DA09:08)

5.2   Pooling of resources: Variation in the transition from VP to IP grammars

The evidence gathered in this study shows that the implementation of a new structural layer on top of the VP structure does not occur "overnight", but involves a transition period in which the range of variation displayed in the written narratives includes
– constructions that provide evidence of qualitative changes tied to the new IP layer,
– elementary VP formats, and
– language contact phenomena including (a) mixing of DGS grammatical properties or (b) borrowing at the lexical level.

Auxiliary and modal verbs. One of the major changes in the written narratives concerns the target-like production of periphrastic verb constructions. Auxiliary and modal verbs are commonly related to the functional category INFL. As mentioned in section 4, some participants already produce a few modal forms at the VP stage, but these were deemed to be added via adjunction. In contrast, the target-like production of sequences with complex verbs in which objects, adverbials or negators appear inside the verb bracket, involves the expansion of the VP structure through the projection of the IP and the fixation of the VP headedness to the target final value (174).

> (174)   Jason hat auf Peter geschimpft.   (Fuad, DG11;04)
>   *Jason has on Peter told-him-off*
>   'Jason told Peter off'

Note that the evidence gathered in this study regarding the projection of an additional structural layer is in line with the results discussed in Schäfke (2005: 276). This author also identifies the attainment of the German verb bracket as the developmental step that follows the establishment of the elementary SVX order for main clauses in her data of the bilingually educated deaf students in the Hamburg programme. Further, Maria's early target-like use of different modal and phrasal verbs also patterns with the results obtained in the area of the acquisition of German as a second language (cf. Plaza-Pust 2000a: 182ff.) which show that the implementation of the IP and the correct fixation of the VP headedness parameter prompts a lexical spurt regarding the attainment of the verbs belonging to the types mentioned. However, the data gathered in this study also provided evidence against the full implementation of the IP in some learner grammars in that
– the extended structure is not fully exploited, as main verbs fail to raise to INFL and the agreement paradigm is not established, and
– there is an increased diversity of sentential patterns, including DGS-like formats, that do not conform to the target.

In the light of the developmental sequence portrayed in section 3.4 these findings raise the critical question whether the acquisition of German in these learners differs qualitatively from the development of German in other acquisition situations. With a view to

clarifying this question, we will look at the variation encountered against the backdrop of the available evidence gathered in the areas of child and adult acquisition of German.

Verb raising. In section 4, dedicated to the presentation of the results concerning the individual developmental paths, special attention was paid on the development of verbal inflection in order to establish whether or not the mastery of this morphosyntactic domain goes along with the increasing complexity at the syntactic level, as is usually the case in infants acquiring German as their mother tongue. Following the assumptions put forward in current linguistic theory (see section 3.3), the coincidence of both developments would be expected.

Summarising, the analysis of the data reveals the following:

– Some participants already produce some inflected verb forms in the narratives of the first sample, but it seems likely that these forms are stored as unanalysed units in the lexicon as non-finite forms predominate at the time.

– Only Luise and Maria show a rule-governed use of verbal suffixes as of the onset of the data collection.

– Variation in the use of inflectional suffixes continues to occur in the narratives of the 5th sample of Hamida, Muhammed, Christa and Fuad.

– There is one participant, Simon, who does not produce inflected forms in the two years covered in this study.

The alternate production of finite and non-finite main verb forms in constructions that follow the SVX pattern calls into question whether or not main verbs are feature checked in a higher structural position. On the basis of the assumption that SVX is the default sentential pattern these learners start out with, main verbs appearing at the left periphery of the sentence provide no unambiguous clue of verb raising. Therefore, it was deemed necessary to consider verb placement in relation to adverbs and negators in order to determine whether or not main verbs are raised to a position outside the VP. This distributional criterion is also commonly used in other studies on child or adult acquisition of German[15] (non-subject V2 as an additional criterion shall be discussed in section 5.3). The analysis of the data allows for the following observations.

– In the written productions of Muhammed and Fuad, verb raising seems to apply only with auxiliaries or the copula verb *sein* ('to be'), revealing a discrepancy between the structures used with non-thematic and main verbs respectively. Adverbs occur inside the "verb bracket" with auxiliaries and modals, and right of the copula which suggests that these non-thematic verbs are placed in INFL.[16] In contrast, adverbs occur preverbally with lexical verbs which suggests that these verbs remain in the VP.

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15.   For a detailed discussion of cross-linguistic differences regarding verb raising in relation to AGR feature strength see Pollock (1989) and Chomsky (1989) among others.

16.   Interestingly, the failure of the verb raising into I in sequences involving the focus particle *auch* ('also') or the negator *nicht* ('not') has also been observed in monolingual acquisition of German and the bilingual acquisition of German and English (cf. Tracy 2000: 25).

–   Christa and Hamida do not produce constructions containing a main verb and a sentence-internal adverb or a negator. However, in Christa's file 5 separable prefixes of phrasal verbs correctly appear sentence-finally and agreement morphology is correct in Hamida's non-subject V2 sequences.
–   Maria and Luise seem to have fully implemented main verb raising as of the onset of the data collection and show no evidence of the variation described previously which suggests that the IP was fully implemented in their learner grammars at that time. While both initially produce some agreement errors, Maria does not produce any in file 5 and Luise's are restricted to sequences with conjoined subjects.

Given the theoretical underpinnings of the relation of verb raising and subject-verb agreement and finiteness, the apparent variability concerning inflectional morphology raises the question whether the mechanisms assumed to apply in young children's first language development are missing in this type of acquisition situation. In the domain of the acquisition of German as a first language, inflectional morphology has been assigned a triggering effect for V2 by some authors (cf. Clahsen 1988, 1992), while others have argued against this connection on theoretical and empirical grounds (cf. Prévost & White 2000; Jordens 1990, 2002). Some children exhibit a liberal use of the different positions verbs may appear in and produce finite forms in sentence second and final position. While the latter phenomenon tends to predominate in the data, there is also evidence of non-finite forms appearing in V2 contexts, see (175)–(176).

(175)   Mama   aufmachen$_{[-fin]}$ de Kran (J/2;4.20)
        mommy open   the crane
        'mommy is opening the crane'   (Schaner-Wolles 1994: 212)

(176)   Da   essen$_{[-fin]}$ die Kuh   (J/2;5.7) (ibid.)
        there eat   the cow
        'the cow is eating there'

We may conclude therefore that in the acquisition of German, verbal morphology may serve as a cue for the establishment of a (derivational) relationship between the different positions verbs may appear in (Roeper 1992: 351). However, the apparent dissociation of the acquisition of verb second and the correct morphological realisation of subject-verb agreement in some learners provides evidence against a uni-directional cause-effect relationship, as would be assumed within the lexical learning hypothesis (cf. Plaza-Pust 2000a for an extended discussion and also Hohenberger 2002: 141).[17]

The persistent variation concerning the use of finite and non-finite forms in the data of the present study is reminiscent of the variable use of agreement morphology in adult second language acquisition. In this domain of research, the apparent

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17.   On theoretical grounds, the apparent dissociation is also compatible with the variation encountered across V2 languages. As pointed out by Schaner-Wolles (1994: 216), Afrikaans is a V2 language without overt verbal inflection (cf. also Vikner 1995, 1998).

optionality has been subject to a controversial debate (Plaza-Pust 2000a). Basically, two assumptions can be distinguished. Following the Missing Inflection Hypothesis, the variability results from "difficulties in identifying the appropriate morphological realization of functional categories" (Prévost & White 2000: 108). Learner errors would thus pertain to the surface morphological level in that they reflect a problem regarding "the mapping of abstract features to their surface morphological manifestation" (ibid.). Alternatively, variability is related to a lack of (Meisel 1991) or an erroneous specification (cf. also Eubank 1992) of the relevant functional categories an assumption that is dubbed "Impaired Representation Hypothesis" by Prévost and White (2000: 110).

In line with Prévost and White (ibid.: 125) we assume that those learners who established the IP in their learner grammars use non-finite forms as default forms in finite contexts as these learners provide evidence of a knowledge of finiteness and the relating syntactic processes (verb raising, V2). It is assumed therefore that these forms "behave syntactically like finite verbs" (ibid.). The data do not confirm the random use of these forms as predicted by the "Impaired Representation" Hypothesis. Additionally, we observe a developmental progression in the target-like use of finite forms.[18]

Language mixing. Participants who have not fully established the IP produce a remarkable variety of sentential patterns. Language contact phenomena in their learner grammars include:

– sentence final verb placement
– the overgeneralisation of the preposition *auf* to mark the verb-complement relation
– the drop of the copula in descriptions that (a) are reminiscent of DGS classifier constructions or (b) involve predicative adjectives.

Word order: head-final IP. In the reorganisation phase which pertains to the projection of an additional structural layer, learners are confronted with the task of determining the headedness value of INFL. In the acquisition of German, which is a language that displays an asymmetry regarding verb placement in main and embedded clauses, the evidence regarding the headedness of the IP in the input is not as straightforward as in other V2 languages with a symmetric sentence structure (Yiddish or Icelandic, for example). Moreover, as the participants of this study are acquiring two verb-final languages we would expect a "conspiracy" between both which would be reflected in a preference of verb-final structures. However, the analysis of the data reveals that this is not the case. The variation, including verb final formats, discussed in the previous section suggests that learners like Christa pool their resources by drawing on DGS structural formats already at the VP stage. The little variation observed during the

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18.   As pointed out by Prévost and White (2000: 129) child first and adult second language acquisition coincide in that the use of default forms is progressively replaced by the use of appropriately agreeing forms. However, while children eventually give up the use of non-finite forms in finite contexts, adult L2 learners do not or not always do so, which marks a difference between both acquisition types. For a discussion of the potential reasons see ibid.: 129 ff.

transitional VP-IP phase seems to relate to the SVX format learners start out with (see section 5.1). Additionally, as the expansion of the VP is tied to the inclusion of complex verbs which involves the placement of non-thematic verbs at the left periphery of the main clause, the implementation of a head-initial IP which is also reflected in the few complementiser introduced clauses produced at the time comes as no surprise.

There is, however, one participant, Hamida, who seems to be dealing with two alternative structural formats with respect to the headedness of the IP: lexical and non-thematic verbs appear either at the left or at the right periphery of the sentence in her written productions. The variable use of IP initial and final structures is surprising given that it was not observed in the narratives of the other participants and could be assumed to reflect a confusion regarding German word order. Against the backdrop of the evidence gathered in the domain of child language acquisition, however, the diversity of main clause formats is not so extraordinary. Some L1 learners, as, for example, the child 'Max' produce a similar diversity of sentential formats (i.e. V1, V2 and V-end structures) (177)-(180) (Fritzenschaft et al. 1991: 89).

(177)   hab   ich   großen   traktor\
        have   I   big   tractor

(178)   du   hast   eine   schere   dabei\
        you   have   a   scissors   with.you

(179)   hier   ich   des   mal   holen
        here   I   that   (particle)   fetch

(180)   des   hier   haben   muß\
        that   here   have   must

Hamida also produces sequences which appear to involve a blend of a head-initial and a head-final IP, compare (181). It seems her syntax is overgenerating by providing two positions for finite verbs to appear in. Such structural blends have also been found to be produced by young children acquiring German in a monolingual (182)-(183) or bilingual context (184) and are usually interpreted to reflect a coexistence of alternative structural formats that remain to be integrated (cf. Tracy 1991 with respect to the monolingual acquisition situation), or differentiated (cf. Tracy 1991, 2002; Döpke 2000 regarding the bilingual development). As the apparent alternation continues to occur until the end of the recording time, we cannot establish whether or not Hamida succeeds in this task.

IP initial   < ------------------------------------> IP final
[XP]$_{SpecIP}$ **[X]**$_I$ [XP   ] [XP   ]   [X]$_I$

(181)   eine   Hund   **hat**   ein   glas   auf   den   Kopf   **sind**.
        a   dog   has   a   glass   on   the   head   are
        'A dog has a glass on his head'

(DA10;00)

(182)   mach ein großen PILZ   gemach\   (Julia 2;4 24)
        make a   big   mushroom made

(183)   Wo-s   die laTERne tracys laTERne is/   (Julia 2;3 27)
        where-s the lantern   tracy's lantern   is
        (Tracy 1991: 240, my translation)

(184)   du   kannst sitzen vorn   hier sitzen
        you can   sit   in front here sit
        'you can sit up here'
        (Döpke 2000: 96, her translation)

Agreement: overgeneralisation of auf. Verb raising to INFL is tied to the checking of the features relating to grammatical relations (agreement, case-marking) of the verb and its arguments. As mentioned previously, the participants' overt marking of subject verb agreement varies throughout the recording time. With respect to the relation of the verb and its complement arguments, the data reveal that during the phase in which grammatical processes relating to the IP become available in the learner grammars of the participants there is a remarkable increase of constructions with the preposition *auf* ('on'). The diversity of constructions involving this preposition is illustrated in the sequences produced by Fuad in file 3, repeated here for convenience (185)-(187).

(185)   Paul fällt auf dem Boden   (DG10;09)
        Paul falls on   the floor
        'Paul falls on the floor'

(186)   Tom mag auf #Frosch# Frosch und #ac# auch #Hu# Paul.   (DG10;09)
        Tom likes on   frog   and   also   Paul
        'Tom likes the frog and Paul, too'

(187)   Paul schusbe auf dem dünne Baum   (DG10;09)
        Paul push   on   the thin   tree
        'Paul pushes the thin tree'

As we can see, *auf* is correctly used to case mark the object with verbs that subcategorise for this preposition. However, (186)-(187) show how *auf* is also overgeneralised to mark the relation between transitive verbs and objects. By assumption, three phenomena conspire in the use of *auf* as a free morpheme to express this grammatical relation, namely,

– the borrowing of DGS PAM which is commonly translated as AUF (186),
– the analysis of the morphological components of agreement verbs in DGS and subsequent translation into German through the use of the German case-marking preposition *auf* (187), and
– the remaining gaps regarding the German case-marking and determiner system.

While a detailed discussion of the acquisition of the case and determiner system is beyond the scope of this paper, it is worth mentioning that the data gathered show that this area, like the domain of verbal inflectional morphology, remains to be mastered by

the end of the recording time. Participants use articles, but their choice seems to occur randomly given the errors regarding case and number. It seems plausible to assume that the overgeneralisation of *auf* to overtly express the relation of the verb with its complement is used to fill the gap regarding the target morphology. Thus, *auf* serves the function of an overt case marker much like the preposition "of" in English (compare "Poirot is envious *of* Miss Marple" in which the preposition assigns accusative case to *Miss Marple*, cf. Haegeman 1994: 173)[19]. Moreover, as *auf* is available in German, learners are easily tempted to overtly mark grammatical relations at this stage which is in line with the insights gathered in other acquisition situations in which learners temporarily make these relations transparent (A. Hohenberger, pers. communication).

Moreover, the partial overlap between both languages seems to reinforce this phenomenon which is reminiscent of other types of "indirect transfer" observed in the domain of bilingual language acquisition (Genesee 2002). Notice, additionally, that the overgeneralisation of *auf* in the sense outlined previously is also remarked upon in another study on the acquisition of written German by bilingually educated deaf students in Hamburg (cf. Schäfke 2005: 273; Günther et al. 2004: 241ff.), which provides additional support for the assumption that patterns of mixing relate to the language systems bilingual children learn (Genesee 2002: 187). In other words, language mixing is not a random, but a systematic phenomenon.

Determiners: "da". In a similar vein, though less consistently, the adverb *da* is used with the function the determiner DET_{ART} (usually notated as DA) would fulfil in DGS. Consider, for example (188), produced by Muhammed in file 4, in which *da* appearing to the right of the subject mimics the spatial location assignment to referents as it would occur in DGS.

(188)   Paul da   auch fallen in Wasser.   (DB10;03)
        Paul there also   falls   in water
        'Paul also falls into the water'

Copula drop. The range of variation produced during this VP-IP phase includes verbless clauses which would require the use of the copula verb *sein* ('to be') in German. Typically, the copula is dropped (a) in clauses with the adverbial *da* ('there') or prepositional phrases and (b) in predicative constructions. A detailed analysis of the data allows for the following distinction concerning the drop of the copula during the VP-IP phase:

–   *Copula drop in predicative constructions.* One participant, Christa, provides no evidence of a productive use of the copula in predicative constructions. Christa uses the suppletive form *ist* ('is') as of file 2 in combinations with *da* ('there'), *das* ('that'), *wer* ('who'), and, in file 4, with the expletive *es* ('it'). However, she consistently drops the copula with predicative adjectives (compare (189)-(190)).

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19.   I am grateful to A. Hohenberger for pointing this out to me.

(189) es ist nicht da.   (Christa DF10:01)
       it is not   there

(190) Der Jungen böse   auf seine Hunde.   (Christa DF10:01)
       the boy   angry on   his   dog
       'The boy is angry with his dog'

– *Copula drop after overgeneralisation.* Another participant, Simon, initially uses the
  copula in a range of target-like contexts, including predicative constructions, but
  also in combination with main verb infinitives. The alternation of sequences with
  and without a copula involving the same items, as is illustrated in (191) and (192),
  occurs as of file 3, in which, as described in section 4.1, the rigid SVX sentential
  pattern is given up and the incidence of verbless clauses increases.

(191) Die Eule sauer auf der Jungen.   (DC11;10)
       the owl   angry on   the boy
       'The owl is angry with the boy'

(192) Der Junge ist sauer auf   Reh.   (DC11;10)
       the boy   is   angry with deer
       'The boy is angry with the deer'

– *Alternation of copula drop and target-like copula sequences* (copula drop after tar-
  get-like use). The drop of the copula alternates with the target-like use and is re-
  stricted to certain contexts, in particular, constructions involving "*(nicht) da*" or
  "*weg*" ('(not) there'; 'gone'), as is the case in the narratives of Fuad (193) and Ham-
  ida (194).

(193) Tom steht   auf dem /großen/ Stein dann
       Tom stands on   the   big   stone then

       weg Eule   (Fuad, DG11;08)
       gone owl
       'Tom stands on a big rock. Then the owl is gone'

(194) Plötzlich nicht da.   (Hamida, DA11;05)
       suddenly   not   there
       'Suddenly he (the frog) is not there anymore'

Following this distinction, the unavailability of the copula paradigm at the VP stage,
which is ambiguous regarding a potential influence from DGS given the lack of func-
tional elements in the learner grammars at that stage, needs to be distinguished from
the persistent drop of the copula at later stages. Participants produce these verbless
clauses *and* target-like constructions, in which they demonstrate their knowledge of a
variety of contexts the copula is used in German. Thus, copula drop at this stage is in-
dicative of a coexistence of diverse grammatical options that might be reinforced by
the grammatical properties of DGS which lacks copula verbs. As pointed out by Tracy

(2000: 25), for those errors that are also attested in monolingual acquisition of German the question arises as to whether bilingual children might take more time in "correcting misanalyses", especially in the case where the other language reinforces the erroneous hypothesis (cf. also Müller 1998).

Lexical borrowing. Participants produce a series of verbless clauses containing expressions like *Angst* ('fear') (195) or *bescheid* ('information') (196) which are indicative of language mixing at the lexical level: both languages include lexical elements to express 'to be frightened' or 'to let sb. know', but the lexical overlap is only partial as German, unlike DGS, does not have a verb to express these meanings, but uses periphrastic verb-noun combinations instead (i.e. "*Angst haben*", "*Bescheid geben*"). The use of "*Angst*" or "*bescheid*" as predicates in clauses like (195)-(196) is thus indicative of the borrowing of these expressions from DGS and the lack of the target idiomatic expressions.

(195)   der Junge Angst   (Fuad, DG10;03)
         the boy   fear
         'The boy is frightened'

(196)   er bescheid   auf Junge.   (Christa, DF10;01)
         he information on boy
         'He informs the boy'

It is interesting to note that this type of lexical borrowing is also observed in the narratives analysed by Schäfke (2005: 271) and Günther et al. (2004: 240f); compare the following example (197) of a narrative of a participant in their study, Thomas, who also draws on DGS. The example is remarkable in that "*Bescheid*" appears with the infinitive marker *–en* and is combined with the preposition *auf* (ibid.).

(197)   Lambert <u>beseiden</u>   auf andere Schaf:
         Lambert information on other   sheep:

         Meine Mutter hat Wolf geklaut.
         my   mother has wolf stolen

Code-switching. By assumption, learners also resort to a pragmatically driven type of mixing which would be reflected in the use of DGS-like constructions for narrative purposes. (198), produced by Fuad, seems to involve the type of role shift characteristic of storytelling in a signed language like DGS in that it mimics the thoughts of the story character.[20] However, the non-manual components used to signal the change of perspective in DGS (e.g. eye gaze, body shift) are not "translated". Interestingly, this type of mixing is also remarked upon in Krausmann's (1998) analysis of adult deaf individuals' written productions.

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20. Note that this phenomenon needs to be distinguished from the expression of direct speech which the participants in this study almost always correctly signalled via quotation marks and correspondent introductory expressions like "the boy said…".

(198) Tom klar jetzt nach Haus mit Frosch
     Tom clear now to   home with frog

     und auch Paul.   (DG10;09)
     and also Paul
     'Tom (thinks) "of course, now we go home with the frog and Paul."'

Summarising, the variation observed in the transition from the VP to the IP grammar involves the coexistence of alternative structural patterns that are indicative of the reorganisation in the learner grammars. A similar variation was not observed in the case of Maria and Luise: Instead, the analysis of the data suggests that the IP is already established in their learner grammars at the onset of the recording. Whether or not their previous development involved a similar transition stage cannot be decided here. At the other end of the spectrum of individual variation, we are confronted with the written productions of Simon in which we find no evidence of variation along the lines described previously: this learner does not produce inflected verb forms, neither does he use periphrastic verb constructions, and adverbs and the negator appear in the preverbal position in the narratives produced toward the end of the recording time.

5.3   V2, CP and the restructuring of IP

As outlined in section 3.4, beyond the implementation of the new structural layer on top of the VP, learners face the task of acquiring the target V2 constraint. Further, target-like question formation and the production of complementiser introduced embedded clauses involve the projection of an additional structural layer, the CP, and the restructuring of the IP to the head-final value. By the end of the recording time, as we could see in section 4, not all learners have established the full sentential structure (CP) and only some of them adhere to the target V2 constraint.

    Non-subject V2. One more time, the implementation of a target property, i.e. V2, is preceded by a phase during which we observe the coexistence of target-like and target-deviant properties. The production of target non-subject V2 clauses by Muhammed, Maria and Hamida is preceded by an increasing production of target-deviant V3 constructions resulting from the adjunction of non-subject XPs, in particular, adverbial phrases to the sentence-initial position. The subsequent "integration" of these elements into the sentential IP structure derives target-like non-subject initial V2 formats. However, as remarked previously, the inclusion of this option does not occur to the immediate exclusion of target-deviant V3. While the apparent alternation of V2 and V3 ceases to occur in Maria' s file 5, it continues to appear in Hamida' s last file, which is the reason we can only speculate on the temporary character of this variation.

    The apparent coexistence of alternative structural formats prior to the implementation of V2 is not only remarked upon in other studies on DGS-German bilinguals (cf. Schäfke 2005: 285), but is also characteristic of the development of L2 German by adult learners (Plaza-Pust 2000a, b). Further, despite the widespread assumption that

children would not produce such target-deviant formats in the monolingual acquisition of German, Fritzenschaft et al. (1991) provide evidence of a similar variation in some of the children they studied. We may conclude therefore that variation regarding V2 is not exclusive to the acquisition situation discussed in this study but rather tied to reorganisation in learner grammars.

Embedded clauses. The expansion of the available structural format by the projection of the CP layer is commonly tied to the production of embedded clauses introduced by a complementiser and target-like question formation.[21] The analysis of the data reveals an ambiguous picture. The complementiser *weil* ('because') is produced early on. Typically, it appears in combination with verbless clauses during the time the IP has not yet been projected as is the case in Hamida file 1 or Fuad file 1. By assumption, at this stage *weil* is adjoined to the available VP structure (recall our previous comments regarding the use of functional items despite the lack of the associated target grammatical properties). Subsequent to the inclusion of the IP, word order in *weil*-introduced clauses mirrors main clause word order, which suggests that the CP projected is added to the available head-initial IP. Note that in target German *weil* is the only complementiser that allows for main clause word order, but this option is restricted to SVO order. Evidence of target-like sentence final verb placement in embedded clauses is rare in the narratives collected as is the use of complementisers other than *weil*. Some learners use *wh*-word introduced embedded clauses in which the order is the same as in the equivalent direct questions or involves the drop of the auxiliary as is typical of Hamida's productions at the time. Fuad produces one *dass*-introduced embedded clause in file 4, but word order suggests that the IP is head-initial in this case, too.

In concluding, only Maria and Luise seem to have implemented the full CP structure in their learner grammars: non-subject V2, question formation and target-like embedded clauses are productive in their narratives. One learner, Simon, does not produce any evidence of the availability of these grammatical processes. For all other learners we can only speculate on the availability of a CP layer: *weil* remains the only complementiser used productively and question formation is restricted to the pattern "*wh*-word + *ist*". If *weil*-introduced clauses involve a CP this is added to the head-initial IP available. This sentence structure not only resembles that of symmetric V2 languages like Yiddish and Icelandic (cf. Vikner 1995), but is also attested in the learner grammars of adult learners of L2 German (199) (Plaza-Pust 2000a: 244ff.).

(199)   wenn dies geht kaputt das   (Bruno) (ibid. 245)
          if   this goes broken this
          'If it gets broken, this'

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21.   For proponents of the symmetric structure of German, the production of non-subject initial V2 clauses also involves the availability of a CP.

Further, the analysis of L2 German data shows that the progressive acquisition of German complementisers and the restructuring of the IP go hand in hand. It is therefore interesting to note that embedded clauses with complementisers other than *weil* exhibit target-like word order in Christa and Fuad. Given that these are the only instances produced, the question of whether the IP is set to the head-final value cannot be answered conclusively. Finally, while the acquisition of the target-like sentence-final placement of verbs in embedded clauses by children acquiring German as a mother tongue was commonly assumed to be flawless (cf. Clahsen 1988, 1992), recent longitudinal studies of the acquisition of German L1 have shown that there is individual variation in this type of acquisition, too. A child like Benny, for example, displays the whole range of possible verb positions (V2 (200), V1 (201), V-end (202)) (Fritzenschaft et al. 1991).

(200)   will   die meerjungfrau haben daß
        wants the mermaid   have   that

        du   hast net die meerjungfrau
        you have not the mermaid

(201)   wenn hab i au   mal   burtstag habt
        when have I also (particle) birthday had

(202)   weil   die kaputt is
        because that broken is

Against this backdrop, we can conclude that the German asymmetric structure poses a challenge not only to descriptive linguists but also to young and adult learners of the language.

Question formation. The lack of the mechanisms necessary for target-like question formation is reflected in the predominance of formulaic questions *wo ist* ('where is') and *wer ist* ('who is'). Christa and Fuad produce questions with the second person suppletive form of the copula verb *sein*. As the question is the same as the title of the story and no other instances are produced we can only speculate on whether the necessary mechanisms are productive. It seems plausible to assume, however, that they are "within reach".[22] Only Maria produces yes-no questions which provides further evidence that the mechanisms necessary for question formation are productive. Subject-verb inversion in a yes-no question produced by Luise in file 2 points into the same direction.

Language mixing. The observation that the type of structures borrowed basically reduces to DGS-like idiomatic expressions once the IP is established is indicative of the circumstance that borrowing at the structural level is not required at this stage. The only mixed grammatical property that continues to prevail in the stories at a more advanced level concerns the overgeneralisation of *auf*, a phenomenon that comes as no

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22.   This holds especially in the case of Fuad who produces the first instances of non-subject V2 in file 5. Note, however, that Christa does not produce such sequences in the narratives collected.

surprise given the continuing lack of the target agreement and case marking para-digms. Further, the use of verbless clauses at this stage shows (a) that previous, more elementary grammars continue to be available and (b) that lexical gaps are filled by borrowing expressions from DGS.

Summarising, the detailed analysis of the type of structures that coexist at certain points in the development allows for the conclusion that intra-individual variation is tied to the developmental milestones in the acquisition of the L2 German syntax. To the extent that the errors produced are systematic, they provide further insights into the grammatical properties that are "within reach". For some participants, the range of variation displayed includes sentential patterns that are potential candidates of bor-rowing from DGS in that they follow the structural properties of that language. Cru-cially, the type of constructions mixed changes as learners proceed in their develop-ment of German which provides further support for the assumption that language mixing is developmentally constrained. In a similar vein, Schäfke (2005: 275 and 324ff.), too, remarks on the decrease of DGS-borrowings parallel to the increasing mastery of the canonical SVX order of German syntax. According to this author (ibid.: 275), DGS borrowings are indicative of a "productive intermediate stage" which coincides with our assumption that learners "pool their resources" in the organisation of their multi-lingual knowledge. Once the target grammatical properties are established, mixing may take over other functions.

6.   Conclusion: Why variation matters

Language mixing in bilingual language acquisition is an intricate phenomenon. As outlined in the initial sections of this paper, researchers dedicated to the study of the simultaneous or successive acquisition of two languages in young children are faced with the task of identifying the commonalities and the differences across monolingual and bilingual learners. The study of language contact in the acquisition of the written language of bilingually educated deaf students poses an additional challenge in that the languages involved differ in their modality of expression. To the extent that participants are confined to the use of the written modality during the elicitation tasks, code-switching in the traditional sense of an alternation of codes is excluded as an option; not so language mixing, however, as it operates at a deeper level.

Over the last decades, research into the interaction of two languages in the pro-ductions of bilingual learners has been instructive as to the necessary caution in the interpretation of the potential candidates of mixing in bilinguals' data. Additionally, the variation encountered in the study of monolingual children has provided evidence of the range of intra-individual variation that is bound to reorganisation phases in the development of learner grammars. Taken on the whole, variation in monolingual and bilingual learners is now regarded as an integral part of language development. The

study presented in this chapter is in line with these assumptions regarding both the common developmental path and the range of individual variation encountered.

The insights gathered are of special relevance for our understanding of the acquisition of L2 German by bilingually educated deaf students for two reasons. For one, the acquisition of German is bound to a formal learning situation. Contrary to the belief that learner errors would be related to hearing loss, deviances in the learner grammars studied pattern with the errors produced by learners of German in other acquisition situations. Like other L2 learners of German, participants in this study do not only produce memorised patterns but also sentential formats they have not encountered in the input, which indicates that their acquisition of German is bound, too, to underlying language specific learning processes (contra Vollmann et al. 2000: 17, who claim that the formal learning situation excludes the possibility of comparable (natural) language learning mechanisms). By the end of the recording time, not all learners have gone all the way along the development of the target German syntax. Nevertheless, the analysis of the data allows for the conclusion that participants in this study "climb up" the structure tree much like other L1 or L2 learners of German. This is an important conclusion given the myths that surround the acquisition of written language by deaf students.

Secondly, as they acquire German and DGS, variation in the development of German is also tied to the organisation of their multilingual knowledge which results in specific patterns of language mixing. Crucially, the lexical and structural borrowings identified occur at specific developmental phases whereby structural borrowings decrease as learners progress in the development of the L2, an observation that is in line with Schäfke's (2005: 274) findings concerning "peripheral" *vs.* "structural borrowings". In the sense of a "weak pooling of resources", the borrowing observed served as a means to express more complex meanings than would have been possible by using the available structure in German at the time. This pooling of resources was found to be systematic in that it affects specific grammatical or lexical areas.

The discussion of the results focused on the range of variation encountered in relation to the different developmental milestones in the acquisition of German syntax. Similar phenomena were observed in the learner grammars of the participants. However, as the detailed analysis of the individual paths equally showed, participants vary regarding the range of variation displayed and whether or not this variation involves borrowings from DGS, which is in line with the evidence gathered regarding the DGS-German acquisition situation (Schäfke 2005: 292) and also with the evidence of individual variation obtained in the research on the acquisition of two spoken languages.

Structural borrowings from DGS were observed only in some participants, in particular, during the time of structure-building. Variation in this respect calls for a more detailed analysis of the DGS narratives produced by these learners. As the systematic analysis of the DGS narratives is still underway the potential relation to varying competencies in DGS is an issue that cannot be settled at the moment. On the other hand, research into the bilingual acquisition of two spoken languages has amply shown that language dominance cannot account for the direction of borrowing across languages

(cf. Döpke 2000; Genesee 2002; Gawlitzek-Maiwald & Tracy 1996; Lanza 1997) which usually involves specific grammatical properties and may occur in both directions.[23] As pointed out by Gawlitzek-Maiwald (2003: 149) "the kind of mixed language used is different" (cf. also Genesee 2002).

Language acquisition is a *dynamic* process which involves a complex interaction of internal and external factors. With respect to the latter, it is important that research informs practice, i.e. the professionals involved in the conception and realisation of bilingual teaching with deaf students, about the insights gathered throughout the last decades in the area of developmental linguistics. Crucially, this pertains to information about "what makes the system move".

In this respect, the apparent coexistence of alternative structural patterns provides important insights about the underlying language learning mechanisms. As we could see, wherever a new structural format becomes available it "competes" with the previously available ones. Variation along these lines is not specific to the acquisition situation studied here, but is also characteristic of other types of language acquisition. If one of the major tasks of language learners consists in the integration of alternative structural formats into one sentence structure, coexistence and competition can be assumed to be the necessary driving forces of language development (Tracy 2002; Plaza-Pust 2000a, b). Bilingual learners are confronted with the additional challenge of a structural "differentiation" between languages whilst dealing with the task of a structural "integration" within each of the languages they acquire.

We may conclude therefore that variation in the learner grammars, either in relation to conflict resolution in the face of competing linguistic representations or as a means to fill temporary gaps – matters. By the same token, it seems clear that variation also matters at the level of the language input available: if, as is assumed here, the acquisition of *written* German by deaf students is based on the same language specific learning mechanisms assumed to guide language development in other types of language acquisition, the relevance of a rich input (both in quantity and quality) needs to be emphasised (cf. also Schäfke 2005: 294 and 329 for a tentative conclusion along these lines).

The implications for a language learning situation in which the input is primarily determined by the formal setting, as is the case of foreign language learners, in general, and deaf learners of an L2 written language, in particular, lie at the hand: students need to be confronted with normal (age adequate) texts and not with written fragments adapted to their alleged restricted comprehension (cf. Schäfke 2005: 204ff. for a detailed discussion of the negative effects of such adapted texts which are usually devoid of thematic coherence, cohesive elements and the redundancy necessary for *any* reader to comprehend the narrative thread). Learners need to be exposed to and have the

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23. Notice that the assumption of dominance as a factor requires the definition of the criteria used to determine the dominant language, an issue that continues to be controversial (Gawlitzek-Maiwald 2003: 151).

chance to use a *diversity* of structural patterns. For example, with respect to the acquisition of the German sentence structure discussed in this paper, it seems clear that if learners are not confronted with complex clauses early on the verb placement asymmetry will be difficult to learn (cf. Haberzettl 2005 for L2 German in general; Tracy 2002b). However, like other foreign language learners, deaf students of L2 written language are often confronted with a "selection" of structural patterns in the classroom with the ironic effect that the learning effort is not reduced but probably increased as it takes much more time to reach the "critical mass" (both in lexical and structural terms) necessary for lexical spurts and ensuing structure building processes to occur (cf. Hohenberger 2002; Karpf 1990, 1993; Zangl 1998; among many others).

It is important to note that the conscious learning of the properties of the target language and the areas of contrast between two languages do not replace the tacit processes underlying the development of grammars. However, contrastive teaching can fruitfully complement these processes by drawing the learner's attention to how a meaning or specific construction of the L1 is expressed in the L2. As mentioned in the initial sections of this paper and observed in the data of the participants of this study, language mixing is an indicator of the learner's tacit knowledge about the equivalency of languages at a deeper level. Practitioners involved in the contrastive teaching of a signed and written language need to be informed about the systematic nature of the mixes and what they reveal about the bilingual student's development so that the input they provide builds on the learner's language knowledge that can be gleaned from the sophisticated cross-modal mixes. The positive impact of didactic measures as the aforementioned which are an integral part of the bilingual teaching conception adopted in the Berlin bilingual education programme can be traced in the narrative productions of participants included in this study.

While the functional dimensions could not be explored in this paper, we would like to conclude this chapter by taking up the second dimension highlighted in the quotation included at the beginning pertaining to the functional dimensions of language use in bilinguals. The social and cultural components of language cannot be disregarded for identification with a language and the contexts of its use play a crucial role in the motivation to learn a language in *any* learner, child or adult (Klein 2000). Deaf children need to be exposed to and have the right to use the written language in a meaningful way (cf. also Ardito et al., this volume) so that their second language becomes an integral part of their bilingual lives in which they will "marshal resources within and across languages" (Padden 1998: 100).

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Deaf and hearing children

Reading together in preschool

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The present chapter describes an educational experience carried out within the
project "Bilingual education towards deaf and hearing children's integration".
The conceptual framework of the project refers to a bilingual approach which
consists in exposing deaf and hearing kindergarten children to both sign
language and spoken language. Deaf teachers used Italian Sign Language while
hearing teachers used Italian and Signed Italian. The educational activities,
briefly described, aimed to introduce preschoolers to early literacy within the
theoretical approach developed by Ferreiro and Teberosky. Twelve children
(five hearing and seven deaf) took part in the experience and their levels of
conceptualization of written language were evaluated at the beginning and at the
end of the school year.

Keywords: bilingualism, early literacy, Italian Sign Language, Signed Italian,
written Italian

1. Introduction

It is by now well known that children can enjoy learning to read and write starting in
their kindergarten years. The early promotion of reading can turn into a valuable resource also for deaf children. Because of their acoustic disadvantage, these children
often reach schooling age with a very limited vocabulary and linguistic competence,
which prevents them from following a regular class program. The activities described
in this chapter were carried out within the experimental project "Bilingual education
towards deaf and hearing children's integration", held during the 1995–96 school year
in collaboration with the kindergarten of ISISS, *Istituto Statale di Istruzione Specializzata per Sordi*, 'Institute of Specialized Instruction for the Deaf, 173rd district' and the

CNR's (*Consiglio Nazionale delle Ricerche,* National Council of Research) Institute of Psychology (now Institute of Cognitive Sciences and Technologies). The main aim of this project was to forge a bilingual (Italian and Italian Sign Language) preschool where the mixing of deaf and hearing children and deaf and hearing adults (teachers) could become the fundamental premise for a new way of thinking about deafness and deaf education. The bilingual project is to this date still active.

2.   Conceptual framework

Over the past years, the concept of a bilingual education for deaf children has been worked on with successful outcomes within several educational experiences in Italy (Pagliari et al. 1985; Ardito & Mignosi 1995; Caselli & Corazza 1997; Teruggi 2003). The project for a bilingual education in Italy arises from the deep commitment of professionals (researchers, speech therapists and others professionals operating in the field) working on an answer to try to cope with the problem of the severe learning delays often shown by deaf children and juniors (Caselli et al. 1994; Maragna 2003). The bilingual education model is thus intended to leave behind the image of deaf children as handicapped, and instead to promote that of typically developing children who are free to communicate with their friends, deaf or hearing, in an accessible linguistic environment.

The path of bilingualism seems like the most natural way for deaf children to approach language education, as it takes into consideration both their current and their potential skills. According to this perspective, it is important for deaf children – and later on for deaf adults – to be able to manage both languages, which in the case of deaf individuals in Italy are Italian Sign Language (LIS) and Italian (spoken and written). The concept of bilingualism can be used to refer both to the simultaneous acquisition of two languages from early on, such as when a child engages in a continuous interaction with two different languages from a very young age (typically before turning three), and to the sequential kind, when a child starts learning a second language only some time after the first language has been acquired. The term "bilingual" is also used for a person who learns a second or third language later in life, after having acquired a first language (Grosjean 2001).

As we know from the literature on early bilingualism (Volterra & Taeschner 1978; Grosjean 1982; Taeschner 1983) in order for children to become bilingual certain conditions need to be met:

a.   In a first stage, the principle "one person, one language" has to be followed: each conversational partner should be consistent and use one linguistic code with the child and should avoid mixing the two languages; the linguistic input given in the two codes should be quantitatively well balanced.

b.   In the subsequent stages, the child should be given the opportunity to interact with more interlocutors; at the very beginning, one adult using one code is

sufficient, but later on the child needs to interact in that code with other adults and children and to experience similar contexts in both codes.

c.   The child should be motivated to use both codes, experiencing environments and situations where it is necessary to use one of the two codes in order to be understood.

Some of these conditions are also applied in teaching a foreign language to very young children in school settings (Taeschner 2005). In case of sequential bilingualism, according to the linguistic interdependence hypothesis, proficiency in a first language can be seen as positively supporting the learning of a second language (Cummins 1991; Taeschner 1991)

These conditions appear to be relevant in the following cases: in hearing children who acquire two spoken languages, in hearing children who acquire one sign and one spoken language and, it can be assumed, also in deaf children who acquire two sign languages. But there is a big difference to be considered when it comes to deaf children acquiring one sign and one spoken language: it will never be a case of simultaneous bilingualism. The two codes are not equivalent for these children: while sign language can be acquired naturally and spontaneously, spoken language must be taught and learned through a long and tedious process. There will always be a temporal lag between the acquisition of the two codes. In theory, the learning of spoken language (in our case Italian) must necessarily follow the acquisition of sign language (in our case LIS) (Volterra et al. 1984).

With early exposure to LIS, deaf children are given the opportunity to build up their linguistic competence naturally and spontaneously, to satisfactorily communicate knowledge typical for their age and degree of cognitive and relational development.

In order to allow factual integration with hearing people, the use of residual hearing, learning Italian and efficient lipreading are essential and therefore early and accurate prosthesis fitting, daily exposure to spoken language and formal teaching are also necessary.

If two languages are meant to be acquired by a deaf child, it is crucial that he or she gets provided with enjoyable and stimulating interactive situations where he or she feels motivated to use them with different interlocutors. One of our fundamental assumptions about the bilingual development of deaf children is that they need to be given the chance to communicate interactively with peers and adults, both hearing and deaf, in both LIS and Italian. It should be remembered that Italian has a spoken form, a written form and, for deaf people, a signed form (Signed Italian –SI) and these forms can be used together or separately. It is claimed that

> …a straightforward bilingual approach would use American Sign Language (ASL) for establishing communication and fostering general education, Signed English as part of the program to teach English contrastively with ASL and speech separately as a skill to be acquired for future use with hearing people and voice operated software (Wilbur 2000: 98).

But in Italy the strong oralist tradition prevents a rigorous application of a bilingual model and deaf children are expected to speak from an early age. Most hearing families with deaf children do not use LIS with their children who very rarely have the opportunity to be exposed to LIS since birth. Those few families who choose a bilingual approach for their deaf children often use some form of Signed Italian in combination with speech and the only opportunity of exposure to LIS is likely to be in kindergarten, where a first approach to early literacy is scheduled. This happens despite the criticism expressed toward the use of such signed codes that has also been translated into Italian (Johnson et al. 1991).

Regarding bilingual programs for deaf children, it also needs to be taken into consideration that sign languages do not have widely accepted written forms and that early literacy develops from written language. In many bilingual models of literacy education, there is a heavy emphasis on the use of Sign Language to discuss the written text features. According to these models, L1 proficiency must be developed to a high level before linguistic comparisons with the L2 can be made. In other models, a global approach to learning is adopted according to which signing in L1 and reading and writing in L2 are viewed as linked processes (Kluwin & Kelly 1992; for a review, see Mayer & Akamatsu 2003). Our educational experience adopted a global language approach that was based on the theoretical approach drawn from the research on early literacy in hearing children (Ferreiro & Teberosky 1985; Ferreiro 1985; Pontecorvo et al. 1996; Formisano & Zucchermaglio 1989; Zucchermaglio 1991) and has been adopted in the education of deaf children in a few cases (Stella & Biancardi 1991; Conte et al. 1996; Pace et al. 1994; for a review Williams 2004). It's been a long time since written language was considered as a mere graphic transcription of spoken language, it is instead now believed to be a semiotic system with its own characteristics and learnt through a complex series of linguistic and metalinguistic processes. Children's acquisition of literacy is indeed a highly compound cognitive-linguistic process that cannot be simply replaced by learning a sequence of perceptive-motor coordinations. Before being an instrument to acquire knowledge, literacy is a learning object itself for any child. In literate cultures like ours, every child is precociously immersed in a world of print since birth. Young children do observe and elaborate their individual hypotheses on *what reading and writing are all about*. Pontecorvo and Orsolini (1996) defined literacy in terms of the complex knowledge and skills involved in the early phases of written language acquisition and indicated the main phases that can be recognized within this process (see also Ferreiro 2003; Pascucci 2005).

The initial phase of writing development starts from the differentiation of writing from drawing. Children draw prototypes (an object representative of a whole category) and begin to write names for them that have nothing to do with spoken words. They might use different single symbols for the name of each depicted object. Children seem to consider the name as a piece of conceptual information regarding the object.

In the second phase, children explore the graphic and syntactical regularities of the notation system in both production and interpretation. In order to have a set of

interpretable marks (even though the meaning still needs to be drawn from the context), children follow some quantitative regulations (e.g., the minimum number of written symbols, usually three) and some qualitative ones (e.g., the presence of graphical variety).

During the third phase, children start working on phonetizing their writings: how to coherently (which doesn't yet mean conventionally) read what they write from time to time. During this phase, different levels can be detected within the hypotheses formulated and used by children to write and read their own writings. This is when the phonetization of writings leads to the *syllabic form*: each symbol represents a section of the pronounced word, approximately a syllable. The following step takes the children to a more complex and proficient strategy (the *syllabic-alphabetic* one) that will lead them up to the *alphabetic* solution, when each pronounced sound corresponds to a graphic sign and the other way round. Actually starting off from their own theories children can be taught to read and write as early as kindergarten.

During the experience reported in this chapter, we tried to lean on these views on early literacy, bringing them into a bilingual context. In the next section some methodological principles deriving from this theoretical framework will be introduced.

3.   Methodological principles

According to the theoretical framework of early bilingualism presented in the previous section if two languages are meant to be acquired by a child, it is crucial that he or she is provided with enjoyable and stimulating interactive situations where he or she feels motivated to use with different speakers. One of our fundamental premises about the bilingual development in deaf children is that they need to be given the chance to communicate interactively with peers and adults, both hearing and deaf, in both LIS and Italian. Therefore, we first of all regarded as important that all *the written language related activities would be presented in both Italian and Sign Language*. We tried to apply the "one person, one language" principle, but in a reasonably flexible way.

The hearing educators interacted with all the children in "Signed Italian". The notion of Signed Italian refers to a communication mode in which signed and spoken elements are produced simultaneously; the grammatical structure of the bimodal utterances follows that of the spoken language (Beronesi et al. 1991; Massoni & Maragna 1997). The choice of using Signed Italian by hearing teachers was deemed to be necessary to offer a more visible and accessible form of spoken Italian for deaf children, it was also the code mainly used by their families. Furthermore, the presence of hearing children made the simultaneous use of speech more natural.

Two deaf collaborators,[1] skilled in LIS and experienced in working with children, also took part in the project. During the activities, the deaf educators communicated with the children through LIS. The presence of a signing adult is of fundamental importance to this kind of bilingual experience, not only to pass sign language on to children, but also to give deaf children the opportunity to relate to deaf adults in a teacher's role. Deaf children with hearing parents, being used to associate only with peers and hearing adults, often perceive their "difference" as so severe that they believe they won't be playing future social roles like hearing people do.

More generally, the use of signs gives deaf children the opportunity to understand what's being said first through signs and then through words. Learning spoken language therefore becomes more accessible and less demanding. As mentioned previously, we assume that linguistic competence achieved in LIS can thus be transferred and used towards the acquisition of Italian, although the specific nature of this transfer and the linguistic dimensions involved remain as yet to be specified (Mayer & Akamatsu 2003; but see Niederberger this volume; Dubuisson et al. this volume).

The second methodological principle followed here refers *to providing an environmentally stimulating context, equipped with the typical tools and material of a literate culture*. As a matter of fact, children do learn to read and write through continuing exposure to all the print around them, inside and outside their home, every minute of the day. What happens is that children go from progressively less shallow curiosity to reflection over written language functions, searching for the rules that can explain how it works. It is therefore necessary that the school can offer a stimulating environment. This is the reason why the classrooms in the school where the experimentation took place were furnished with posters for roll call records, for weather forecast, for notices, but also for the daily "restaurant menu" (the school's refectory menu) and labels and tags indicating name and purpose of the objects in the room. Deaf children, in fact, often don't know or remember the names of all the objects around them but playing with these writings in the appropriate context can be an amusing way to learn. In other words, the tags serve a double purpose: as a reminder of the names of certain things and at the same time as a demonstration of what the written words look like.

Having the teachers presenting the activities in both languages stimulates children to discover that the same meaning can be expressed in some other language through a different signifier (word or sign). By dealing with two languages, young children experience very early the arbitrary link existing between signifier and signified; therefore they start to detect some differences between LIS and Italian, developing a special sensitivity towards language comparison (Council of Europe 2001).

The third methodological principle here applied concerns *a socially stimulating context* and is based on the assumption that *peer interaction* is an effective way towards knowledge construction (Pontecorvo 2004). The dimension of the group, which in our case consisted of deaf and hearing participants, plays a fundamental role both at the cognitive and the socialization level. In other words, children are valued as active subjects, capable of building their own knowledge through social mediation (Bruner 1988) offered by more skilled peers or adults. From establishing emotionally positive relationships with these partners, children can obtain models, points of view, opportunities for conversation and contraposition (Orsolini et al. 1989). Starting with concurring and dissenting opinions, the children are in fact stimulated to explicate their own meanings, give explanations and defend their theories. Through a series of social-cognitive conflicts, they accept changes and integrate new perspectives (Pontecorvo & Sterponi 2002). It is indeed therefore important that they are given incentive by the others in order to reflect on the written language construction system.

Working in groups always implies starting from the children's actual knowledge. There are no expectations for developmental accelerations and there is no demand for the adult to step in supplying the "right answers". It seems clear that if such answers were provided, these answers, not taking into consideration each child's level of knowledge, would just end up flying over their heads without any trace. Instead, the fact that the children have different level skills represents the engine behind their learning.

Moreover, in any sort of groups it is important that all those participating in the discussion can see one another and catch the miming expressions and gestures accompanying speech. These communicative aspects are of particular importance in a mixed group of deaf and hearing children. As a matter of fact, to be able to grasp it, any message needs to be seen and, in order to be able to truly communicate, children must learn to wait for their turn and to draw their schoolmates' attention through visual and gestural strategies (like waving a hand in the other's visual field, lifting an arm or touching mates on a part of their body visible to them so that they don't get caught by surprise). Behavior rules are not known naturally by children, instead they must be taught, constructed and shared through a process that takes a long time. The goal of group work is indeed that everyone *listen* to who's speaking and that everybody has the chance to talk, taking turns. For children communicating through both vocal and sign language this represents a complex goal, but nevertheless reachable. To reach this goal, the teacher should function as a *bridge*, as it will be further explained below (Fung et al. 2005). Deaf children with hearing parents often don't know or know little LIS and in their case school can be the place for effective learning. Learning this language together can allow deaf and hearing children to get to know each other better and to meet on mutual ground, which is their fully functioning faculty of sight.

Furthermore, learning sign language is likely to be of benefit not only for deaf children, but also for hearing ones. Daniels (1994) conducted an educational experience during which hearing children with hearing parents underwent systematic teaching of

sign language. This research pointed out that the children exposed to American Sign Language (ASL) also improved their American English lexicon understanding.

Another educational empirical research involving teaching primary school children revealed that learning Italian Sign Language as a foreign language can enhance visual discrimination and/or memory in hearing children, abilities that are strictly related to literacy development (Capirci et al. 1998).

The last methodological principle refers to the *attitude and the strategies assumed by the teachers* during the educational experience. While children first start discovering cultural systems, it is crucial, before beginning any work with them, to understand the way they learn and think, their attention limitations, their social and exploring motivation. First of all, it is important to assume the children's point of view to comprehend what they mean, what they don't understand, and to be able to intervene accordingly. During written language activities, teachers should be able to change their attitude and to turn from being "depositaries of knowledge", giving information bit by bit, into skilful "observers" who know when it's the right time to help children to confront, and in case discuss, their own written language theories with others'. Their main goal is to draw children's attention to the central features, to help them reformulating others' hypotheses and to make them their own, to gather the difficulties arising from the group and to propose them again in a clearer form.

In order to be able to do so, the teacher must talk in simple but yet correct language, using clear and easy to understand words, appropriate for deaf children who at this age have a limited vocabulary and only know basic grammatical structures. Moreover, as previously mentioned, the teacher's purpose is also to serve as some sort of a "bridge" in the communication among the children, in the event they fail to understand one another. In fact, if during play interactions, deaf and hearing children always find a way to communicate using signs or words, they might not be fully aware of communication while being too absorbed in literacy activities and book reading or listening tasks. In this event, the teacher should be able to report whatever has been said to them by others ("Laura said that..."), translating from Italian or Signed Italian into LIS (depending on the situation) and conversely.

The next sections will present the children and will describe some of the activities that were carried out to introduce preschoolers to early literacy.

The educational experience presented in this chapter is based on the Action Research Perspective (Gentile 1990). The researcher (in our case the teacher-researcher) is embedded within the reality she wants to explore and study, and she operates from the inside. She is both an actor and an observer throughout the process. This is in other words a theoretical and methodological perspective aiming at an *ecological approach*, which – at least in sociolinguistics – takes into account internal *and* the external factors, as well as their interaction.

4.   The children

Twelve children, aged between 3 and 7, took part in the educational experience: five hearing and seven deaf, profound or severe. All participants had hearing parents. Even though all deaf children used hearing aids, none of them was able to understand vocal messages without lipreading and the help of the context. The children had different linguistic competences both in Italian and LIS. Some bilingual activities had already been presented in the past years therefore all children knew some LIS signs and a few of its grammar structures. However, LIS linguistic competences differed not only among the hearing children, but also among the deaf, having been exposed to LIS at different ages depending on linguistic choices made by their families. Linguistic competence in Italian was different not only between hearing and deaf children, as expected, but also within the deaf group itself. Different factors (age of deafness detection, start of hearing aid use and of speech and language therapy) influenced their levels of knowledge of Italian. All children also showed some differences regarding their written language conceptualization skills.

We therefore evaluated the children's personal hypotheses about the meaning of what was written both at the beginning and at the end of the educational experience. In this task, adapted from Ferreiro and colleagues (Ferreiro & Teberosky 1985; Formisano et al. 1986), children were asked to write "in their own way" the word corresponding to a picture and then to read aloud what they wrote, for a total of 8 writings. The children's performance was evaluated in terms of emergent writing strategies. Considering both what children say (or sign) when they write and how they read their writings, we assigned one of the codes as follows. Children use a pre-syllabic strategy when they show no awareness that letters in a string correspond to sound units in a word. For instance, they don't divide aloud into segments the word's sounds while writing, nor do they manipulate the number of letters as a function of the word sound: short and long words tend to be written with a similar number of letters. Children use a syllabic strategy when they tend to write one letter for each syllable of the word, although they do not use any stable correspondence between specific syllables and specific letters. Children use a syllabic alphabetic strategy when they are not consistent in using syllables or phonemes as units matching the number of letters in a string. Children use an alphabetic strategy when they consistently manipulate the number of letters as a function of the number of phonemic units in a word, although they do not use letters with their conventional phonemic value.

The results of the evaluation at the beginning were also used as additional information for the ultimate design of the activities to be carried out, and at the end of the didactic experience, the comparison of the results would allow us to evaluate the competence gathered. With respect to the children's competences, at the beginning, the results of the evaluation showed that three children, one deaf and two hearing, were still in a phase in which they did not yet differentiate between writing and drawing, while two other deaf children just started to do so. Three deaf children were in the

Table 1. The children and their level of written language conceptualization

Children	age	years in school	written language conceptualization
Francesco	3.3	1st year	not differentiating drawing from writing
Livio	3.8	1st year	not differentiating drawing from writing
Dario*	3.8	1st year	not differentiating drawing from writing
Leo	4.5	3rd year	syllabic alphabetic
Silvio*	4.6	2nd year	first differentiating drawing from writing
Antonio	4.6	3rd year	syllabic
Federica	5.1	3rd year	syllabic alphabetic
Flavio*	5.2	2nd year	pre-syllabic
Alberto*	5.6	1st year	first differentiating drawing from writing
Ilaria*	5.6	1st year	pre-syllabic
Giovanni*	6.2	2nd year	pre-syllabic
Pamela*	7.1	3rd year	syllabic

*   deaf children

pre-syllabic stage, using only a few of their own names' graphemes to compose different words. At this level, children don't refer to the word's phonological form, but rather try to reproduce the characteristics of the actual mentioned object (Ferreiro & Teberosky 1985; Pontecorvo 1994). Two children (one deaf and one hearing) were in the syllabic stage, and two hearing children were in the syllabic-alphabetic stage: they were able to match each grapheme with one syllable or to associate each grapheme with its corresponding sound (Bonanni 1997). Table 1 reports some information about the children and their level of written language conceptualization.

5.   Activities

5.1   Tale reading and listening activity: accessing books and written language

Reading should first of all be pleasing. Our primary aim was to get children to love books and to enjoy leafing through them, looking at them and "reading" them. The deaf children participating to this activity had no previous experience with tales or book reading either in signed or in written form. Their parents, all of them hearing, had only recently started a LIS course and they still couldn't tell tales or read to their children using signs. On the other hand, the children's competence in oral language wasn't good enough to allow them to follow the complexity of a tale. It was obviously different for hearing children, for whom listening to a story had never been a problem (Steinberg 2000).

We therefore proposed to the children, the parents and the teachers an amusing experience, in order to encourage them to associate books and reading with positive

feelings. A trip to the bookshop was planned. The actual experience of stepping into a shop and picking some books would help children to better comprehend and enjoy the meaning of the activity. Moreover, buying school books with both their teachers and their parents would help children to connect this exciting written text related experience with reading activities both at home and in school.

Once the books were bought, we regarded as important to create a special ambience for the narration of our tales. Therefore, in order to highlight the reading activity we arranged a class *bookcase* and made it well visible in the room. Moreover, all the books had been marked with a school stamp by the children to make them more easily detectable among other texts not involved in the activity.

Near the bookcase a *reading corner* was arranged: a rug, some cushions to take a comfortable sit and a wall light that children had to switch on at the start of their interaction with the books and off at the end of the interaction to highlight the *reading context*.

The reading approach activity was presented in two different modalities:

  a. *I read and then I tell you.*
  b. *Let's read together word by word.*

Through the first activity, we wanted children to get accustomed to written language through illustrations, words and signs drawn from the enchanted world of tales. Through the second activity, we wanted children to get in touch with the core of the whole writing system and to become aware of the tight link between what was told and what was actually written. For both educational experiences, we selected certain tales that would meet the children's knowledge and would be easily understood through the illustrations. There was only one difference: the type of text that came with them. In the first activity, the illustrations were accompanied by a rather long and articulated text that was first visibly "read in silence" by the teacher and then told. In the second activity, a punctual and simple text was connected to each illustration, and the teacher would read it aloud word by word.

The following methodological aspects remained the same for both activities.

Children were divided into two groups of 6 each. Each group consisted of deaf and hearing children and within each group the participants were quite homogenous with respect to their age and their written language conceptualization skills, according to the evaluation conducted.

At the start of the experience, the duration of each activity, closely depending on the children' s attention capability, was intentionally limited (about ten to fifteen minutes), but it gradually grew to thirty-forty minutes towards the end of it. The "book reading" always took place in the late mornings, before lunch. This way, children had the chance first to "get wild" during motor games and then to relax while teachers read to them.

Let us now describe the two activities in detail.

a.   I read and then I tell you

This activity was conducted from January to March. The main aim of the activity is to show children that there is a connection between what is written and what they are told.

The written language-tale telling correspondence was still quite general though. The teachers weren't actually reading the whole story because to make the told story exactly coincide with the written one the demanded attention times would have been too high and children were still far from conceiving that the act of reading is word by word.

Step 1: The adult reads the book and tells the story. Each book was presented to each group of children at least four times altogether. The story was introduced by the hearing teachers in Signed Italian at least twice and twice more in LIS by the deaf teachers. Each group of children was exposed to the same story, once by the hearing teacher and once by the deaf teacher, on the same day. The order of presentation was not fixed and could vary each time.

Before beginning to narrate the tale, the deaf or the hearing teacher addressed children with this expression "Now I read and then I tell you", in order to demonstrate the link between what was printed in the book and the story he or she was about to tell. While telling the story, it was important that teachers made sure they linked whatever they said to the book's illustrations and that they adapted their language to the actual linguistic competences of their little spectators. All the children's contributions were accepted and reported to the group, provided that they didn't go too far from the story's main gist.

The teachers told the story leafing page by page through the book together with the children. Because they were telling a story they had just read, the teachers used some typical written language expressions. At the same time, they would integrate with their own words the hardest segments, replacing unfamiliar terms and giving explanations for certain expressions. Thus, thanks to the constant exchange, the questions about the characters and the requests for connections with personal experience, teachers were able to keep the children hooked onto the text.

Half way between oral and written story telling, we believe that this narrative structure represents the right alchemy to approach a text and it is up to the teachers to repeatedly adjust it to the needs of each child for a correct group work.

This was how the tale–reading activity would be handled: children would sit on the floor in a circle, one teacher sitting in front of them and narrating the story and another one sitting in the middle and encouraging them to follow the narration. The first times especially, the role of the teacher not narrating the story was very important. Without interfering in the other's narration his or her job was to give an encouraging glance to the children and to draw their attention back onto the text by touching them or pointing to the illustration of what was being described. He or she was in other words a backdrop figure, whose main task was to try and keep the group together and interested, without interrupting while the other teacher was reading.

For each story, usually during the first meeting, the teacher narrated the story and then passed the book to each child so that they could pretend to read it again on their own. During the second meeting, while narrating the story, the teacher pretended to forget some parts or to make mistakes, in order to encourage children to participate actively in the tale construction. We also wanted children to realize that a text did not change from time to time and that written language enables one to find again within the text itself all

the forgotten information. So, when children remarked the mistake or the missing element, the teacher immediately commented, pointing on the book "Sure, I read it wrong" or "Oh look, I missed a bit. I didn't read here" and then continued reading the right way.

Step 2: The child reads the book and tells the story. After at least four times that the same story was told by the teachers (two in Signed Italian and two in LIS) we planned two more meetings, one with the deaf and one with the hearing teacher; in these sessions, each child could finally pretend to *read* the story to their mates. Each child was free to choose how to tell the story, but both the deaf and the hearing children quite clearly adjusted to the context: they would mostly use LIS or Signed Italian when the deaf teacher was there and Italian, spoken or signed, with the hearing teacher. While the hearing children would tend to use mainly either spoken or signed Italian, the deaf children preferred LIS or signed Italian. The children's productions were not analyzed in detail because the educational experience was not focused on this aspect.

Obviously it was image–reading, based on the book illustrations and on what the children remembered of the tale they had listened to a few times already. This imaginative function is crucial; while pretending to read a book, the child can experience first hand the behavior typically belonging to the act of reading. Shortly all the children of the educational experience, independently of age, started to "read" the books to their mates by imitating the teacher's behavior. Before reading, each child would try to gather the other children's visual attention (deaf kids already knew that communication fails when the other is not watching, but hearing children also picked it up fast), would open the book and say "Wait, I read" and then they would start the story. At this stage it is fundamental that any attempt of reading behavior coming from the children is accepted. For instance, younger ones mostly leafed through the book, pointing and showing the others the main characters and their actions. Older ones, five or six years of age, were able to tell the whole story sometimes even reproducing the same nuances and paralinguistic aspects used by the teacher. In addition, as time went by, they all started to *read on their own* even outside the didactic activity's scheduled times. Throughout the class the crave for reading had blossomed.

b.   *Let's read together word by word*
This activity was conducted from April to June. The aim of this activity was to demonstrate to children that reading consisted in linking a word or a sign to each printed word. It was therefore necessary to use rather short tales, easily understandable through their illustrations, with a simple plot and an elementary structure, characterized by a limited and redundant lexicon and basic grammatical constructions. As a matter of fact, in this case the correspondence between what was written and what was read had to be made obvious. The aim here was to draw children closer to proper reading.

The "word by word" reading activities were presented over the last period of our experience by the deaf and the hearing teachers. Being a possible sequel to the work on tales and reading, these can only be introduced after children have already been exposed to written language and narration for some time. It is important that children

have already experienced word reading and have started confronting their hypotheses about it. This activity is articulated in three steps, starting from the adult reading, to children reading the story themselves and then reconstructing the text. The description of the three steps follows.

Step 1: The adult reads the story. At this stage, the teacher reads the story to the children word by word, making them take notice of the tight correspondence between each page's print and the words or the signs produced. In order to help children do so, *pointing* was used. In other words, the teacher would pronounce or sign a word, and after making sure he or she had the children's attention, would give them a glance suggesting them to turn to the book and would point to the corresponding printed name and matching illustration on the page. For instance, if the text read "*il leone vuole la carne* ('the lion wants the meat')", while reading the teacher would show the correspondence between the words *leone* ('lion') and *carne* ('meat') and the matching prints and illustrations by pointing to them, while for the word *vuole* ('wants') he or she would point to the corresponding printed word. Still trying to keep the relationship between the word–sign, the illustration and the written word, the deaf and the hearing teacher would read differently, each according to the rules of their own language. LIS sentence sign order doesn't always match the Italian word order. In Italian you say *l'orso vuole la carne* ('the bear wants the meat'), while in LIS you sign *ORSO CARNE VUOLE* ('bear meat want') (Volterra 2004).

Therefore, while translating the text into LIS, the deaf educator would make sure to follow the proper sign order of this language and would draw children's attention to the text where the words were printed according to Italian order. The hearing teacher instead highlighted the correspondence existing between the word order of written Italian and of oral Italian as produced during the reading.

This way the deaf and the hearing children were given the possibility to ascertain the difference between the two languages. In addition, on a psychological level, it means a lot to deaf children to see a deaf person, someone confident and competent, reading written Italian and naturally putting it into LIS. The teacher didn't openly explain the meaning of written language as a potential learning tool, but it was assumed that children would grasp it indirectly through daily practice.

At the end of each reading, before the end of the session, the teacher would tell the story again without connecting it to the written text. With this last narration, children were given a global view of the story, possibly leading to a better understanding of it. As a matter of fact, the group consisted of different age and different competence level children, it was therefore important to make this a fruitful moment for all of them. The behavioral responses of the two groups, the hearing and the deaf children, to reading activities were similar: the children would look for the texts, manually explore them and "dramatize" the whole story or parts of it. What differentiated the two groups was that the hearing children provided more linguistic comments.

Step 2: Children read the story on their own. At this stage, the target is having children reading on their own. It doesn't matter *how* they read, but that they do and that

they feel confident doing it. In the educational experience, the younger children of the group only read the images, while still trying to reproduce the link between written prints and illustrations. Most of the time the link was wrong, but what really mattered was that they had made a connection between the oral and written language. As a matter of fact, they showed they knew that, whatever was written, it always had a meaning. Older children, or those simply with a more advanced reading hypothesis, recognized some words by heart through global reading. Some others recognized a few letters or maybe the initial syllable and they figured out the word from the context. Finally, some of them were able to actually read some words and simple sentences on their own. However, all of them thought they could read.

What we also particularly cared about was for preschoolers to get acquainted with those Italian linguistic elements (such as articles, prepositions, pronouns and verb endings) that are infamous for being quite difficult for deaf children. Various studies on the linguistic capabilities of English and Italian deaf adults have highlighted a series of similar significant mistakes occurring in both oral and written language, like morphological omission, substitution and addition, above all regarding prepositions, articles and pronouns (Caselli et al. 1994; Fabbretti et al. 1998; McAffe et al. 1990; Marschark et al. 1994).

Although the task is approached from the perspective of the spoken language, these mistakes also affect written language. The mistakes occur within different capabilities: comprehension, production and acceptability judgments. The two factors making the learning of these linguistic elements problematic for a deaf child are: the fact that these grammatical particles can be hardly perceived through lip reading, that they are often unstressed and that they are semantically empty, in other words, they mean nothing to children. The challenge is then to make these elements "important" and visible as early as first approaching written text. Not only they can't be detected by lip reading, but in LIS, differently from Italian, the function of these grammatical particles is served by typical visual morphosyntactic mechanisms (Volterra 2004). Highlighting these linguistic elements as early as the first contacts with written language can be an effective way to help deaf children to be aware of them and learn them. If hearing children usually go from oral to written language, for the deaf it can work the other way around. As a matter of fact, while hearing children first learn to talk and then to read and write, deaf children can improve their spoken language competence and awareness through written language early learning. This is a common assertion in the field of bilingual education for deaf children even if there are still no strong foundations for this hypothesis (Albertini 2000; Power & Leigh 2000; Pugh 1945; van Uden 1977).

This is the reason why, while the children were reading, the deaf and/or the hearing teachers always tried to draw their attention to these elements notifying their presence by fingerspelling them (Padden & Ramsey 2000). Ever since the first readings, the children showed some interest in these elements, and, as they watched the teachers highlighting them, they immediately tried to reproduce them. It is assumed that showing children the many functions of these morphosyntactic elements through stimulating and enjoyable games favors their acquisition. Moreover, after being found in

written text, articles, prepositions and pronouns become more easily detected through lip-reading because children have finally discovered them and their importance.

This kind of work is useful not only to deaf children. Observing the difference between different languages, such as for Italian and LIS, can possibly stimulate meta-linguistic processes.

Step 3: Children reconstruct the text. The target of this last activity is word by word text "reconstruction". Children are stimulated to try and anticipate the meaning of the writings presented within a context.

Not all the children took part in this activity. In fact it would have been too complicated and therefore also boring for the younger ones, aged 3, and for some deaf children still with limited linguistic competence and quite primitive reading hypotheses. The older kids participated in the activity divided into groups of three or four each. The hearing and the deaf teacher presented this activity in separate settings.

Children were still at the start of their journey into written language. Therefore, in order to make this experience more accessible for them, we decided to keep the story text they had to reconstruct as simple as possible. All the sentences, each accompanied by an illustration, had been constructed with repeatedly used, high frequency words, in an effort to make word recognition easier and less demanding.

We printed and cut out all the words in the text and for each of them created a container (in our case a paper cup). On each container the word children had to read was indicated and we placed many copies of the same word inside. In order to make the task easier we wrote the articles and prepositions of the text together with the content word to which they were connected. For instance, to construct the sentence "*il leone vuole la carne* ('the lion wants the meat')" children had three cups (see (1) and Figure 1):

(1) *il leone   vuole   la carne*
     the lion   wants   the meat

The article *il* ('the') was presented with the noun *leone* ('lion') and the same happened with *la* ('the') and the word *carne* ('meat'). The book the children were shown was the same one they had looked at during the previous activities, but without captions. Before the start of the activity, children were shown the book without captions and were asked to reconstruct the text together. The teacher asked each of them to find out the corresponding word for the picture they were viewing. A good educator knows what kind of a task is suitable for each child. The task, in Vygotsky's (1978) perspective, should fall within the child's zone of proximal development, slightly beyond their competence in order to stimulate and induce them to solve the task, but not so hard to become discomforting. The children were free to interact and to talk to one another about their work all along.

Figure 1. The lion wants the meat

We gave those children already able to read almost completely without help all three cups and asked them to find out which one was the first element of the sentence they had to reconstruct (in the example above it was *il leone*, 'the lion'). Those children who were still reading words with a lot of effort were given only two cups, matching two familiar and easily recognizable words for them. For instance, if looking at the lion's illustration, they were given two cups with *il leone* ('the lion'), and *l'orso* ('the bear'), another character of the story, the children could recognize through their photographic memory one or both writings that they had already encountered several times in other games, or they could recognize even just one letter and use it to guess the word (i.e. they may recognize the letter "l" and from this infer the word *leone*, 'lion'). Those children who still could not gather the meaning of the word could be helped guessing the right word through the context and discussing it with their mates. Teachers always asked the most competent child to help those having difficulties. Although taking into consideration their age, all of the children were encouraged to read globally, through the visual channel. Also fingerspelling proved very useful to provide the cues for the word visual recognition. At the end of the educational experience, all the children had learnt to "read", meaning they could "recognize" most of the words presented during this activity.

5.2   Word search on objects

As mentioned, when children (hearing or deaf) are very young and they are not yet ready to read conventionally, they try to guess from the context what is written in the text. They refer to their general knowledge and use different strategies according to the type of text, the reason why they're reading, what they know about that matter and so

forth (Smith 1973). In these early stages, the reading process uses contextual cues as well as anticipation strategies. These strategies are considered usual for poor readers at older ages and stages of development, but are typical in the early stages of writing conceptualization. At preschool age, the meaning anticipation process leans on a logographic reading strategy (Frith 1985) based on a visual mechanism: children memorize the salient features of a letter string, and in certain situations this either allows them to immediately recognize the word or leads them to interpretational attempts. At this stage, it is therefore especially important that teachers don't demand punctual letter decoding for each word, but that they rather respect children's reading, postponing till later the work on syllabic analysis and fusion. This way children can learn that, whatever is written, it always carries a meaning and that they will hardly ever read a text without comprehending it, even though this unfortunately often happens to those who interpret reading as sheer decoding that means nothing to them. Unfortunately it's not unusual to see deaf children (and also juniors) reading pages over pages without a single decoding mistake pretending they have understood everything but then failing at the first comprehension question. Deaf children often find themselves in an academic environment not sensitive to those who, being deaf, cannot understand what is only explained vocally. Deaf children and juniors learn to always pretend they understood, even when it is not so. They wish to conform to the teachers' expectations and to blend in with their hearing peers who seem to comprehend everything thoroughly. Actually, also their schoolmates make mistakes, get confused or don't understand, but young deaf do not realize it because vocal communication between the teachers and other students is often too fast for them. It therefore becomes clear how important it is to give deaf children, from a very young age, the possibility to anticipate word or text meaning from a truly accessible context (Caselli et al. 1994; Maragna 2003).The aim of the activities here presented was to encourage children to think that all that is written always carries a meaning and that reading signifies to disclose and understand it.

For the *Word Search* activity different materials may be used, provided that children are familiar with all of them (snacks, biscuits, package of food, toys, newspapers, books, billboards, etc.). The context is therefore well limited (for instance a milk carton), but the word searched for, even though familiar, is still "hidden" among the others. It is then interesting to see what kind of strategy children adopt in order to search for the set word, and, relying on it, to detect at which level of written language conceptualization they are. There will be some children still relying on the package's picture, some looking for a word and instead finding a different one, some will only recognize the word's initial phoneme or syllable and will therefore point to all the words starting with it, and, finally, some others will detect the correct word. However the task will be useful to all the children to proceed on their literacy apprehending path, and to the teachers to gain information about the current knowledge of their students.

Two examples of activities are now described:

 a. *Milk, chocolate or yoghurt?*

 b. *Let's find the word milk.*

a. Milk, chocolate or yoghurt?

The materials needed for this activity were 3 half litre cartons: a milk one, a chocolate one and a yoghurt one. It is suggested to work with groups of three or four children, having different, but yet comparable, levels of written language knowledge.

 The teacher showed the children the three cartons, identical in shape and size, one after the other. The teacher then asked the children what each carton contained. Starting from the children's hypotheses, often different from one another, the teacher asked them how they could tell the content of each carton with no mistake. The purpose here was to make children aware that the cartons carried some writings through which they could detect what was inside.

 An example of interaction between the hearing teacher and the children is provided in (2).

(2) Interaction of the teacher (Tea) with Leo (L.4.7), Giovanni* (G.*6.3)[2] and Ilaria* (I.* 5.7)[3]

  Tea. *You say it's milk?*
    YOU SAY MILK?
  I*. MILK
  L. *I don't know*
  G*. CHOCOLATE.

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2. The asterisk indicates that the child is deaf.

3. The children and the teachers' signed productions were transcribed using the following conventions. Vocal productions (originally in Italian) appear in English (lower case, italics). Signed productions were indicated through English glosses in capital letters, using the following conventions for each sign:

a. signs corresponding to a single word are transcribed with a simple gloss, for example CUT;
b. signs corresponding to more than one word are transcribed through multiple combined
 glosses, for example CUT – WITH – SWORD.

In addition, we point out that in all those cases when the same one meaning is simultaneously expressed in both modalities, both productions are transcribed, for example if a child produces at the same time the word *lion* and the sign for LION, the transcription is as follows:

 lion
 LION

Let us now see a sentence exemplification:

 lion finds
 LION   MEAT

lion and LION are produced simultaneously in spoken and signed modalities (Italian and LIS)
finds is produced only in the spoken modality (Italian)
MEAT is produced only in the sign modality (LIS)

Tea.   (looking at I*. and L. and indicating G*.)
       He   says   chocolate.
       HE SAYS CHOCOLATE
       I   don't   know.   What   do   you   say?
       I DON'T KNOW. WHAT DO YOU SAY?
L.   *Maybe it's chocolate to drink*
Tea.   *Chocolate   to drink,   but   how   do I   tell   there'   s*
       CHOCOLATE   DRINK. BUT HOW I   TELL THERE IS
       chocolate   in   here?
       CHOCOLATE IN HERE?
L.   *Do we open?*
Tea.   *You* (indicating L.)   *say:*
       YOU   SAY
       Do   we   open? (looking at the other two kids)
          WE OPEN?
       Or   how   can   we   tell   there   's   chocolate   here?
       OR HOW CAN WE TELL THERE IS CHOCOLATE   HERE?
L.   *Because we thought about it.*
G*.   *Milk   chocolate*
I*.   MILK CHOCOLATE
Tea.   *But are we sure? Let's watch carefully*!
G*.   (reading on the milk carton) *gia – no* (incomprehensible word)
                              GIA–NO (fingerspelt)
Tea.   *What   are   you   doing?*
       WHAT   YOU DO?
L.   (reading on the milk carton) *mi-lk*
Tea.   *What   did   you   do   now?*
       WHAT DID YOU DO NOW?
L.   *I read*
Tea.   *You   read!   It   's   written   then*!
       YOU READ. IT IS WRITTEN
I*.   (reading on the milk carton) *m-i-l-k*
                              M-I-L-K (fingerspelt)

As we can see, in the above interaction, Ilaria*, Giovanni* and Leo, after a few attempts, formulated the hypothesis that writings could provide information and that they explained if it was milk, a chocolate drink or yoghurt. Leo was the first one to formulate the correct hypothesis, but the other children also understood the writing's purpose.

The teachers never acted as a guide and were very careful not to give away a problem's solution openly. They always welcomed all children's contributions, but they were not content with their argumentations and instead encouraged them to confront their comments with each other, reporting to the group all that was said by each child. Every statement of a child was mostly repeated by the teacher in order both to reassure the

child who had spoken or signed it that it was good and to translate it into signs or words, depending on the situation, to allow the other children to fully understand it.

b.   Let's find the word "milk"

In this activity, very similar to the one presented above, the purpose was to have children pondering over their guessing and, when necessary, to stimulate cognitive conflicts. The materials needed are a carton full of milk and a series of other identical milk cartons, but empty.

The teacher showed one of the cartons, full of milk, to all the children and then asked them: "*What's inside*?" The children formulated their hypotheses while the teacher encouraged them to verify them. The children would then open the carton and have a taste of the content. The teacher gave each child another milk carton, already empty and clean, and asked them to look for all the times the word milk was printed on the package. The kids looked for the prints, cut them out and glued them onto a sheet of paper. This was when the comparison began. The first step was for each child to observe the printed words on their own paper "*Are they all the same? Are they different? Why are they different*?" The same procedure was applied when the children compared all their papers one with the other. This time, differently from the activity mentioned above, the children were aware that the word they had to look for was the same one for all, *latte* ('milk'); therefore they were leaning on this knowledge that they could observe the prints chosen by the other children and judge whether they were the same as their own or not. In other words, the children were stimulated to check if their reading hypotheses matched with those of the other kids and to decide which, in their opinion, was the correct one.

This way children were brought to engage in a discussion leading them to reflect over their reading hypotheses and, at times, to distrust them (Pontecorvo & Sterponi 2002).

5.3   Writing in context: making shopping lists and going to the market

This activity is meant to make children understand that writing is also useful in everyday life. In this specific case, written language is useful to "remember what we want to buy", in other words, highlighting it may function as a long lasting memory device.

Once at the market, it is important that children can "read" the fruits' name tags in order to choose what they want to buy. The day the writing activity was scheduled, one of the hearing teachers went to the market before school and placed the name tags on the fruits the children were familiar with.

At school, both the deaf and hearing teachers asked the children to write the list of the fruits they wanted to buy. After making their own "reminder" list, each child "read" it, aloud or in signs, to the class and to the teachers. During this first phase, children already got in contact with their schoolmates' different writings and, even though yet unconsciously, they started reflecting over their own and the others' writing style.

Figure 2. Ilaria's shopping list (From Ardito 1998: 123)

As an illustration, the shopping list of one of the children, written in a preconventional way is reported in Figure 2.

To make clear to the children what going to the market was about, one of the teachers drew herself going to a hypothetical market on the blackboard. Then all the children, one after the other, went to the blackboard with their memo list and drew themselves beside the teacher.

On the way to the market the teachers explained where they were going and they took the opportunity to draw the children's attention to street indications. Realizing that each street has its own name helps understanding that being able to read is useful even to find your way around the city. Once at the market, each child, with the teacher's help, asked for the fruits they wanted to buy referring to their own memo list. The children were then asked to read the fruit tags. Any production, right or wrong, signed or aloud, was always accepted and positively reinforced.

Back in the school, a new activity tightly linked to the market experience took place. The teacher placed several boxes on the desk, one for each type of fruit, and in front of these a name tag. Each child was then asked to go to the desks with their shopping list and their shopping bag and to look, with the teacher, for the tag matching the fruit they had bought. It is important that they were also encouraged to compare the tag with their own "writing" in the list. The children who were already able to read through fingerspelling and to use syllabic fusion were asked to find the box matching the fruit they had bought on their own. A more competent peer, instead, helped those children whose reading hypotheses were more basic.

This kind of activity gave children the possibility to engage in several learning fields: it stimulated them to formulate and test their reading and writing hypotheses, to expand their general knowledge (the different fruits and their names, the market, the names of the streets) and to learn new signs and new words.

6.   Concluding remarks

We would like to conclude by mentioning that all the children participating in our educational experience modified their theories about written language. In Table 2, changes regarding the conceptualization of writing occurring in each child are reported.

Children's written productions were analysed according to the same criteria used in the evaluation conducted at the beginning of the experience (for more details see also Ardito 1998). Five children came close to pre-syllabic writing, two reached the use of conventional syllabic writing and the other five started to write conventionally, three of which in a syllabic-alphabetic style and two alphabetically.

However all of them enjoyed themselves and learnt something new, not only because – as they say – they can now read and write, but also because they have experienced first hand what crossing linguistic barriers means and they have learnt how to communicate, play and express themselves in any kind of context, through words or signs. Further details on the results of the various activities and on how the children managed the tasks are reported in the book published by Ardito (1998) concerning the bilingual experience.

Before concluding, we wish to refer to some conditions necessary for a correctly designed bilingual educational project aiming to promote early literacy in deaf and hearing preschoolers. These conditions are related to the conceptual framework and to the methodological principles described at the beginning of this chapter.

Table 2. Changes in level of written language conceptualization for each child

Children	beginning of experience	end of experience
Francesco	not differentiating drawing from writing	pre-syllabic
Livio	not differentiating drawing from writing	pre-syllabic
Dario*	not differentiating drawing from writing	pre-syllabic
Leo	syllabic alphabetic	alphabetic
Silvio*	first differentiating drawing from writing	pre-syllabic
Antonio	syllabic	syllabic alphabetic
Federica	syllabic alphabetic	alphabetic
Flavio*	pre-syllabic	syllabic
Alberto*	first differentiating drawing from writing	pre-syllabic
Ilaria *	pre-syllabic	syllabic
Giovanni*	pre-syllabic	syllabic alphabetic
Pamela*	syllabic	syllabic alphabetic

*   deaf children

The most important conditions are:

a.   *The presence of both deaf and hearing children in each group participating to the educational activities.* The integration model brought in over the last past years, only allowing the admittance of one single deaf child to each hearing class, is often destined to fail. Studies conducted in Italy on the inclusion of deaf children in compulsory school (Caselli et al. 1994) revealed that even where integration seems to be accomplished, as a matter of fact the linguistic competences of these children still show some very serious deficiencies. They often feel isolated from the rest of the class and they go through school life with a deep sense of solitude and psychological discomfort.

b.   *The presence of both deaf and hearing educators during all the activities presented.* Deaf children with hearing parents often don't have the chance to associate with deaf adults. This may affect them psychologically especially during adolescence, when the young deaf can't find similar adult models to identify with. It becomes then clear how important it is for deaf children to have, since an early age, deaf teachers along with the hearing ones, as they are adults with stimulating jobs and a full social life despite, or even thanks to, their deafness. Growing up in a bilingual school in fact doesn't only consist in learning and using two languages, but also in discovering and belonging to two different cultures, two different ways of "seeing" and "hearing" the world. An adult deaf friend, in other words, becomes to deaf children an unlimited source of information on the world of deafness and gives them the possibility to build a strong and harmonious identity.

c.   *The constant usage of both languages, Italian and LIS.* As clarified, hearing teachers used mainly Signed Italian (simultaneously produced with spoken Italian) while the deaf teachers used mainly Italian Sign Language.

We did not evaluate the children's initial linguistic competence nor the improvement gained during the educational experience, because this was not our main purpose. However, although we do not have strong empirical foundations for this assertion, the general impression was that all the children developed a higher knowledge of both languages and that they learnt how to switch code depending on their interlocutor.

Additionally, the experience portrayed also shows the relevance of well defined didactic conceptions related to early literacy defined in terms of complex knowledge and skills involved in the early phase of written language acquisition. Some of the methodological principles adopted, like *providing a socially stimulating context equipped with the typical tools and materials of a literate culture,* enhanced narrative abilities, the establishment of connections between different languages and systems and the ability to assign meaning to written text in both deaf and hearing preschoolers.

During the various reading and writing activities, the hypothesis of each child was discussed within the group. It was through a series of cognitive conflicts that our young readers progressively got closer to and gained the culturally shared written language theory. They proved they could learn more if focusing on the comparison with writing

systems more similar to their own than adult conventional writing. The children seemed to be able to obtain pieces of information more easily assimilated for their written language conceptualization level from the discussion–exchange with their peers. This allowed them to better progress and to be able to decide by themselves the information acceptability level (Pontecorvo & Zucchermaglio 1990; Pontecorvo et al. 1991).

In our educational experience the above mentioned conditions were used within a broad literacy project. Our choice was motivated not only by the importance of written language in literate cultures, but also by the fact that children, since a very young age, show great desire to engage in it. In addition, for deaf children written language represents a powerful tool to learn vocal language. Written words in fact become a permanent visual trace of those sound strings that deaf children can hardly perceive and that are differently pronounced by different speakers. Moreover, the notions on written language acquired in kindergarten will be precious over the following years in primary school and will allow deaf children to feel as competent as their hearing schoolmates, if not more competent, and to have more time and energies to improve their learning of vocal language and to face more peacefully the various contents presented in school.

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Can signed language be planned?

Implications for interpretation in Spain

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Signed language in Spain as a language planning target has recently become a subject for debate. The increasing number of second language (hearing) learners, as well as functional expansion (in education and media) has led to a conscious awareness of the language. Also, the recent approval of the law on the recognition of Spanish Signed Language seems to predict the institutionalization of the language planning process. In this chapter, we discuss the role of signed language interpreters in this process as a whole. We show the direction that language planning activities have taken so far, and provide an insight into a suitable future direction.

Keywords: Sign Language planning, standardization, interpreting, deaf education.

1. Introduction: Signed language as a language planning target

In 1971, *Can language be planned? Sociolinguistic theory and practice for developing nations*, edited by Rubin and Jernudd, was published. This book made a pioneering contribution to the study of language planning that was "meant to serve as a stimulus to research in language planning", as the editors put it in its preface (ibid.: 5ff.). In the present chapter, we were inspired by the title of this book and reformulated the original question to the following: Can *signed language* be planned? In fact, the study of signed language as a language planning target has recently been the subject of discussion in Spain, in which such fundamental questions as "should the language be standardized?" or "should it be taught to Deaf children at school?" have been addressed.

In recent decades sociolinguistic studies have shown that the goals of a linguistic intervention are not purely language focused. The modification of linguistic use and behavior occurs, in many cases, due to non-linguistic goals (Cooper 1989: 47) such as promoting national integration, assimilating certain minority groups or protecting the

users of a language. Hence, the main motivation of language planning is practically always to achieve non linguistic goals through linguistic intervention.

An attempt to define the goals of an intervention in signed language is to initiate a first phase of language planning. In a recent study (Gras 2006: 200), we propose that the two focal points in a signed language planning process are the *community's stability* and *users' literacy.* By *stability* we mean signed language maintenance and group vitality; in other words, a solid base of native speakers and the right elements to create opportunities to use the language among signers of all ages. By *literacy* we understand the chances for a Deaf person to have better access to information, and therefore enhanced autonomy and opportunity for upward social mobility. Both goals would imply not only the early incorporation of signed language at school, but also the inclusion of the language in other domains through interpreters, so as to ensure the continued access and participation of sign language users in society.

The need for an intervention that implies the organization of language planning measures is often identified with the social and cultural problems of the languages these measures address (Paulston 1984: 55). Language contact and the power relationships that languages in a territory possess are determining factors in the establishment of language policy actions, understood as the way the roles that each of the varieties in competition are determined (Boix & Vila 1998: 274); the domains in which these languages are used are established through a set of measures, referred to as the *functional level* of language (Kloss 1969). Planning is also identified with another level of analysis, the *formal level* (op. cit.), which broadly deals with the modification, selection or creation of language forms, such as lexical creation or spelling reform. We will mention these two terms in the course of this chapter to help us discuss both the functional expansion and the formal changes that sign language is undergoing in Spain. At times, we will simply use the term *language planning* to refer to this process as a whole.

The transformation in the functional distribution of a language results from the need or will of its users. Hence, planning is manifested in relation to a social environment, and it arises from the needs of this environment and the members of speech communities. It is therefore logical to think that successful intervention through language planning needs to be agreed on and supported by the community it focuses on (Calvet 1993: 98), because planning is above all, a discipline with a future orientation and one that is predictive by nature (Rubin 1984; Rubin & Jernudd 1971). This is why language planning measures should be inspired by the demands and changes that affect the social group they target. In fact, according to Calvet and Varela (2000: 60), intervention should take into consideration users' interests: whether these consist of transcribing the language, protecting it, granting it an official status, etc. According to these authors, language planning at the turn of the present century was deeply influenced by a dominant discourse, the "Politically and Linguistically Correct Discourse" (ibid.), based on certain principles spread by foundational texts such as the *Universal Declaration of Human Rights*, and, more recently, the *Universal Declaration of Linguistic Rights,* which include statements such as "all languages are equal", and "all languages

should have a written form" (op. cit.: 52ff.). However, when these principles are confronted with specific situations, they often seem impossible to put into practice. As a result, Calvet and Varela appeal to a need to analyze each case from a more pragmatic perspective, without assuming a pretended idealized equality among languages and their users. In the course of our discussion, we will try to address this dilemma.

Finally, following Grin (2003: 43), the foremost aspect of a successful intervention is the evaluation of users' behavior; essentially, it is the usage by members of the community that will determine the success of language planning actions.

In a case like the Spanish Deaf community, the global social movement of Deaf people has exerted a deep influence on the dynamics of its community (Morales-López et al. 2002: 108). In the 1990s, following the publication of the first description of signed language in Spain (Rodríguez 1992), and the organization of international conferences that attracted American and European sign language researchers, a major turnaround in the attitude of community leaders took place regarding the relationship between language and identity. It was the beginning of an increasing awareness of a cultural identity whose core element was represented by language. At the same time, the social and political transformations taking place in the country contributed to the development of education towards integration which affected a speech community whose *habitus* – in Bourdieu's terms (1991) – was born and developed around Deaf schools.

Community leaders (signed language teachers, presidents of associations and federations, deaf people with higher education degrees) supported a claim for cultural identity inspired by nationalistic principles such as language loyalty, language standardization, protection and "purification". The perspective of the recognition of the deaf community as a linguistic minority group gave signed language the status of a minority language and a new visibility, including an increased perception by the prestige/power community made up of hearing people and the establishment. In turn, the process of cultural and linguistic awareness within the Deaf community motivated the modification of the functional distribution of the language, which has continued until today. Hence, community leaders are the representatives of the sociolinguistic change, because like the interpreters, they are in contact with the hearing community and therefore have *weak ties* with their own community (Milroy & Milroy 1985: 364ff.). Consequently, both sides (leaders and interpreters) are likely to be involved in the language planning process.

According to Coulmas (1992: 260), language planning is a process of *adaptation,* "a process that ensures the efficiency of a language in a changing world with communicative changing needs". Language users tend to be unaware of the way this process occurs, as it only reaches a level of conscious awareness in the event of a crisis perceived at an adaptation level (inexistence of a standardized enough variety, lack of differentiation or referential inadequacy). In the case of signed language, it is affected by an expansion of its functional level (presence in education and media). According to Rubin and Jernudd (1971: 204), such an evolution creates demands for the modernization and standardization of the language corpus.

In this chapter, the role of signed language interpreters in the transformation of the Spanish Deaf community and sign language will be analyzed. We will discuss the way signed language interpreting has become a professional activity and how Deaf people became aware of their role as service consumers. We will look at the responses provided by 167 Deaf adults in a sociolinguistic interview conducted in 2001, to questions related to interpreting services use and access to media. Also, data provided by interpreting associations in Spain and the interpreters' own testimony will be used in our discussion. We will refer to the latest survey regarding interpreters in Europe and to studies carried out in interpreted education in particular. Finally, we will consider the role of signed language interpretation in Spain within the language planning process as a whole.

2. Background of signed language as a language planning target in Spain

2.1 Signed language and the deaf community in Spain

Language policy has been the responsibility of the politics of modern States since the mid 19th and throughout the 20th century until today. The model of the State where users of a particular language live determines the treatment this language receives, the functions to which it has access and the possibilities of its planning or change. Spain has evolved from a tradition of monolingual policies, commonly embraced by authoritative States, where there is an intervention towards "the other" languages of aggression (McRae 1986) (language diversity is seen as *a problem*) towards a form of plurilingualism (language diversity is seen as *a resource* (Ruiz 1984) and *a right* (Kontra et al. 1999)).

The current Constitution declares Spanish as the only official language in the whole territory, and states that competence is a right and an obligation of all citizens in the country (*Constitución Española Título Preliminar, Artículo* 3). The other languages used in the Spanish territory have protection through their institutions and Statutes in the territories where they have been traditionally spoken. Hence, the State defines itself as monolingual, whereas the Autonomous Communities[1] where a vernacular language is spoken are defined as bilingual. According to this legal system, we would be in a *control model*, "where the subordinate groups are granted certain degree of autonomy, such as competency over its educational system, certain Administration, some flexibility in the use of the language in formal private events" (McRae 1986) or what Boix and Vila (op. cit.) call *monitored freedom or autonomy*. On the one hand, the interaction between Spanish and the other languages is imbalanced at State level, due to the restricted opportunities to use the different languages granted by the State: one always has the option of using Spanish, but not the other languages. On the other hand, in the

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1. Spain is divided into 19 Autonomous Communities, which are granted diverse responsibilities through their own Statutes, in areas such as education, health or social affairs.

bilingual Communities[2] we would be closer to a *consensus model* (McRae op. cit.), where citizens have the option to interact in either language. When democracy was restored to Spain in the late 1970s, language institutions were created in each Autonomous Community with a co-official language, in order to counterbalance the traditional linguistic distribution through a language planning process promoted by each of the competent Autonomous Governments.

As a result, when signed language users in Spain started to consider themselves as a minority language group in the late 1980s and early 1990s, the Deaf community claimed that similar policies of recognition should be implemented for signed language in domains such as education, mass media and Administration. The implementation of these language planning policies were considered to occur following the official recognition of the (sign) language, as with the other co-official languages in the country. Some additional motivations that triggered this reaction were both signers' precarious conditions of accessibility, as well as a wake up call to official authorities on the problems of the linguistic discrimination signers in Spain had to endure. According to Tollefson (1991: 209), policies that encourage exclusion and inequality are a result of ademocratic structures, which hamper the use of the native language in key activities of the modern life such as education, work and political activity. The perception of these 'ademocratic' structures is reflected in the Deaf community by limited access to information and social participation, as well as the problem of high school failure rates and limited access to the workforce, all of which have been the main reasons for the Deaf community's demands.

After two decades of struggle, the Act 27/2007 for the recognition of sign language was passed by the Spanish Parliament on October 23rd, 2007 (BOE 2007; Ministerio de Trabajo y Asuntos Sociales 2005). This law will presumably lead to a qualitative transformation in the way intervention in signed language has developed so far: as we will explain in section 4 a *bottom-up* model has mainly prevailed, where pressure has been exerted by leading Deaf groups to force a change of attitude by the Administration, whose measures have focused exclusively on the provision of interpreting.

2.2   Signed language interpreters and language planning

Signed language and its speech community in Spain are undergoing a transition phase of major relevance, providing us with the opportunity to analyze the actions carried out so far in signed language planning, in order to determine whether this line of intervention should continue or whether the planning process needs a change of direction.

For the purpose of this chapter we will focus on what the new act classifies as "Oral Communication Support Measures": due to the dynamics of the language contact situation between signed and spoken languages of this community, access to information

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2.   These are: Valencia, the Balearic Islands and Catalonia with Catalan; the Basque Country and Navarra with Basque; and Galicia with Galician.

becomes one of the main goals of a signed language planning process. Interpreters provide access to information, and, as a consequence, their role needs to be discussed within the language planning process.

According to Cameron et al. (1992: 5), research into language planning should be developed "about, for and with" all the sectors involved, in what the authors understand as "empowering research" (op. cit.: 22). This type of research method is interactive and dialogic, and will enhance the researcher's understanding of what he/she is observing. It involves the recognition of intellectual compatibility between researcher and researched, and subjects become actively involved in the formulation of the research problem (op. cit.: 56). If we apply this to the Deaf community, Deaf people (the researched) become indisputably active, necessary and even essential members of research groups.

The role assigned to the interpreter's activity in the language planning process conforms the inter-group relations between Deaf people and the majority society. In their provision of access to information, they stand in a prime position to be influential in topics related to the community, namely language planning, principally as language promoters and planners.

First, in the development of their activity, interpreters stand out as *language promoters.* Interpreters are regular users of the language of the Deaf community and they are often the most visible representatives of the language being used: many people have seen interpreters working in conferences and other public places, contributing to making their profession and, by extension, the needs and reality of Deaf people, known to the general public. Worthy of mention in this context is the role of interpreter trainers who act as relevant reporters for the Deaf community before the Administration, and are calling for ways of extending the use of professional interpreters in a growing number of areas.

Secondly, interpreters function as *language planners.* They are competent bilinguals and have experience in the transferability of one language to the other. For this reason, they become candidates for carrying out activities other than interpreting, in relation to the creation of a signed language corpus (indeed, several have participated in research teams developing a signed language corpus and education materials). Also, due to the fact that signed language is their working tool, they are privileged witnesses of the rapid expansion of the language domains in which it is used, and hence are especially aware of the need to study the development of the language, for example in the creation of new words and their circulation among other members of the community.

In our opinion, these two functions of interpreters, as *promoters* and *planners* are contributing to an increasing gap in the Administration's and the Deaf users' conception and objectives of the language planning process. However, as we will explain later, interpreters should not be the focus of attention in this process.

Because of this imbalance between the expectations of the Deaf community and the response provided by the Administration, the development of interpreting activity is suffering from consequences at various levels: from interpreter training to their

eventual performance. For instance, the lack of linguistically based materials affects the learning processes of interpreter students because there is no strong base for a metalinguistic debate regarding the language forms used. Also, the lack of support for research on interpretation hinders technique development and improvement: there is a strong need to assess interpreters' performances in detail in order to determine how they can be improved. Lastly, sometimes the fact that there is no defined linguistic authority (research team or institution formed by experts that would be respected by the community) results in a lack of consensus, even among Deaf sign language teachers, between what is part of the language, what is a regional variety, and what is an idiolect. This mismatch, which is reflected in the differences between interpreter performances and actual language use, has caused problems in new interpreters' performances once the students obtain their certificate and are confronted with the general Deaf population.

3.   Discussion

What follows is a discussion of how and why signed language interpretation developed in Spain as a profession, and how this process has affected the amount of interpretation offered to Deaf people in the country. We will look into a sample of Deaf adults' opinions on the need for interpreters in several domains, and then see how variation in the language used and some informal corpus planning ambitions are affecting the interpreters' work and reputation. Finally, we will focus on interpreted education, an area that has grown sharply in recent years.

3.1   The development of interpreters as professionals and deaf people as consumers

3.1.1   *Interpreting services*

Signed language interpreting as a profession has developed in the last twenty years parallel to the Deaf community's growing perception of their status as a linguistic minority. This process has been influenced by the developments in the Spanish society in general, reflected in the social rights movement, the equity of access policy, and the outlook on disabilities.

In the late 1980s, the worldwide signed language and Deaf cultural movement arrived in Spain (Morales-López et al. 2002: 112) and the first signed language courses for hearing people were organized by Deaf teachers. In the same decade, the first interpreting service in this country was founded in the province of Madrid (1987) as a result of an agreement between the National Deaf Confederation (*Confederación Estatal de Personas Sordas de España* or *CNSE*) and the Social Welfare Department of the Provincial Council, which provided the Confederation with funding to cover a number

of services. The service was called 'Official Service of Mimic Interpreters' (*Servicio oficial de intérpretes mímicos*) (De los Santos & Lara 1999: 19; CNSE 2001: 12) and was basically made up of the hearing children of Deaf parents who had been accompanying parents, relatives or friends for many years.

In the 1990s, the first signed language teachers were trained in Madrid by the CNSE. In addition, the first linguistic study of Spanish Sign Language (*Lengua de Signos Española*, LSE) was published (Rodríguez 1992), and, in terms of education, the position of 'Deaf adviser' was created for the inclusion of a support person in the classroom, which involved the presence of signed language in school's instructional settings for the first time ever; at that moment, the vast majority of hearing teachers had insufficient knowledge of signed language to conduct a class with Deaf students in that language.[3] Finally, the attendance of several leaders of the community at various international conferences and seminars on sign language had a strong impact on the awakening of the Deaf community's identity around the same time (Morales-López et al. 2002). As for interpretation, the first interpreters' association was founded in 1990 in Madrid, the 'Spanish Sign Language Interpreters' Association' (*Intérpretes de Lengua de Signos Española*, ILSE) which was to later become a Federation, with representatives from all the interpreters' associations in Spain. Although this could be said to be the starting point for the profession, the *First Seminar of Signed Language Interpreters* held in Barcelona in 1994 was most likely what triggered an increased awareness of the members of this group as the emerging professionals they were becoming (an issue that will be discussed in section 3.1.3). As a result of this seminar, six more regional interpreter associations were created.

3.1.2   *Legislation and the qualification of interpreters*
The fact that the role of interpreters was mentioned in legislation on accessibility passed in the 1990s also helped enhance the status of interpreters. In Catalonia, Act 20/1991 passed by *Generalitat de Catalunya* on November 25th (*Diari Oficial de la Generalitat de Catalunya*, DOGC, December 4th, 1991), pioneered the inclusion of a section on the suppression of communication barriers in its regional legislation. This law defines *communication barriers* as "any impediment to the expression and reception of messages through communication media, be it mass media or any other" (op. cit.). Among others, *communication barriers* would include, for example, the lack of resources available to convert spoken messages into a visual medium such as a written form, or the spoken announcements in a railway station: information to which the person who has a hearing disability has no access. Throughout the 1990s, several regional laws in other Autonomous Communities were developed regarding accessibility and communication

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3.   Note that there is no formal degree in Spain for *Teachers of the Deaf*. At present, Special Education teachers, who have been trained to deal with all sorts of disabilities, will probably have attended some level of Signed Language courses (always consisting of an optional subject of the curriculum), with Speech Therapists.

systems. Two of the issues that are highlighted in these laws are the "impulse of signed language interpreter training to facilitate direct information"[4], as well as "enhancing the use of signed language in customer service and public events through signed language interpreters".[5] Consequently, signed language users' access to information has been linked to interpreters through this legislation.

All these laws must have contributed to the approval for Studies in Signed Language Interpreting, a nationwide Professional Training Qualification (*Real Decreto* 2060/95, December 22nd), formalized in 1995 and whose syllabus was established by law in 1997 (*Real Decreto* 1266/97, July 24th). As a consequence, the number of qualified interpreters has risen substantially in the last six years. In the academic year 2004–2005, this qualification was on offer in 32 schools in 11 of Spain's Autonomous Communities. CNSE states that at present there are 500 interpreters (CNSE 2001; www.cnse.es). However, the most recent study on interpreters in Europe puts the number of interpreters in Spain at 700, placing this country amongst the leaders in terms of the number of trained interpreters (De Wit 2004: 23), ahead of countries such as Germany with 600, and Norway with 500.

As pointed out by De Wit, in general, interpreter training developed in every country in the same way: it started with short courses, which turned into a 1–2 year training course. The longest program at the time of her study was the five year degree course at the University of Graz in Austria. However, in some countries such as Greece, this training is not offered on a permanent basis, because it depends on market demands; consequently, the number of professionals doesn't increase annually (De Wit 2004: 18–22). Unlike Greece, in Spain, since the formalization of the Professional Training Qualification, every year at least a group of students graduate in every school where this course is offered. As Villameriel (2004: 8) points out, Spain and Finland seem to be the two European countries where more interpreters graduate every year due to the availability of this permanent training.

The Deaf community's claim for the recognition of signed language as an official language reached the Senate in 1999 (*Boletín Oficial de las Cortes del Senado* 1999), when the deaf people's need for interpreters to communicate with hearing people was also raised. Deaf people's difficulty in accessing public institutions, State jobs and company meetings was also highlighted in this working paper, in which it was also stated that there should be "people fluent in signed language or alternatively interpreters should be available" (op. cit. III.2.1). In terms of accessibility then, the text focuses on the "measures for the increase of the number of available interpreters", "to increase gradually the presence of interpreters in schools", "to create job profiles with people fluent in signed

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4.   Included in legislation in place in Catalonia, Aragón, Galicia, Asturias, Cantabria, Castilla y León, Extremadura, Canarias and Valencia.

5.   Included in legislation in place in Aragón, Castilla and León (which contemplates the provision of interpreters at information points in towns of more than 20,000 inhabitants), and Extremadura.

language, or alternatively interpreters", as well as "to support interpreting services through co-operation agreements with representative organizations" (op. cit. IV.2).

In short, the pressure of the Deaf community for the official recognition of its language triggered the debate regarding the lack of access to information and consequently, the need for professional interpreters. This debate was substantially influenced by the relationship of the Deaf community and the majority, a relationship that derived from a conception of the deaf as belonging to a disabled group, and a model of power stratification in which social inequality is compensated for by paying attention to the "needy" (Corker 1997: 14). In such circumstances, the signed language interpreter is in the middle of the relationship between the minority and the majority groups, an imbalanced one, and hence constitutes the only one of the three parties (non-signing person- interpreter- Deaf person) that is able to communicate with the minority and majority groups, thereby holding the power to determine the result of this relationship (op. cit.: 19).

3.1.3   *Models of the interpreting profession*

The rise of interpretation as a profession in Spain also affected the way interpreters conceived of this position of power in the relation between signers and non-signers. Specifically, we observe a period of transition in the 1980s, where two conceptions of the profession coexisted: the view of the interpretation practice as charity and social work, with people who worked as volunteers (and who had no formal training), and the view of those who saw and treated the Deaf person as a client, with people who had completed formal training and saw interpretation as a job, just as Pollitt (1997: 21–22) observed in the United Kingdom.

The situation of interpreters in Spain in the 1980s corresponds to the process that determines, according to Tseng's (in Pollitt 1997: 23) model regarding the professionalization of oral language interpretation in Taiwan, "a market disorder", where both the volunteer and paid practice are found. This situation causes confusion for the consumer, and at the same time it weakens the appreciation of interpreting activity. Following Tseng's model, in the second phase, there is a tendency to professionalize the activity through a consensus which leads to the creation of training courses, although there is no quality control, and then interpreters with no training, with low level of training and with solid training coexist in the market. In the third phase, there is a need for the creation of a Code of Ethics and information campaigns for consumers and the public in general to defend the standards that should be expected. With this process, the market begins to be controlled and non-professional activity is censored, which leads to the fourth phase, where institutions recognize good practices and interpreters start to be recognized as professionals. A new campaign can then be started for official recognition (op. cit.: 24). This model of oral language interpretation can easily be applied to the professionalization of signed language interpretation in Spain, its evolution from a volunteer assistance model to the creation of a formal training one in the 1990s.

The role of the interpreter has certainly been another of the main topics of discussion at an international level in the last years. It could be claimed that, as a consequence of the professionalization of the profession, the role of the interpreter as a "helper" (McIntire & Sanderson 1993) is transformed into that of a "communication facilitator" (op. cit.: 98), which is, in turn, a reflection of the evolution of the role of the Deaf person into a consumer of interpretation services. Hence, the "helper philosophy" preceded the mechanical model of the "conduit philosophy" (Humphrey & Alcorn 1996: 162 ff.; McIntire & Sanderson 1993), a concept introduced by Reddy in 1979 (Roy 2000: 6). The latter is also reflected in the notion of "communication specialist", where the professional is presented as a pure transmitter of the linguistic content, who is passive and neutral (ibid.). According to Roy, this concept is problematic in that it fails to consider the fact that the interpreter is a participant in the conversation, and that he or she can influence the communication process. This consideration motivated another model where interpretation is conceived as an active process between two languages and cultures (ibid.: 6), as a "dynamic inter-activity" (Wadensjö 1998), where the interpreter is part of a discursive process, makes decisions intentionally, and can have an influence on the development of the communicative situation through these decisions. In the same terms, Pollitt defends the idea of "referees in situations of conflicting discourse" (1997: 25), or McIntire & Sanderson (1993) the idea of "communication facilitators".

All of the latter perspectives of the profession have exerted a great influence on interpreter training today, which is renowned for its holistic approach, where interpreters are "bilingual/bicultural mediators": the professional is presented as an ally without being a protector, capable of mediating communicatively between Deaf and hearing people, and achieving efficient communication through linguistic and cultural adjustments (Humphrey & Alcorn 1996: 167; De los Santos 2001). This dynamic conception of the process of interpretation is especially useful for signed language interpreters, because they often come into close contact with their clients (such as in one-to-one services), unlike most of their professional colleagues interpreting oral languages, more used for/in conference interpretation.

3.2   The provision and use of interpretation

The organizations who manage interpretation services, most of which are Deaf associations and federations, have regularly produced reports on demand drawn up through the analysis of the demand for interpretation services and their capacity to meet that demand. These official reports show that there is a considerable number of services that are not covered in Spain. For example, the 1998 CNSE report on the need to increase interpreting services (CNSE 2001; Senado 1999) states that the number of interpreting service users in 1998 was 20,694. The number of active interpreters that year stood at 215, and 40,246 services were covered. However, 14,246 services could not be covered. The report concludes that there is a clear need to double the current

number of interpreters (CNSE 2001: 17). In the Spanish Senate, the publication of this report gave rise to the conclusion of three priority measures to fulfill in a three year period (from 2000 to 2002) and to be included in the State budget (Senado 1999): first, to promote interpreter education and training; second, to include professional interpreters in the Administration; and third, to set up co-operation agreements with the different Autonomous Communities for this to be possible.

Another initiative was the 2001 project "Know our language: Signed Language" run by the CNSE and funded by the European Union as part of the "European Year of Minority Languages". The project consisted of two main activities: (a) the organization of several meetings between the President of the CNSE and regional authorities to discuss topics related to the advancement towards the official recognition of signed language; (b) the completion of a *Sociolinguistic Interview* by the CNSE Material Production and Research team – of which I was a member – in which 167 Deaf adults were interviewed (Gras 2002, 2006).

The political pressure exerted by the CNSE resulted in numerous agreements with several Autonomous Communities to support the legal recognition of signed language, but also, and most importantly, to increase public funding, and subsequently, the provision of interpreters. In fact, since the creation of the first interpreter service in Madrid, public funding has been practically the only way to subsidize these services in Spain. For the first twenty years of the development of this service in practically all Autonomous Communities in the country, Deaf people were not required to pay for general individual services such as a medical or legal consultation. However, in the last few years and due to an increasing demand for services and a lack of adjustment of the funding budgets, some entities providing interpreter services have been charging a fixed low percentage of the costs to Deaf consumers.

As for the second initiative, regarding the *Sociolinguistic Interview* (Gras 2006)*,* part of it focused on accessing information through interpreters or other sources. With regard to the use of interpreter services, our informants answered as follows (op. cit.: 221):
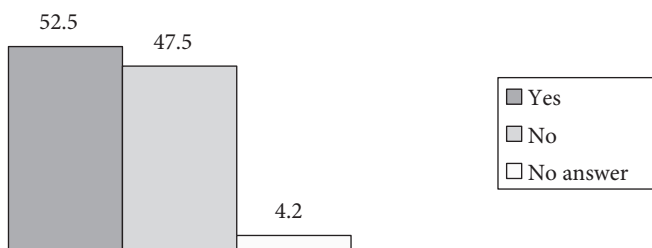
Figure 1. Have you ever used a signed language interpreting service?
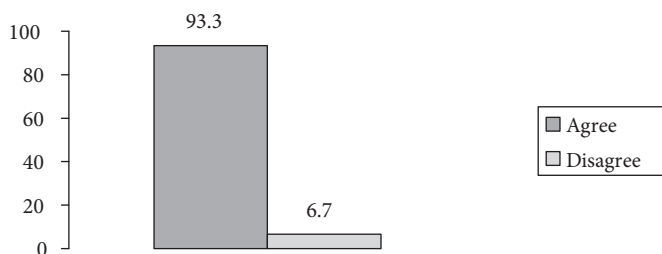
Figure 2. I think there should be at least a person who knows sign language or a sign language interpreter in every public place.

As we can see, slightly more than half of the informants have used interpreters, which include individual services, where a Deaf person applies to his/her association or federation for an interpreter at no cost, such as medical consultations, meetings and legal consultations. As for the presence of interpreters in Public Administration, we asked the informants to express their agreement or disagreement with the statement: "I think there should be at least one person skilled at signed language or a signed language interpreter in every public place" (see Figure 2).

Worthy of mention is the fact that on many occasions our informants referred to the interpreter when asked this question. In general, the agreement with this statement was overwhelming, and demonstrated that Deaf people consider they have the right to be served in their own language when they go to a public place. In addition, many stated that it would be much more convenient to have a person skilled at signed language in such public institutions, rather than having to apply for an interpreter service. Others answered affirmatively, but added that they must be fluent as they have observed that some of them have a knowledge of the language but are not fluent.

Finally, with regard to the media, especially television, we considered the level of satisfaction with the adapted resources provided on television and in the cinema for Deaf people. For this reason, we included a question on tastes and preferences regarding adapted versus non-adapted programs on television. First, we asked what sort of programs the participants watched on television (see Figure 3).

We can see a clear preference for captioning, especially among young people (42.7% of the people who confirmed they watch captioned television were between 18 and 34 years old). What needs to be mentioned in this context is that signed programming is currently very scarce. With respect to the signed programmes watched, the ones mentioned were one from *Canal Sur,* a regional channel in Andalusia, in the South of Spain, and another called *En otras palabras* ('In other words'), from the second national TV channel (a weekly half hour program broadcast on Saturday morning which summarizes the national and international news of the week, as well as other topics related to deafness and the Deaf community). Regarding watching shows that are signed, in general through the interpreter, some of the informants stated:

1. "It is confusing, the two images are distracting" (6 interviewees).
2. "Sign Language can be tiring for the eyes, it's better to have the captioning as well" (a boy from Valencia).
3. "With some programs in signed language, if they sign fast I can't understand" (an Andalusian woman).

Finally, of the people who said they also watch television without captioning or signs (n=21), 10 were over 65.

Next, we asked participants about their preferred mode of adaptation both on television and in the cinema (see Figure 4).
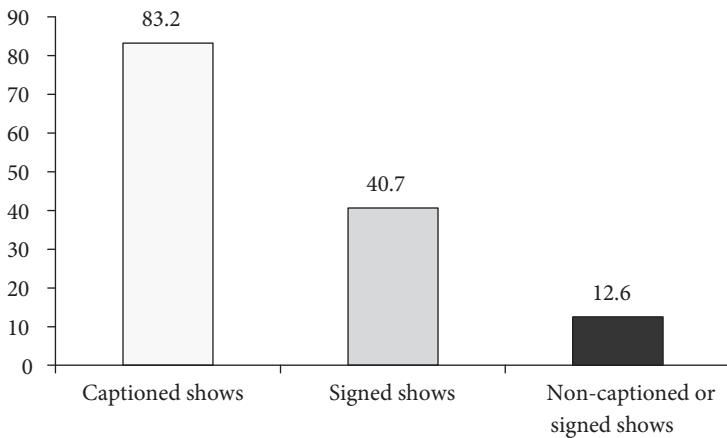
Figure 3. Television programming
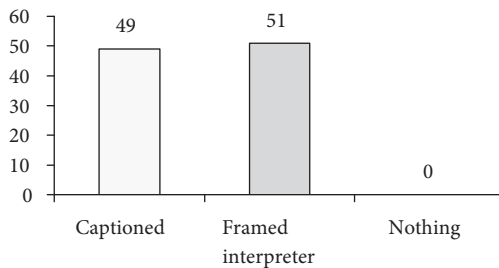
Figure 4. How would you prefer the television/cinema to be adapted?

The informants clearly prefer the use of a tool to facilitate access to the media: nobody chose the option to use none. They show ambivalence towards which form should be used to access television and the cinema. With regard to the framed interpreter, some said that the image should be bigger, because watching such a small image is very tiring. This is the format traditionally used in some television programs where an interpreter has been included for some moments of the news updates, such as in the regional channel in Catalonia, TV3. Although the quality and attention to detail of the emissions has improved in the last few years (I can recall special emissions in the 1990s where the interpreter appeared in a reduced square of a corner of the screen, which was partially covered by the channel's logo), Deaf people's requests that the image of the interpreter be as big as that of the reporter have been rejected by the television companies due to a fear that it is too intrusive for hearing viewers. Other informants expressed their preference for a person signing directly, and that interpretation should be avoided, reflecting a trend towards direct access to information. Finally, those who preferred captioning claimed that it is less intrusive and also helps them improve their reading skills. Again, the youngest group was more inclined to choose this option than the other groups.

According to the results, Deaf people favor the presence of interpreters as a mode of access to information, although they also make use of other options, such as written information through captioning. Two of the issues that these data raise are to what extent and how interpreters cover their consumers' needs. Regarding the provision of interpretation in television, as noted above in section 1, "politically and linguistically correct discourse" would assume that the presence of interpreters on television is a desirable measure for the development of the language planning process, although evidence from the answers provided by the language users shows otherwise. On a more general level, previous interviews carried out in 2000 in two Barcelona-based associations, *Casal* and *CERECUSOR,* with 34 Deaf people (Morales-López et al. 2002), show that the percentage that use or have used some interpreting services was similar to that revealed by the *Interview* in 2001: approximately half the people answered that they used interpreting for personal services. In 2000, we asked our informants about their level of comprehension of interpreters. Nineteen people claimed that they "had no problems understanding interpreters", four respondents said they "had problems of comprehension", and a further eight said that "comprehension depended on who was interpreting". Those who said they had problems in understanding interpreters were mostly over 65 (3), whereas those who said it depended on the person were mostly in their thirties (5).

In short, we have seen that reports on the provision and use of interpretation stress the need to increase interpreted services, and Deaf organizations are also pushing for this. Furthermore, our sample of Deaf adults confirms there is a strong desire for direct access to public places, such as hospitals or Public Administration offices. As for the media, the presence of interpreters is appreciated, although captioning is also preferred by many of our informants. Finally, we have introduced the topic of consumer

satisfaction in relation to the comprehension of interpretation, with the results from another survey conducted in 2000 only in Barcelona, where we were surprised to learn that comprehension is not something to be taken for granted in an interpreted setting.

3.3   Interpreters and the standard form

In relation to the issue of consumer satisfaction, there is an additional dimension that is reflected in the comment made by our informants that "interpreters seem to know more signs than Deaf people" (Morales-López et al. 2002). This point is interesting in regard to the direction that the profession is taking: the formalization through training of the profession may have caused an inconsistency between the linguistic forms learnt by the new generations of interpreters, and the inability to satisfy the interpreter service consumer through these forms. Even though the volunteer interpreter of the 1980s did not have such a broad training, he/she had the tools, both linguistic and cultural, of a native signed language user. The new professional is based on a model of language competence that very often fails to satisfy the communicative needs of the vast majority of Deaf adults (Corker 1997: 16ff.), because new interpreters have learned the language in a formal domain. According to Crasborn and De Wit (2004), such a situation occurred in the Netherlands as a result of the Sign Language of the Netherlands standardization process: in 1996, the Dutch Government announced its intention to declare this language official on the condition that the language went through a process of standardization for use in schools which was implemented in 2002; the new standard variety included aspects of the five existing dialects. With respect to interpreters, the four-year training program in the Netherlands does not have a clear policy regarding the signs that have to be taught: the standard form, which the students, as future interpreters, would have to use at schools, or any of the other varieties, which they might have to use when interpreting for Deaf adults. So, the interpreting student is exposed to a form of combing signs of the different regions, without any apparent efforts by the trainers to separate the varieties or teach more than one variety to the future interpreters (op. cit.: 3). As a consequence of this teaching approach during their training, interpreters face substantial communication problems. Crasborn and De Wit report that there have been complaints by elderly Deaf people, because they don't understand the signs used by the interpreters, and conversely, the new interpreters have substantial problems understanding the older members of the community.

In Spain, signed language has not gone through a directed standardization program like the Dutch one, but a similar confusion has arisen regarding language varieties and a supposedly standard form. In the Spanish case, the language has been influenced by the purist attitudes of leaders of the community, informal groups that include signed language teachers, all of them regarded as having the last word in terms of the so-called standard norm. The new interpreter is often the vehicle of the wishes of these community elites (in addition to signed language teachers we need to add Deaf people involved in interpreter training and both Deaf and hearing researchers), who use interpreter

training as the most effective political weapon to direct their language planning expectations: interpreters, who have access to a large number of Deaf people through education, media and one-to-one services, will use the forms that they have been taught. Instead of finding other strategies for the expansion of neologisms, the new interpreters appear as an easy way of transmitting and expanding the elites' standard model.

As a consequence, interpreters find themselves unwittingly involved in a process that merely perpetuates inequality between the hearing majority and the Deaf group, as being a member of the "external" (hearing) group is seen before their clients (Deaf people) as a symbol of modernity, linguistic richness and, in sum, "correct" signed language. The new interpreters are therefore aware of a lot of neologisms that have not been expanded to the community. However, they also lack a large number of other traditional expressions that have not been included in their training, and are therefore trapped in a swirl of confusion, adaptation and, often, failure during the early stages of their work as interpreters. According to Corker (1997: 19), these dynamics could be the result of an ideology of standardization, understood as a language planning process of language purification through the creation of standards of correction, in which the interpreter has more knowledge of signed language linguistics and a better ability to use the discursive tools than the Deaf person. As a result, the rules of the dominant culture are being reproduced, through the power to shape the language. The question is then whether the reason the interviewees said they didn't understand the interpreters reflects a lack of competence by Deaf people, or whether it is the interpreter (and by extension the training process) that is failing to meet consumers' needs, due to a failure to select the variety required on both a social and regional level. With regard to interpreter training and how to give *true* response to the signers' demands, both Crasborn and De Wit (2004) and Corker (1997: 19), state that training should include both the standard form, where it exists, as well as all other varieties, if professionals are truly committed to the right of Deaf people to optimally access information through their language.

One of the areas where the creation of a standard form seems most relevant is interpreted education. We will focus on this topic in the next section.

3.4   Interpreted education

Interpreted education is perhaps the area of interpretation that has experienced the sharpest increase in recent years on a global level, because it arose as a consequence of the integration of the Deaf student into the mainstream classroom (Napier 2005: 84; Marschark et al. 2005: 57). In Spain, this type of interpretation implies the presence of an interpreter in Secondary Schools. Generally, the Department of Education of the Autonomous Community signs an agreement with the Deaf organization which provides the interpreters. Consequently, the interpreter doesn't usually have a contractual relationship with the school and is not a member of the school staff. Furthermore, the interpreter provider has no control over the number of the interpreters. That decision

is made in accordance with the funding available in each Department of Education. This means that the number of classroom interpreters varies according to the region and that the number of interpreting hours per student will also vary.

One aspect that raises considerable concern relating to this area of interpretation is that Deaf students who receive this type of education have a lower comprehension level of the contents transmitted in the classroom than their hearing peers (Marschark et. al. 2005). According to Marschark et al. (ibid.: 57), the assumption that the presence of interpreters in education is adequate and fair may be groundless and has been often based on misunderstandings.

The first misunderstanding is to think that the incorporation of an interpreter in the classroom is sufficient to guarantee equal access to the standard curriculum: this assumption overlooks the fact that full competence in signed language is a fundamental requisite in order to benefit from a classroom interpreter. Marschark, in an experiment conducted in the United States in 2004 (op. cit.: 64) confirmed the relationship between the increased ability to sign in deaf students and their improved results in levels of comprehension of the interpreter, despite obtaining lower academic results than the hearing students. In relation to this, it is important to note that due to the diversity of education methods and signed language exposure patterns in Spain, the linguistic competence levels of the students who start Secondary School varies significantly. However, this variation is not taken into consideration when an interpreter is present in the classroom. Another relevant aspect here is the role of *metacognition,* according to which the students' previous knowledge determines their ability to identify new information: in general, the less one knows, the less aware one is of what is not understood (op. cit.: 63). One tends to overestimate the level of comprehension and hence, learns less. Then, we should consider whether the needs of the students once they start Secondary Education are covered by the presence of the interpreter, and whether other key basic aspects, such as the level of knowledge of signed language or general knowledge about the world, result in low scores.

In relation to the linguistic competence of signed language by Deaf students, Marscharck et al. find a second misunderstanding, which Winston (2004 :1) refers to as a "myth about interpreted education": assuming that interpreters are adequate models for the acquisition of the language. In fact, just as occurs in our country, as confirmed, for example, by an interpreter from the Canary Islands who works at the University and who gave us her testimony, some Deaf students are introduced to signed language through simultaneous interpretation of a full day of classes (with no chance to interact in this language), and are expected to learn signed language through this contact as well as catching up on the contents of the classes. Winston (op. cit.: 7) also highlights the assumption that Deaf students have the linguistic fundamentals to access and process the language of interpreters. In fact, how the student is prepared to separate the interpretation from its origin (the interpreter), or how the interpreter can adapt the signed language to the age and cognitive maturation of the Deaf students are both unexplored aspects that could determine the efficiency of the service.

A final assumption that has to be questioned is whether the interpreters are prepared to accept this type of activity. Studies carried out mainly in the United States (see Winston 2004: 6; Marschark et al. 2005: 59) demonstrate that the standards of interpreted education are very low, and therefore many of the Deaf students are denied full access to information in the classroom due to their interpreters' low level of competence. We are not saying that interpreters fail to act in a professional manner, but rather that those wishing to work in this area should receive specialized training, which in our country is currently non-existent.

Another issue for debate in interpreted education is the use of signed language or the transmission of oral language contents through a system that copies the syntactic order of this language, or *transliteration.* As Winston notes (2004: 2ff.), the alleged advantage of signed systems is another myth of interpreted education that makes it a requirement for interpreters to use this type of systems at schools in oral language lessons. In Spain, although the Deaf community disapproves of signed forms for daily communication, this system is used in Primary Education both by Deaf and hearing teachers, with the belief that this practice will promote the development of the oral language learning process (see Niederberger this volume, for a related discussion). Recent research conducted by Marschark et al. (2005) in the United States demonstrates that there is no correlation between the modes of interpretation, either through signed language or through transliteration, and the students' levels of comprehension, nor did the linguistic preferences of the students or the levels of competence in signed language have any particular influence. Besides, the deliberate choice of *transliteration* needs to be distinguished from the evidence that, generally-speaking, interpretation derives to more bimodal forms or *calquing* of the oral language structure in the case of more formal registers (Napier 2005: 87). Cross-linguistic influence is the result of language contact, where the dominant language exerts an influence on the minorized language forms in specific situations to cover specific functions. Code mixing is sometimes used and demanded by the Deaf students. These language contact phenomena should be researched in order to identify the needs of the Deaf students and the efficiency of the systems to be used, and could be included in a guide of linguistic behavior for interpreters.

Despite the shortcomings that still remain in interpreted education in Spain (and in other countries), it is clear that the interpreter is a key linguistic model for the Deaf student; a signer (sometimes the only one) to whom the student is exposed on a daily basis. At present, there is a proliferation of lexical creation in the classroom with an interpreter; in fact, an example of the concern for a need of signs to express the different subject contents in Secondary School was the creation of a seminar for interpreters in education. This was an informal group of interpreters, mostly from Madrid, who created a guide to the most common signs used in education by students and interpreters. This lexical innovation is the result of the dynamics of the language, immersed in a daily process of adaptation to the syllabus. Deaf students and interpreters become spontaneous language planners, creating "provisional signs", some of which will cease

to exist at the end of the semester, and others which will be passed from student to student through their interpreters in subsequent years.

Several research teams make an effort to meet the demands for terminology, which causes a dual effect in the creation of terminology: spontaneous and *ad hoc* in the classroom and on institutional demand (with funding by some education departments) through glossaries and thematic dictionaries. Both the CNSE Foundation (2002) and the *Federació de Sords de Catalunya* ('Deaf Federation of Catalonia') (DOMAD 2002) have created glossaries and dictionaries specifically to cover the syllabus of Secondary Education subjects.

The team that developed these materials – of which I was a member – was composed of educators, linguists and Deaf people. In the case of Catalonia, a series of meetings with curriculum experts from the Department of Education was held in order to determine the contents to be included in the glossaries. The lack of assessment of these materials prevents us from determining if and how these materials are being used in the classroom by educators and interpreters.

Perhaps the answer lies in the use of all these resources by students, interpreters, linguists and teachers, in order to come up with a vocabulary that really covers the needs of the consumer, namely the Deaf student, as well as simplifying the work of the interpreter. This way, efforts and costs could be minimized and lexical innovation would be more efficient. Obviously, the fact that there is no official institution leading the language planning process does not favour such a process. However, the recently approved act for the official recognition of Spanish Signed Language seems to be paving the way for the creation of a standardization centre, which would be responsible for corpus and status planning.

4.   Interpreters in the language planning process

As we have seen, interpretation from and to signed language has become professionally visible in Spain in recent years, especially following the official recognition of its training. Without any doubt, the increasing inclusion of these professionals in the local authority and autonomous community budgets have provided tools to break down communication barriers that affect Deaf people. The negotiations between pressure groups – who are usually involved with the Deaf community – and the Administration have resulted in an approach whereby language, and in this case signed language through its interpreters, has become especially relevant: it must be remembered that language planning was not part of the social aim of improved integration for Deaf people through the right to access information. Despite the fundamental connection between the social aspects that define a community and its language, the competencies of one area and the other are sometimes hard to determine; why is it that the parties involved in the process of provision of interpreters have taken so long to become aware that an activity of this nature in such basic areas as education or health needed to

include the study and elaboration of the language? According to Reagan (2001: 168), "the medical perspective leads to what is essentially a compensatory vision of linguistic rights. […] Interpreting services and other support measures are provided to Deaf people because they represent a way to compensate a deficit". Hence, even though progress has been made regarding the social conception of deafness and the acceptance of signed language, the fact that the Administration, up until now, has only made concessions to the demands for the recognition of the language by the Deaf community, through the provision of interpreters and captioning, reveals that this compensatory attitude still exists.

The guarantee of access to all social domains by the Deaf community needs a broader and more holistic conception of this process: the measures through which interpreters are present in the Administration, education or television need to be a consequence of the recognition of signed language as a proper tool for use in all areas of life and should not be limited to mere recognition. In sum, efforts have been focused on funding interpretation as a goal, without anticipating how to guarantee that these funds address the signers' real needs, in the absence of a sociological insight into the interpreter consumer's behavior. As an example, consider the agreements that some Autonomous Communities and local authorities have signed, ensuring that interpreters will be provided in each public local event: meetings, celebrations, electoral campaigns, and so on. At first sight, this measure seems to be a good way of increasing the social and political participation of Deaf people and to ensure their right to attend these events freely. In practice, however, the interpreter becomes a statement, a rather 'decorative' figure who represents the commitment of the Administration to diversity, and who the (hearing) audience acknowledges with pleasure and curiosity. In this sense the (political) intentions of the event have been covered. However, the hypothetical Deaf consumer of this service could not be present at any of these social events. All in all, the *real* needs of consumers have not been studied, namely the estimated attendance at these events, circulation among the Deaf population, and so on. Does this presence respond to the wishes of the community? Why are, in most cases interpreters signing for a hearing audience whereas the data indicate, that an important number of services have to be refused each year due to a lack of interpreters? The apparent contradiction would be a clear example of what Calvet and Varela (2000: 47ff.) describe as the consequences of a discourse (politically and linguistically correct) that leads us nowhere.

In an introductory article on this topic (Gras 2004), we presented this phenomenon as a conflict between the procedure carried out by the influential social groups involved in the signed language recognition, such as associations, Deaf federations and their leaders, Deaf children's parents, research teams and signed language teachers, on the one hand, and the policy of the Administration on the other. This conflict appears to be generating dysfunction in the potential language planning process for signed language. As we can see in Figure 5, which summarizes the opposing actions towards signed language planning, the Deaf community's struggle has clearly followed a *bottom-up* model,

where the social groups, with symbolic but no economic power, try to influence the various sectors of the Administration. The Administration's response has followed a *top-down* model, with interpretation as the main action focus. Without any doubt, this line of action results from an ideological stagnation (represented by the pathological view of deafness) and a reluctance to trigger a brave change that commits to act from the root of the problem. In other words, the 10 year call to establish a bilingual/bicultural education program for Deaf children is rejected up front, but some *concessions* are being made with the provision of interpreters, which correspond to the model of *remunerative forms* (bargain and prizes) discussed in Skutnabb-Kangas (2000). This way, the Administration is yet again confirming the rejection of signed language as a complete and adequate means of communication, because learning and using it during schooling is not considered to be beneficial. However, it recognizes adult Deaf people's need for a means of intermediation to access information (interpreters or other technical aids if we consider communication media) and is inclined, under this argument, to fund it. The fact that the mediation of an interpreter in different situations of daily life, including communicative situations of a significant level of complexity, is considered to be viable without giving signers proper opportunities to study this language, is a way of demeaning the complexity of this language system, and therefore contributes to perpetuating its low status.

As a result the focus of attention of both sides – the Deaf community and the Administration – differs: we could say that the Deaf community's focus has been the binomial *language/culture,* of a holistic and global nature, whereas that of the Administration has been *interpreter provision,* of a concrete and reductionist nature. If we compare the dynamics of the Deaf community pressure (see part A in Figure 5) with the response by the Administration (compare part B in Figure 5), we can observe this divergence: first, with regard to *Problem raising* (1), the status of the language seems to be a major concern for the Deaf community, whereas the Administration centers on the social aspects of deafness on the same lines as other disabilities: integration and accessibility. Secondly, in *Development of measures* (2), the Deaf community, through its pressure groups, tries to influence the behavior of the Administration through various strategies: the leaders of the community meet political leaders so as to improve their status legally, and parent groups in favor of bilingualism put pressure on the Education Department to bring about a change in the education for their Deaf children; research teams provide scientific studies and teachers develop an activity of spreading the language as a foreign language. On the other hand, the Administration centers exclusively on the interpreter as a figure that facilitates accessibility and therefore the integration of the Deaf. As a result the actions they promote are aimed at training this collective, through the creation of a legal training program. The contrast in the measures adopted leads to a paradoxical situation: the professional signed language interpreter is officially recognized before his/her working tool, signed language. Due to the lack of didactic materials to cover this training, projects to develop such materials are funded before the language is thoroughly studied. Finally, these new professionals that have an official degree need to access the working force, so more jobs are created

through agreements to increase the number of interpreting services. In sum, right from the start the *Goals* (3) of both parties are different and even irreconcilable. We have marked with an asterisk the aspects that can be highlighted as those claims by the community that the Administration has responded to: access to information through interpreters, as well as spreading the language as a second language, both aspects that benefit the central role of hearing people in interaction between the two groups and which, in our opinion, reinforces the compensatory view of deafness.

Furthermore, this imbalance in language planning actions affects language development and therefore impacts directly on the activity of signed language interpreters. Whereas the steps to follow in a language planning process are not closed and can change in accordance with specific situations, we understand that, following Haugen (1983), the selection of the form or variety and its codification or creation of standard norms is an initial step towards its functional expansion and modernization. In the case of signed language, the demands of a hearing population, with a growing interest in learning the language, as well as interpreters' training, have hastened the expansion of domains and lexical creation, establishing a situation where the language of study (signed language in this case) needs to respond to the demands of the majority language (spoken language users in this case), because signed language is being used in domains that it had never previously accessed, e.g. media and secondary education. As we said before, interpreters are often the victims of this situation, because they have been used by Deaf leaders to come up with and circulate new signs for new domains, which in reality means that a power practice by the majority social group (spoken language users), is still taking place; this means that demands come from the non-native or external group, rather than from the actual community, who continues to use the traditional forms, those that have not gone through a standardization process of this sort.

In addition, the codification of signed language starts before there is a *consensus* in favor of a variety, which causes every single research team to work on their local variety, as there is no dialect or other option chosen as a candidate to become a standard. On this point, the convenience or not of a standard form goes beyond the scope of this chapter, although one has to bear in mind the impact a large-scale variation in dialect would have on interpreters' activity. However, a standard form rehearsed only, or at least as a main exponent, with non-native people (people such as interpreters who will be using the language as a working tool in specific areas, i.e. education and the media), is not a very conventional way of spreading a standard form to all areas of life. In general, awareness raising campaigns and the inclusion of the standard in the education system and the media seem to be the most effective measures for the natives to know this form, which, once known and accepted by them, is transmitted to those who are learning it as a second language, the new speakers. The problem is, however, that to date the inclusion of signed language in these two domains (i.e. education and the media) has occurred through the presence of interpreters, and not through directly signed messages by deaf signers. Hence the difficult positions of these professionals in promoting a standard form.

A. Pressure dynamics of the deaf community (read bottom up).

Bilingual/bicultural education

Access to information
(technology, <u>interpreters*</u>)

Official recognition of signed language

(deaf community = linguistic community)

3. GOALS

Discussions with
Education Dep.

**Deaf
children's
parents**

Meetings
with
politicians

**Deaf
associations**

**PRESSURE
GROUPS**

**Research
teams**

SL studies
at
Universities
and NGOs

**SL
teachers**

<u>SL as L2
spread*</u>

2. DEVELOPMENT OF MEASURES

Social
stigmatization
(disabled)

Low status of the language
(threatened language, not
studied, low presence)

1. PROBLEM RAISING

<u>*BOTTOM-UP MODEL*</u>

B. Administration's response

TOP-DOWN MODEL

(interpretation)

1. PROBLEM RAISING

Integration Law (LISMI)

Accessibility Laws

2. DEVELOPMENT OF MEASURES

Material production for interpreter training

Development of interpreter training (Professional Training)

Interpreters: information facilitators = integration

Agreements to increase interpreter services

3. GOAL

Compensate hearing disability

Figure 5. Opposing actions towards signed language planning

The problem of centering efforts on the development of the language corpus on the demands derived from specialized interpreting services establishes a distance between the native language community and the professional interpreters, who, as we said before, "know more signs than the Deaf themselves" (Gras 2004), in the words of some of our informants. Access to a richer sign repertoire by interpreters is also a subject for debate in other countries. In a recent (unpublished) study from the Netherlands carried out by Lianne van Dijken (Crasborn & De Wit 2004: 4), Deaf people were asked who they thought should be responsible for spreading the standardized signs. Most of them answered that they would like to learn the new signs from interpreters. As Crasborn & De Wit (op. cit.) state, in this type of situation interpreters face unexpected ethical dilemmas related to language policy, such as the responsibility of implementing the standard language, in this case that of the Dutch government. The sheer use of the published standard signs turns (and even forces) interpreters into instruments of the implementation of a language policy *in vitro,* being pushed to position themselves, albeit unwittingly, before an intervention on the language.

If we understand the interpreting process as a series of interrelated factors that affect the development of the activity, then linguistic choice (use of a neologism or an archaism) will influence the success of an interpretation. Also, this professional will determine the image given to the consumer of an interpreting service, and, hence, the attitude that this person will have towards the interpreted discourse: for example, some people may feel threatened by the use of new signs they don't understand. The answer to these questions should be studied: the interpreter should be able to distinguish first, the linguistic registers, as well as knowing how to separate "traditional" forms from "modern" ones. The problem is that, in our context, there is currently no general pragmatic training providing information about the relationship between the characteristics of the interlocutors (e.g. sex, age, background, etc.), the communicative circumstances (situation, function) and the linguistic choices (style, register, etc.), which causes professionals to behave, in most cases unconsciously, as censors, representing correctness and the norm.

5.   Conclusions: A new direction

The Deaf community in Spain is experiencing a period of transition towards the institutionalization of intervention in its language. The analysis of the measures carried out to date shows that the Administration has failed to respond to the claims of the community, except in terms of the provision of interpreters. These professionals have been used by the Administration as a "concession" to social pressure and through legislation claiming the right to access information. In our view, this continues to perpetuate the compensatory view of deafness.

In a language planning process for signed language, we should adopt a new global and holistic approach that analyses the needs of all parties and promotes the connection

between all planning agents, including research teams, Deaf and hearing teachers and interpreters, as well as the Administration, in order to strengthen each group and provide a complete set of measures (see Morales-López, this volume, for a similar approach to bilingual education). The agents in this process should be committed to creating a whole set of coherent actions that would start with the inclusion of signed language in Preschool and Primary Education enabling children to become competent signers (unlike the current situation; see Morales-López, this volume, for a detailed discussion). This would continue with the provision of interpretation for adults. We will have to wait and see whether the recently passed act for the recognition of Spanish Signed Language leads to changes in this direction.

We began this article by questioning whether signed language could actually be planned. We are certain that the process has already started: now that the debate is open it has become an issue the public is aware of. Signed language in Spain can and will continue to be planned. We would hope that the planners involved represent all the groups within the community (including interpreters), and that when planning their policies, they pay attention to the interests of both users and the language, as well as the conditions in the community.

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Language use and awareness of deaf and hearing children in a bilingual setting

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This chapter describes sociolinguistic observations made in a bilingual classroom with Deaf and hearing elementary-school pupils and their teachers. The first part of the chapter discusses the socio-political context of deaf education and Sign Language rights in Austria. The second part provides an insight into bilingual education practice for a group of Deaf and hearing children and their team of teachers working in spoken and signed languages. The study conducted in the bilingual classroom is based on observations and data recorded on video over a three-year period. Language domains, attitudes, skills, and communicative barriers were analyzed and findings point to the success of language learning strategies for the Deaf pupils and an enriching linguistic and social experience for the hearing participants.

Keywords: Deaf education, sign bilingual teaching, Austrian Sign Language (ÖGS), sociolinguistics, language attitude, multilingual identities, literacy, German as a L2

1.   Introduction

Carlos Skliar (2002) noted that rather than a universal model of bilingual education, the type of bilingual education implemented in each country is subject to the influence of specific historical, social, linguistic and political factors and processes. There are numerous bilingual models in existence. Internationally, there are few in-depth documented longitudinal observations and analyses of Deaf[1] people who have been taught

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1.   In accordance with international convention in Deaf Studies and sign language research Deaf people who are sign language users are addressed with a capital D. We will use lower case d to refer to deaf people who define themselves by the degree of their hearing loss. All Deaf participants in the classroom described in this chapter are from Deaf families and are sign language users. Where culturally/linguistically and audiologically deaf people are addressed together, I use d/Deaf; where it remains general (deaf education), I use deaf.

bilingually. Indeed, much still remains to be learned about everyday sign bilingualism practices, in particular with regard to their pedagogical worth, which continues to be a subject of heated debate. It is therefore essential to observe groups working, living or learning according to their understanding of the sign bilingual principle.

There is no tradition of sign bilingualism in deaf education in Austria and hardly any empirical facts or experiences (exceptions are Pinter 1992; Bortsch & Tischmann 1996). The essential aim of this chapter is to offer some sociolinguistic insight into the practice of bilingual education for a group of Deaf and hearing children in Vienna, Austria, and to gain a particular knowledge of children's capacity to understand and successfully organize a bilingual setting with spoken and signed languages.

The first part of the chapter provides the necessary contextual information regarding deaf education in Austria. The second part describes the Vienna bilingual class, and the hypotheses and methodology of the sociolinguistic research study conducted in this class are stated. This is followed by the description and discussion of the observations made over the three-year period, including aspects such as language domains, attitudes and skills, communicative barriers, identities and meta-competences. The issue of German literacy acquisition is amply covered, and finally, the results of the study are discussed.

2.   Sign Language in Austrian deaf education: The societal, political and educational context

The sociolinguistic (societal, political and educational) context of the bilingual class described later in this chapter is intended to shed light on the practical (and symbolic) implications and impact of the bilingual class.

On 6 July 2005, Austrian sign language (*Österreichische Gebärdensprache, ÖGS*) was formally recognized by Parliament as a fully-fledged language, pursuant to a new paragraph incorporated in Article 8 of the Federal Constitution. That paragraph states: "Austrian sign language is recognised as a language in its own right. The details shall be regulated by further acts".[2] This formal and symbolic recognition of ÖGS is an important step towards linguistic rights for the users of sign language in Austria. For the first time in Austrian history, the Constitution recognized the use of a language other than German, thereby officially acknowledging ÖGS as an integral part of the country's linguistic diversity and wealth. The Deaf community now hopes for change and reform in the field of education,[3] because over the past decade the Ministry of Education, Science and Culture has consistently rejected the inclusion of ÖGS in the field of education on the grounds that "a general right to the use of sign language in teaching those

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2.   Die Österreichische Gebärdensprache ist als eigenständige Sprache anerkannt. Das Nähere bestimmen die Gesetze (Art 8 Abs 3 B-VG).

3.   See Austrian Association of the Deaf: www.oeglb.at.

children whose parents seek their integration into the linguistic and cultural community of the deaf can only be granted once that language has been formally recognized as a minority language".[4]

2.1   The Austrian Deaf community

The Austrian sign language community is small. Approximately 8,000 Austrians are Deaf, whilst the total number of sign language users stands at 10,000 (including Codas, interpreters, etc.). It is not easy for such a small community to have a voice. The organisation of the community dates back to the mid 19th century (for an overview of the history of Viennese Deaf organisations, see Krausneker 2000). Cultural diversity within a prospering Deaf community was interrupted by the National Socialist regime (1938–1945),[5] although over the last sixty years since, the Deaf community has managed to build itself up again, with the exception of the Jewish segment.

At present, the community is highly heterogeneous in terms of its members' literacy and consequent social mobility: there is a tiny segment of 'elite' Deaf individuals who possess a high sense of self-esteem, Deaf pride and a good education, as well as university degrees. Many of them are competent in two or more sign languages and are literate in German, and some of them are also competent in English or other written languages. They are skilled signers and are regularly consulted by researchers, politicians and decision-makers.

The majority of Deaf individuals, however, have little knowledge of the international Deaf community, and have little awareness of themselves as being part of a linguistic minority. Most of them are in contact with a local Deaf club because they enjoy socializing and communicating easily in ÖGS. Many, in particular women, are either unemployed or have jobs that they did not choose for themselves. Their low level of literacy in German and academic success must be recognized, analyzed and studied. The best way of tackling this would appear to be by considering their oralist and disempowering education – issues that are discussed in the following sections.

For a general description of the situation in the Austrian sign language community, see Krausneker (2003, 2006). I will now shortly describe Austria's deaf education. Austria's oralist tradition becomes most apparent through an analysis of the current curriculum for schools for the deaf. There is evidence of Deaf-excluding practices and hearing dominance. This section ends with a brief discussion of the impact of these

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4.   See position statement by the Ministry of Education 1 July 1997, before the Austrian Parliament.

5.   During that period Deaf leaders were forced to resign, clubs were closed, d/Deaf Jews were persecuted and murdered, while the so-called "hereditary" deaf were forced to undergo sterilisation (see Biesold & Friedlander 1999 for Germany). However, as Biesold and Friedlander documented [and their findings apply equally to Austria], there were deaf Nazis and beneficiaries as well.

factors on the Deaf community and its members' educational status and linguistic skills.

A linguistic analysis of the current Austrian curriculum for special schools for the deaf[6] reveals problems in terms of terminology and points at authors' opinionated approach to d/Deafness. This is reflected in the use of terms such as *taubstumm* ('deaf and dumb') and *taub*. The first term is clearly discriminatory and the second an outdated descriptor. In the fifty-page document, the term *Gebärde* ('sign/gesture') and other incorrect variations of the term such as *Gebärdensystem* ('sign/gesture system') are frequently used. The national sign language ÖGS is not once referred to by name. The curriculum neither prescribes the teaching of ÖGS as a subject nor does it recommend its use as a language of instruction. Invariably, such terms as 'language learning', 'language development' and 'language use' refer implicitly (and explicitly) to spoken German only. Throughout the curriculum, the term 'language' is only used in the sense of speech. Even though an appreciable number of teaching hours are devoted to German, the focus is on speech training, comprehension training (*Hörerziehung*) and lip reading.

Only pupils over the age of fourteen are allowed to attend one hour a week of so-called *Gebärdenpflege* ('sign care'). These classes are optional, and status and space devoted to this subject is the same as that given to other electives such as chess.

A critical analysis of the curriculum reveals that the aim of education of the deaf in Austria is their full assimilation into the hearing society and, for the most part, the scant information available to teachers of deaf students about sign language is either wrong or nonsensical. The following examples (1, 2 and 3) from the curriculum (1990) are representative in this respect:

(1)   The special school for the deaf should seek and use all possible ways and means to create understanding in the deaf for those persons 'with all their senses' *(vollsinnige)* (p. 4).

(2)   In order to overcome isolation in terms of society, its history and culture, it is necessary to build up a linguistically functional system that is linked to spoken language for the deaf (p. 5).[7]

(3)   Sign language is a purely communicative language; it rarely serves as a tool for reflection (p. 36, all my translation).

The Ministry of Education was reviewing the curriculum in 2006 and 2007. However, it did not invite Deaf experts on education for the deaf to form part of the review group and even refused to admit the president of the Austrian Association of the Deaf who is both a trained teacher and a university lecturer, claiming that "We don't need people

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6.   *Lehrplan der Sonderschule für Gehörlose* (Stand 6/1990), Austria.

7.   German original: Um die Isolierung von der Gesellschaft und von deren Geschichte und Kultur zu überwinden, ist es notwendig, im Gehörlosen durch Bildung und Erziehung ein an die Lautsprache gebundenes sprachfunktionales System aufzubauen (1990: 5).

who are personally affected".[8] This disempowering and discriminatory practice direct-ed against the d/Deaf in Austria, which literally 'disables' them, is by no means an ex-ception, as will be shown later.

2.2   Exclusion from the field of education

Discrimination of the Deaf community and their exclusion from decision-making processes as well as everyday practices are systematic occurrences in the field of educa-tion. Until December 2005, anybody who was not physically fit (and this included vocal performance) was denied teacher status. A few Deaf Austrians attended teacher-training courses and took exams, yet under Austrian law were denied full accreditation as teachers. The Vienna-based counselling organisation *Arbeitsassistenz* (labour assist-ance for the employed and unemployed d/Deaf) has reported a number of cases of d/Deaf people suffering work-related discrimination (see ZARA 2002: 38). Because of this form of exclusion, so far only 5 Deaf women whose L1 is ÖGS have been granted exceptional teacher status. Since 2007 this exclusion is enforced again.

2.3   Exclusion of sign language

Even if Austrian schools for the deaf wanted to offer ÖGS as part of its regular curricu-lum, it would be difficult to teach: during their training, hearing teachers of deaf chil-dren are only required to take one forty-hour course on sign language/signed language (no differentiation is made in the curriculum and no final examination is required of the teachers).

Current Austrian practice ignores the Deaf sign language community and the decision-makers openly declare that their prime responsibility is towards the hearing parents of deaf children. The Ministry of Education argues that cochlear implantation among more than 50% of the children is evidence of the hearing parents' preference for an exclusively oral education. In doing so, it fails to consider the other possible reasons (structure, power, economy and medical predominance) for the implants in numerous children. In addition, the Ministry neglects to support the decision of a re-duced number of parents to focus on sign language, and the functionaries point to a lifetime of "constant dependence on an interpreter".[9.]

Further evidence of the oralist approach is apparent in the response of the Minis-try of Education to a petition submitted by the Austrian Association of Applied Lin-guistics, see example (4):

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8.   Telephone conversation with a representative from the Minister's Office-VK.

9.   All in: Stellungnahmen zur BürgerInneninitiative für Chancengleichheit gehörloser Men-schen im österreichischen Bildungssystem des bm:bwk.

(4)   (…) From a pedagogical perspective, the Ministry of Education perceives the acquisition of spoken language by deaf children as the main goal. Based on reliable results, it can be assumed that spoken language is also perceived as the mother tongue of deaf children. Austrian education of the deaf is also orientated towards the goals of oral education – although sign language is understood as being relevant to subsequent social integration into work and society. Sign language is also considered a necessary communication aid in the school context. Nevertheless, sign language cannot be a substitute for learning the spoken language (…).[10]

In accordance with this attitude towards sign language the (hearing) headmistress of the National Institute for the Deaf writes: "ÖGS in early education superimposes and represses 'learning to hear'!"[11] Education experts and politicians fail to perceive ÖGS as an important educational resource for achieving age-appropriate language competences in deaf children prior to the school entry age of six and as resource for classroom education; they see it literally as a threat. ÖGS is viewed as a last resort that should only be used when all other 'methods' have failed. There is no longer an official educational ban on ÖGS – but students have indicated that failure to use oral language is occasionally penalized. Even today, deaf children and teenagers are aware of their teachers' negative attitude to ÖGS.[12] Such attitudes to signing are so deeply-rooted and far-reaching that policy-makers have failed to understand that the bilingual approach preferred by Deaf people comprises *two* distinct languages. Suppression of ÖGS in education is neither strictly enforced nor exhaustive – but the essential implication for deaf people is that it is ignored by the (hearing) education authorities.[13] Austria has six schools for the deaf, none of which provide systematic, grounded sign bilingual teaching. As discussed above, this is attributable to the curriculum. The recent formal recognition of ÖGS in the Austrian Constitution referred to above has had no impact on educational practice to date.

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10.   Letter from Minister Gehrer to Kettemann/Austrian Association of Applied Linguistics, 6 December 1999, my translation.

11.   Stellungnahmen zur BürgerInneninitiative für Chancengleichheit gehörloser Menschen im österreichischen Bildungssystem, BIG Wien (Mag. Strohmayer), Absatz ALLGEMEIN, Pkt. 2, no page numbers, my translation.

12.   Personal ad hoc account by a young hard-of-hearing sign language user, 11 June 2004.

13.   It is important to note some positive exceptions, especially in the group of hearing teachers for the deaf, some of whom have made every effort to learn ÖGS privately and are able to maintain at least a basic conversation level. It is evident, though, that they cannot substitute for the Deaf native signers that are needed.

2.4   Dominance of the medical paradigm

Hearing parents of deaf children are often counselled solely by members of the medical profession. Unless they embark on an independent search for information, they may never learn of the Deaf community, the possibilities that signed languages provide d/Deaf children, and so on. Indeed, parents are still advised not to use sign language with their deaf child because it might interfere with their audio-verbal development. The predominance of medical considerations, that is, the pathological view of deafness, not only has a far-reaching impact on the decisions adopted by both parents and politicians, but also affects the everyday lives of d/Deaf adults as they are confronted by doctors asking persistently *when* (not if) the patient will finally opt for a cochlear implant. This combination of medical interests and issues, and the attitudes of benevolent hearing decision-makers in the field of education restricts the scope for the use of ÖGS and as a result, deaf people are often not exposed to ÖGS until much later on in life. The positive impact of sign language on all deaf people is immediate, widening the gap between their perception of the importance of signed languages and those of the hearing community.

The conviction held by the hearing community that there is now a medical 'solution' for deafness has also had a direct impact on educational institutions: there are at present about 2,000 deaf children in Austria. Some are mainstreamed, but most of them attend special schools for the deaf. The Ministry of Education states that currently 1,490 pupils are "cared for in schools for those with impaired hearing".[14] The current trend is such that over half of the total number of young deaf people have received cochlear implants, and have been streamed into all-hearing classes with no ÖGS input at all, or are taught orally within the audistic framework at one of the six special schools for the deaf.[15] The trend towards mainstreaming has led to the closure of the Regional School for the deaf in the province of Carinthia.

2.5   Deaf education reflected in research findings

The amount of empirical data documenting the impact of education on the academic achievements and linguistic skills of d/Deaf individuals in Austria is limited. One study, conducted by a member of staff at the National Institute for the Deaf (BIG – the largest Austrian school for the deaf, located in Vienna) between 1986 and 1992 revealed that the average vocabulary of deaf graduates (average age 14.8) was equivalent to that of six year old hearing children. The deaf children attained only basic or limited reading skills (Gelter, cited in Holzinger 1994: 14). Furthermore, students showed an insufficient knowledge of other subjects.

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14.   Stellungnahmen zur BürgerInneninitiative für Chancengleichheit gehörloser Menschen im österreichischen Bildungssystem des bm:bwk, signed by Martin Netzer.

15.   For a school-specific history of Austrian deaf education see Schott (1995, 1999, 2002).

A study on writing skills of Deaf adults showed that in 236 faxes on concrete everyday subjects, the average error rate for all the categories analysed – lexicon, morphology and syntax – stood at 33%. The texts differed greatly from those written by adults with no hearing impairment (see Eisenwort, Vollmann, Willinger and Holzinger 2002: 266).

These results coincide with those obtained from a questionnaire completed by 50 Deaf adults (aged 16–69), in which 81.4% of the subjects polled stated that in retrospect that they would have needed an interpreter in school, and 50% said that they had understood very little of the subjects they were taught at school (Fellner-Rzehak & Podbelsek 2004: 190).

A more recent study analysed the academic and vocational situation of thirty adult Deaf females following a series of in-depth interviews. The most frequent criticisms regarding the schools for the deaf they had visited were:

> (…) • oral exercises instead of content, • failure to understand lessons because of oral teaching methods, • too many copying exercises, • excessive repetition, • too much memorising without understanding content, • too boring – resulting in students becoming distracted and failing to pay attention • too simple, easy, • failure of teachers to adapt the materials to pupils' needs, • penalisation of the use of sign language (Breiter 2005: 92, my translation).

The data supports the hypothesis that education for the d/Deaf in Austria is at best immersed in a severe crisis. They also question the likelihood of the system encompassing alternative teaching languages, such as sign language, which have already been applied in other countries such as Sweden, the Netherlands, Finland and the USA (Krausneker 2004: 39ff.). The bilingual approach, however, has failed to receive official recognition or inclusion in the education of deaf children in Austria. Yet despite this, two experimental bilingual classes were set up in Austria in the 1990s: one in the school for the deaf in Klagenfurt (Pinter 1992) and one in Graz (Bortsch & Tischmann 1996). Both pilot schemes lasted about five years and were not extended by the educational authorities. The reasons for this are unknown.

Such is the background to the Viennese bilingual class that I shall now go on to describe.[16]

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16.   The initiative leading to the implementation of this one Viennese bilingual experiment was mainly of private character (parents and one Deaf teacher) and was successful because it was backed by the president of the *Wiener Stadtschulrat* (Viennese School Council, the local educational authority) at the time.

3.   A sign bilingual classroom in Vienna

Following a general introduction to the background of the Vienna bilingual class, I will now describe the research issues, methodology and data analysed. This will be followed by a discussion of the findings.

3.1   General description

For four years (from September 2000 to June 2004), the first bilingual class with both Deaf and hearing pupils was run in Vienna. The bilingual experiment started in Grade One (with pupils aged six) and ended in Grade Four, when all the pupils moved on to the next level of schooling. Throughout all four years of their elementary education, the languages of instruction for all subjects were both Austrian Sign Language (ÖGS) and German.

One Deaf teacher, one hearing teacher and one interpreter taught as a team. The interpreter service was used by everybody (teachers and students). Teaching was either done by one teacher in her L1 (spoken or signed language) and simultaneously interpreted and related to the other language group, or alternatively a parallel teaching method was used, with both the speaking and the signing teacher using their respective languages. Both teachers had equal status in the classroom, assumed the same responsibilities and taught all subjects – with the exception of certain lessons such as German for the Deaf or music when pupils were occasionally taught in separate rooms.

Based on the essential conviction that all the children must receive all the information, the teachers gradually built up a bilingual team approach based exclusively on their own experiences. In practice, this meant that neither teacher followed any of the existing models (such as one person-one language, or separating the languages in the classroom by allocating specific sectors of the room, or language choice in relation to specific subjects, etc.). They started their teaching and developed their routine (rather than a model) on the basis of their everyday practical experience. This approach was challenging for the teachers because it lacked a clear structure; however, it is worth noting that this did not impact negatively on the students. Indeed, quite the opposite would appear to be true, as it provided the students with a realistic example of the way in which d/Deaf and hearing adults might interact when employing their respective linguistic skills.

A specific feature of this set-up was that Deaf children used ÖGS as their learning medium and German as their L2. They studied written German as a second language (no speech training was offered under this heading). The Deaf teacher had to adapt to the speed and structuring of the German classes for hearing pupils, and even used the same text book. She taught grammar by finding ways to enable children to relate to complex concepts (such as the German grammatical gender, articles and case system) and chose to contrast the two languages. In general, she would focus on content when teaching German, and rely on the children's inherent interest or curiosity. Only once

she had captured the children's attention, would she begin to introduce elements relating to the structure and rules of the German language. The Deaf students would use ÖGS to compare and contrast the differences between German and ÖGS with their Deaf teacher and interpreter.

ÖGS was not planned as a special subject, although the teachers regularly reserved a slot for it. No ÖGS teaching materials for children were available at that point;[17] all the methods, materials and approaches used in the teaching of ÖGS were developed by the teachers themselves. They generally taught vocabulary related to the content of current teaching (numbers, animals, fruits, vegetables, etc.). The hearing children acquired all their knowledge of ÖGS (everyday vocabulary and grammar) by using it on a daily basis and in their attempts to meet certain communication needs. English and ASL were taught as foreign languages and were either the children's L3 or even L4, due to variations in their linguistic backgrounds.

Another distinguishing feature of this class was that the Deaf pupils were required to master all school subjects in accordance with the standard Austrian elementary school curriculum (not that of a special school) within the same time-frame as hearing pupils.

3.2   Participants

The average class composition was 12 hearing and 4 (later 2) Deaf children. They had different linguistic backgrounds and L1s: German, Turkish, Arabic and ÖGS (Deaf children of Deaf parents).

One of the teacher's L1 was ÖGS, whilst the other's was German. The teachers had only known each other for two months before they started working together as a team. Moreover, the hearing teacher had had no experience of deafness, sign language or deaf education prior to teaching this new class.[18] Language competences were used as required by the context or situation, and in keeping with daily communication needs.

3.3   Research in the class: Data and methodology

I conducted a two-year participant observation study (as defined by Adler & Adler 1994) in the classroom. Sociolinguistic theories on the minority language status and language attitude (Skutnabb-Kangas 2000) and sign bilingual models/proposals (Nover et al. 1998; Johnson et al. 1989; Günther et al. 1999; Günther & Schäfke 2004; Volterra 1990) constituted the theoretical background to my research. My research was not

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17. Meanwhile, the Austrian Association of the Deaf has published a number of childrens' books on ÖGS and Deaf life, see www.oeglb.at/shop.

18. For the hearing teacher this meant, on the one hand, a total lack of experience and knowledge to draw from but, on the other hand, also a freedom from pre-set assumptions or even prejudices and influence from deaf education. It also meant that initially the two teachers always needed an interpreter to communicate with each other.

based on a particular language acquisition theory; however, it was grounded on specific learning concepts such as the distinction between language learning and language acquisition (Edmondson & House 2000), and assumptions concerning the interaction of the two languages, as put forward in the interdependence theory (Cummins 1979), as well as the modelling of second language learning as a complex of a variety of factors (Edmondson & House 2000).

Rather than formulating restrictive hypotheses at the beginning of my qualitative observational work, my research was guided by specific theoretical assumptions. A summary of these assumptions is given below (see Krausneker 2004 for a detailed description):

i.   Sign bilingual teaching allows d/Deaf children to receive a normal education.
ii. The L1 (ÖGS) allows for the teaching and learning of the L2 (German).
iii. L2 German is consciously learned by deaf pupils, not acquired through mere exposure.
iv. L1 and L2 do not compete.
v.   Metalinguistic understanding of the two languages is part of linguistic competence.
vi. Sign bilingual education supports creativity and has positive values for all children.

The findings described later in this chapter are derived from the data that I gathered in the sign bilingual classroom: each week I filmed an entire school day in Grades One and Two, obtaining a total of 270 hours of digital footage.[19] I used Altrichter and Posch (1998) as my guide for this type of 'action research' – internationally known in connection with Lewins' work (1946).

In addition, I interviewed all the members of the class. The voices, signs and thoughts of the young multilingual children were thus documented and can be seen in relation to their everyday behaviour and language use.

Furthermore, I surveyed the Deaf students' attitude towards language using questionnaires (Nover & Andrews 1999). The children's awareness of their own language skills was documented by means of 'language portraits' (Krumm & Jenkins 2001). Numerous sociolinguistically relevant phenomena were documented, described and analysed, a selection of which are discussed below.

I also conducted free writing tests[20] over a two-year period (in Grades Two and Three, app. ages 7/8 and 8/9) with a group of hearing and Deaf students in order to document the development of their literacy skills. The discussions, text planning strategies, metalinguistic comments and linguistic decision-making processes that became evident during the free writing lessons were also used as a source to describe the

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19. This research was done as part of my PhD thesis. I am grateful to Eva Köckeis-Stangl for the financial basis she provided.

20. About the concept of free writing see Poppendieker (1992).

various sociolinguistic phenomena and language learning processes. (The analysis of the children's texts, however, cannot be included here. For a detailed description of the sociolinguistic research and the findings in this class, see Krausneker 2004).

4.   Findings

This section describes the domains of language use and attitudes towards language in the bilingual class, before moving on to a discussion of communicative barriers and the question of identities. The childrens' linguistic meta-competences are described, followed by a special section summarising the literacy in German of the bilingually taught Deaf children.

4.1   Language domains

As a result of constant bilingual teaching, ÖGS was present throughout the day in the sign bilingual classroom. The hearing pupils were not required to learn ÖGS as a foreign language (although they used and eventually mastered it individually to varying degrees). The official curriculum did not accord any space to ÖGS as a subject; however, on the initiative of the hearing teacher, ÖGS vocabulary was explicitly taught whenever time permitted. Most hearing pupils appreciated these ad hoc lessons and used their newly gained knowledge to interact with their Deaf teacher and peers. Naturally, these lessons cannot be considered as L1-teaching for the Deaf pupils to the same degree as German as a subject for hearing pupils, because they were modelled in accordance with the needs of the hearing children.

The German version of SEE (called *LBG, Lautsprach-Begleitende Gebärden*) was used by the Deaf teacher to teach written German. The Deaf children used it when they had to read a German text aloud. They would always differentiate between reading in ÖGS (i.e., reading a German text and simultaneously translating it 'aloud' into ÖGS) and reading in LBG which required the use of German word order and syntax. At no time during the three years I spent in the classroom did I observe any indications of insecurity or confusion with regard to their L1 ÖGS and the signed version of German, LBG. The pupils' clearly observable metalinguistic awareness of the separation of their signed L1 and the signed auxiliary system, LBG, was not reflected in any overt statements, but can in any case be evaluated positively. It is very plausible that a verbal description or explanation of their practical ability to distinguish ÖGS and LBG was well beyond their age-appropriate possibilities.[21]

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21.   In the Austrian Deaf community it is widely observable that even adults do not use the sign for GEBÄRDEN ('signing') or GEBÄRDENSPRACHE ('sign language') but refer to it as PLAUDERN ('chatting') when they want to express that somebody is sign language competent.

This class was started on the assumption that it would 'target' the Deaf students. None of the teachers had considered the possible benefits of a sign language environment for hearing children. However, the hearing teacher used ÖGS and the manual alphabet as an additional teaching and communication resource for the hearing children, and it became apparent that the manual alphabet in particular was an effective means of support. Children adopted and mastered it quicker than writing letters on paper, and it became especially useful in the teaching of spelling (e.g., before writing new words on paper the children fingerspelled individual letters that were checked and confirmed by pupils/teachers).

All students understood and viewed ÖGS as the L1 of the Deaf peers and teacher – their language was also of great interest to the hearing children. Interviews with the pupils show that they were aware of the social and communicative relevance of good ÖGS skills. One hearing mother reported that her daughter had become so impressed with the language that she had started teaching her mother and younger sister ÖGS after school.

It soon became apparent that among the group of pupils the girls expressed greater interest and acquired ÖGS at a faster rate. This could be attributed to the fact that all competent signers (teacher, interpreter and peers) were female. Alternatively, and assuming that at the age of 6–9 girls interact more with other girls, it might mean that hearing girls needed ÖGS more than boys in order to socialize with their female Deaf peers. The latter assumption seems to be corroborated by the following data obtained in one of the interviews: a girl who had only been in the class for three months at the time of the interview said that by then she had only learnt to sign her name. When asked if she would like to sign better, she answered yes. When asked why, she replied "Well, because I would also like to sign with Melanie and Doris!" (Natalie II 26 June 2003, my translation). She understood that she would only be able to socialize with those two Deaf girls if she signed as the Deaf students always communicated in ÖGS. Her response further supports the assumption that the growing interest in learning ÖGS is related to communication needs.

Another phenomenon concerns language choice in relation to the interlocutor and the communication situation: during my observation period, no child chose the 'wrong' language. The ability to recognize and decide who is fluent in which language, which language is required, and how varying linguistic skills can be used most productively is an important sociolinguistic competence. Nover and Andrews (1998: 53) mention four criteria according to which languages can be separated in bilingual teaching: topic, person, time and place. The analysis of the data collected reveals that in the bilingual class separation of languages was vague – because the term separation was not used in its strictest sense. Although the hearing teacher constantly tried to improve her ÖGS skills, it was always clear that ÖGS was the domain of the Deaf teacher: she taught it, she used it for face-to-face interaction and she was consulted by the (Deaf and hearing) children whenever they had vocabulary and other questions. There was no separation according to time and topic because both languages were

instructional languages. Place separation was rare because in the few supplementary lessons that the Deaf children received in a separate room, sign language was the sole language of instruction and discussion. In those lessons, the topic was practically always German, hence written German was always present. In short, language separation occurred exclusively by person.

4.2   Language attitudes and skills

Bilingual and multilingual living situations were common for many pupils' lives prior to schooling. As explained previously, half of the hearing pupils had an L1 other than German and communicated in that language (in most cases Turkish) at home and when interacting with playmates. Some were competent in German before entering school; others had virtually no German language skills when starting school at the age of six.

Children' attitudes towards their various languages, in particular their language preferences and assessments of their skills, were surveyed by means of one-on-one interviews recorded on video; in the case of the Deaf children a (signed) questionnaire (Nover & Andrews 1999) was also used.

In the interviews each participant was first asked which languages they knew, and these were then verbally listed. Next they were asked to indicate the language they liked best, list the languages in order of preference and explain their choices. They were also asked which language they knew best and why. The results of this survey show that responses can be subdivided according to the attitudes towards the L1: children of migrants with an L1 other than German expressed embarrassment and negative feelings. Of the 6 hearing children with L2 German (L1 Turkish or Arabic) only one boy referred to his first language in positive terms. All the other children had internalised the negative status of their first language in Austrian society and showed a clear lack of security. This negative attitude is illustrated in the following statements by a student called Derya, who did not speak German well, who had difficulties with grammar (visible in the word order in her response) and gave very curt responses during the interview: "*Because we always Turkish speak", she said, before spontaneously adding: "German, German is better than Turkish!" (my translation). Derya rejected her L1, Turkish, because Austrian society – and probably her immediate surroundings – also allocated it a low status. She was not literate in Turkish. At the same time, however, she was not sufficiently competent in order to communicate orally in German, let alone in writing as would be adequate for her age.

When asked to name their favourite language, most of the 6 hearing children with L1 German said German and ÖGS. Some displayed great sympathy and a preference for ÖGS. All could differentiate clearly and accurately between their skill and their interest in the languages.

The survey into attitudes towards signing referred to above and a questionnaire on reading and writing developed for Deaf children in the USA (Nover & Andrews 1999: Appendices G and H) were used to document the Deaf pupils' attitude towards signing

and reading/writing. The object of these surveys was to determine the children's attitudes and position regarding the languages in their lives. The two Deaf pupils answered accurately and precisely so that the results can be viewed as valid self-representations. As for reading and writing in their L2, both Deaf pupils made differentiated statements, admitting that they were not highly skilled readers and writers, but were aware of their solid grounding in these areas. Both children expressed a preference for their L1, ÖGS. They were bilingual in the sense that they had skills in both languages, had acquired precise knowledge about their respective domains and recognised their importance in terms of socialising and learning. They liked all activities that involved their L2 German – the "new" language that they were gradually incorporating into their everyday lives with specific uses and benefits (e.g., subtitles in television).

The data enabled me to conclude that the group of children whose L1 was the language of instruction in class (German and ÖGS) differed considerably from the group of children who were learning/acquiring an L2 or L3 (and even an L4 for some) when they started school at the age of six.

The first group of students with either German or ÖGS as L1 maintained a positive attitude, a great interest and even a passion for the new language they were learning; at no time did they appear to be ashamed of their L1. The second group had a number of difficulties to overcome, namely the acquisition or improvement of linguistic skills in the languages of instruction in order to function successfully within the school context. The negative status of their L1 had to be dealt with and a place (both on a personal level and within a social context) had to be found for their L1. Of those pupils, only two expressed a preference for their L1 – as opposed to all the members of the other group who stated a preference for their L1 or both classroom languages.

Finally, with regard to the attitude toward the important activity of interpretation in the classroom, all the children quickly understood the function of the interpreter and learned to call on her to meet their communicative needs, either to communicate or to obtain information about the language in which they were least proficient. After a while, some children – mostly girls – did some self-appointed interpreting when they thought that the situation demanded it.

4.3   Communicative barriers

Owing to the diverse linguistic backgrounds and the hearing limitations of some participants in the bilingual classroom, situations occurred that are best described as 'communicative barriers'. This term will be used in relation to all situations in which the participants' or the interlocutors' language skills were insufficient for successful communication. The barriers include genuine communication failures (not understanding/not being understood) as well as subjectively perceived barriers ("I can't sign that/I don't dare /I am sure she won't understand me"). It should be remembered that communication barriers and failures occur even in monolingual classes and among people using the same language; hence not all the barriers perceived by the participants

may be automatically attributed to the bilingual situation. In the bilingual classroom, the possibilities for communicative barriers were manifold:

– People without a common language had to master their everyday lives together.
– The spoken language was not physically perceivable to certain participants.
– Some children had no or insufficient knowledge of German and were required to learn *in* a new language.

Our discussion focuses on those language barriers that were perceived and described as such by the participants themselves; particular attention is paid to the strategies used to address the problems. I have used the participants' statements. In example (5) the interpreter in Grade One describes her perceptions during the early months of bilingual teaching:

(5) They often came to me and asked "how do you sign this?" before they would go to Helene [the Deaf teacher]. But I would not call that a barrier, more shyness. And those were the kids who were interested in sign language, Samantha, Pia, Astrid, Alysha. The kids who were really interested wanted to ask Helene directly (interpreter BM, 20 July 2001, my translation).

She not only described the initial reluctance to communicate directly with the Deaf teacher, but also pointed to the fact that many children soon understood that they needed adequate means to express their wishes or questions to their Deaf teacher. It also became apparent that the children soon knew where to obtain the linguistic information they required. They used the interpreter as an informant, thereby preventing communicative barriers. This strategy was also described by a hearing pupil in relation to language barriers between herself and her Deaf peers, see example (6). In order to overcome them, she used both the interpreter (Barbara) and the Deaf teacher (Helene):

(6) In the beginning it was weird. Because I didn't understand anything. They always talked like that and I asked Barbara and Helene. Yes, sometimes Helene, because by then I could already understand her. And I sometimes asked her what they were saying, that was really funny (pupil Samantha, 26 June 2003, my translation).

In an interview the hearing teacher claimed that when teaching she never "lost control" of the situation. However, she then went on to describe an unexpected situation in which she was unable to communicate with the Deaf pupils. In situations like these – when a sudden change of plan occurred – she perceived very distinct barriers.

As for communication among the students, the Deaf teacher acknowledged a group-specific quality: the Deaf minority did not adapt to the hearing majority; instead the majority showed consideration for the linguistic skills of the signing minority, see example (7). Communicative barriers were thus mitigated and did not lead to exclusion.

(7)   The hearing children obviously adapted to the Deaf children. This school is un-
       like other contexts in which the Deaf have to adapt to the hearing; that is abso-
       lutely not the case in this school (teacher HJ, 10 July 2001, my translation).

The 12–14 children in the bilingual class formed a well-organised, interwoven com-
munity in which some played central roles and others marginal ones. A sociogram of
the class (conducted by Stelzer 2002, published in Krausneker 2004: 115) shows that
the two Deaf students were not outsiders, but chose their main partners according to
linguistic criteria. All the children made friends across various language barriers.
These barriers were overcome by creative means, heightened sensibility for each other
and ever-improving language skills. Observations like these contrast with previous
findings as documented in Ramsey (1997). In the mainstream class that she studied,
the hearing children forgot to communicate visually when they were excited
(op. cit.: 67); instead, they would address their Deaf peers as if they could choose to
hear. In the Viennese bilingual class, I did not observe similar patterns of behaviour.

It seems that different educational settings have a significant influence on student
interaction. Ramsey also observed generally restricted or no interaction between hear-
ing and deaf peers: "(...) the generative social power of a phenomenon like the child
collective was not available to the deaf children for serving their immediate, everyday
social needs" (op. cit.: 74). There was no evidence of any such problem in the Viennese
bilingual class.

Stinson and Kluwin (2003) state that co-enrolment classes generally support inter-
action between all children, especially because the development of sign language com-
petence is encouraged and supported and diverse strategies of interaction are acquired:
"In this environment, deaf students are involved in all class activities" (op cit.: 59).
These authors claim that in such a setting more interaction takes place between Deaf
and hearing children, within the class and without, as well as during breaks.

Another effect of the integrative setting could be that the Deaf pupils become aware
of the importance of language skills in the L2 not only for their own learning purposes,
but also for their social lives. In the Viennese class knowledge and competence of Ger-
man took on an everyday significance and was continuously put to use. Very rarely did
their Deaf teacher need to urge them to study and learn the new language. Indeed, their
curiosity, genuine eagerness and deep understanding (grounded in the everyday class-
room life) of its importance motivated them to study/learn German.

4.4   Individuals in a community: Identities

The question as to whether the Deaf children were perceived as "disabled", "signing" or
"deaf" was central to this study. Numerous statements made by hearing pupils clearly
showed that their perception of their Deaf peers and teacher was that they were differ-
ent – and therefore their judgements were not deficit-oriented. Being Deaf was under-
stood as using a different language. In this respect, a significant incident occurred in

Grade Two: the hearing teacher asked a group of playing children to keep their voices down because she had to leave the room for a few minutes. She did not say this to her Deaf colleague because she knew that she couldn't monitor the noise, but to the group of pupils as a whole. One hearing boy answered: "We will take care of that because we can sign!" This remark shows that the speaker considered himself capable of ensuring things didn't get out of hand, not because he could hear but on account of his sign language skills. What made him special in his own eyes was that he could communicate with the Deaf children and tell them keep the level of noise at a reasonable level. That, and not his hearing ability, was relevant to his own perception. This meant that the boy perceived himself and the other children as belonging to different linguistic groups. It indicates that he did not think of them as "not-hearing" or in need of assistance. Bouvet (1990) made similar observations in a French bilingual class and points out the relevance of a class interpreter regarding this issue:

> With their language recognized through the presence of an interpreter, the children were perceived more as foreigners who spoke a different language than as handicapped children. This attitude was apparent in many of the hearing children's comments (ibid.: 193).

The same occurred in the Viennese classroom: the pupils were not perceived as disabled, incapable or limited – but as Deaf/signing. This category was interpreted and understood by the children without further negative assessment. One hearing boy explained in the interview (see example (8)) that the interpreter was needed in class because the hearing teacher wasn't able to sign very well. He never mentioned that it might be because of the inability of his Deaf friends – Melanie and Doris – to hear.

(8)   –   And do you know why you have several teachers?
      R: Yes, because Melanie and Doris [Deaf pupils] are here and they can't understand Brigitte [hearing teacher] so well and therefore Sabine [the interpreter] is here.
      –   Aha. They can't understand Brigitte so well. And why's that?
      R: Brigitte can't sign so well
      (pupil Rehat (=R), 26 June 2003, my translation).

It becomes apparent that for this boy it was the hearing teacher's lack of sign language skills that made the presence of an interpreter necessary, and not the children's hearing impairment. In his eyes, it was not the lack of hearing, but the language that characterized his Deaf peers.

The interpreter, who was obviously hearing but also signing, caused a categorisation problem for hearing and Deaf children alike. A hearing pupil asked: "Did you use to be deaf?" and a Deaf pupil stated: "She [the interpreter] is half hearing, half deaf!"[22] That points to the fact that the Deaf children also associated the signs GEHÖRLOS

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22.   She signed this to me in ÖGS. This is a translation into English.

('deaf') and HÖREND ('hearing') with language skills, rather than with physical abilities and disabilities.

The children very quickly learned to use the interpreter for their needs and purposes. The Deaf children asked her to interpret when they saw somebody moving their lips. The interpreter was also asked to intervene if there was a conflict that needed to be solved and the children involved did not share sufficient language skills. The Deaf children sometimes challenged her signing skills and jokingly corrected her. In the interview, the interpreter talked about her respect for the Deaf childrens' knowledge of ÖGS, even though she was the adult and they the pupils. She never forgot that they were L1-signers and she was not.

One girl (Nathalie, already mentioned above) joined the bilingual class at a very late stage – in Grade Three – and during my interview with her it became apparent how she interpreted the system, habits and set-up of her new class. She began by telling me that she liked the classroom décor but despite repeatedly being asked to describe her new class in greater details, she failed to mention her Deaf peers or ÖGS. I eventually raised the subject of sign language and it then turned out that she was most interested in learning the Deaf pupils' names. ÖGS was an important factor in the class and necessary in order to access the other children. The interpreter became her primary source: a person who played an important role in facilitating communication between the language groups as the following example (9) from the interview reveals:

(9)   –   When you saw sign language for the first time, what did you think? Did you think: What a weird thing?
         N: Mmmmm, no, that's not what I thought. I thought: what are their names?
         –   Whose names?
         N: Melanie and Doris [Deaf girls].
         –   Aha. And how did you find out what they are called?
         N: Because Sabine [the interpreter] told me
         (pupil Natalie II (=N), 26 June 2003 my, translation).

4.5   Metacompetences

My classroom observations revealed an increasing sensitivity towards language issues. I was able to observe how children corrected one another's spoken or signed utterances. Usually children with L1 German would correct peers with L1 Turkish, if they had said something grammatically incorrect. Alternatively, the Deaf girls would help a hearing child with some sign or would – with an impish smile – correct a sign. I found the friendly and non-intrusive manner in which these corrections mostly occurred to be the most important factor: corrections were made, but never in such a way that would belittle or embarrass the pupil.

Language-specific characteristics, variants and dialects of ÖGS and German were a regular topic of interest to the Deaf pupils. This would appear to be important because, inter alia, they hint at the children's metalinguistic competences. Furthermore, such corrections and discussions are evidence of a subjectively-perceived secure language competence by virtue of which the children felt capable of making such corrections.

4.6   Acquiring German literacy

Whilst it is not possible to offer a detailed insight of the Deaf students' acquisition of German in the context of this chapter, I will briefly outline some of the main results obtained given the relevance of this topic for a model of bilingual education of Deaf students (for a detailed description, see Krausneker 2004).

The Deaf pupils studied written German from Grade One onwards. The Deaf teacher adopted a contrastive approach, using L1 ÖGS to teach German. The analysis of the data obtained in two years of 'free writing tests' (in Grades Two and Three) showed that the two Deaf girls continuously added to their active writing skills. The texts they produced proved their increasing vocabulary range as well as their knowledge of grammar and spelling. The texts changed considerably and the timeline of their development can be summarised as follows: their initial production was based on simple word chains, but six months later, they were capable of producing sentences with a basic word order (with initial caps, subjects, verbs, objects, and – as the videotapes of the events show – deliberately selected word order and punctuation) and structured stories. Even though their texts were not yet comprehensible to outsiders, they contained a clear narrative organisation.

According to Poppendieker, writing competence means "[…] that the writer masters processes of planning, producing, reading and evaluation" (1990: 119, my translation). In this respect, the analysis of the data obtained from these Deaf writers shows that they were immersed in the acquisition of this competence.

4.7   Use of ÖGS during text planning processes

The observations of the two Deaf pupils during free writing sessions revealed that they planned their texts in their L1 ÖGS before producing them in their L2 German. In Grade Two, they had not yet acquired sufficient vocabulary in German to write independently, although they overcame their lexical deficit by seeking help in translating their planned texts into German. They would often help each other and frequently signed to an adult present questions such as: "How do you say this in German?" or "How do you spell this?" By the end of Grade Three they had a sufficiently wide range of vocabulary in order to write their texts fluently. They wrote and asked for help in ÖGS in relation to specific language questions (vocabulary or spelling problems). The self-reliant choice and use of German words as well as the demands for help in

translating specific concepts showed that the Deaf pupils had a clear knowledge of both languages.

4.8   Deaf writers vs. hearing pupils with German as a second language

Many research projects dealing with the literacy of deaf learners compare the abilities of deaf and hearing learners. The differences between both groups regarding the skills attained by deaf learners are commonly described in terms such as "belated". Gericke, however, states that deaf learners are not comparable to hearing children who learn to write in their L1 but to hearing learners who are becoming literate in a L2, and that the difference between the two (deaf vs. hearing) types of L2 learners would "fade away" (1998: 197). This assumption was partially confirmed by the body of data analysed in this project. For example, a writer with L1 Turkish produced similar deviations from the German case and article system in writing as the Deaf writers. Gericke's claim, however, cannot be confirmed with regard to acquiring the target vocabulary. Fundamental differences in terms of the rate at which the vocabulary and syntax were attained became apparent between Deaf and hearing writers.

In addition, the Deaf children observed in the bilingual class experienced difficulties in mastering verbal inflection. All hearing children mastered that aspect of the German language quicker, irrespective of their linguistic background. The children with L1 Turkish began to produce correct sentences in the target language at a much earlier stage than their Deaf peers. It can therefore be assumed that the decisive factor was not access to spoken language, but the hearing children's continuous exposure to the morphosyntactic characteristics of German.

For deaf children a "natural" acquisition of German is – based on their restricted input – simply impossible. All vocabulary has to be actively studied, all aspects of German grammar must be explained to them. The data collected over the three-year period show distinct differences between the Deaf pupils and the hearing pupils in terms of their language production in German (and consequently their acquisition dynamics), irrespective of the L1 of the latter.

5.   Discussion

Language rights regarding the Deaf minority have always been meagre – especially in the field of education. In this context, the first bilingual class for hearing and Deaf children in an elementary school in Vienna was an outstanding and especially meaningful project.

The class was the first of its kind in Austria and was taught by a team of Deaf and hearing teachers assisted by an interpreter. Deaf children were taught via their L1 ÖGS and thus learned German as their second language within the regular elementary

school curriculum. The results of the qualitative case study (Krausneker 2004) conducted in and on this class portrayed in the previous sections shed light on the pupils' attitudes towards their own and one another's languages; and on the factors governing their choice of language, especially their bilingual skills (code switching, interpreting, heightened general awareness of language and communication, metalinguistic knowledge). The findings enable us to draw the following conclusions with regard to the theoretical assumptions that guided the research as described in section 3.3:

a. The Vienna bilingual class has shown that Deaf children can be educated according to the standard curriculum of elementary schools. The Deaf children had no difficulty keeping up with the academic content and met the intellectual challenges just as well as the hearing rest of the class. The academic success rate (with the Deaf pupils acquiring marks and results above the class average) proves that Deaf children are capable of coping with a standard curriculum. The model would probably not have worked so smoothly with children whose linguistic development was delayed or whose language skills were insecure or weak. Deaf and hearing children were all taught at the same pace: the materials were adapted for the Deaf children, but in general, no exceptions or special allowances were made. Had they lacked clear and effortless communication with a teacher, it would have been very difficult for the pupils to follow the lessons. In conclusion, Austria's policy of maintaining low standards in schools for the deaf is questionable.

b. My classroom observations show quite clearly that these Deaf children with age-appropriate linguistic development (in this case, Deaf children of Deaf parents) were able to master instruction in this kind of bilingual setting. The use of ÖGS, the L1 of the Deaf children, as the language of instruction granted them access to their L2, German. German texts were of interest because their content could be related, discussed and enjoyed and German grammar could be understood because there were no communication barriers between the Deaf learners and their signing teacher.

c. The study shows that the Deaf pupils had to make a conscious effort to study and learn German. Unlike other pupils whose L1 was not German, they were unable to acquire this language competence simply through exposure to the language. The development of the Deaf pupils' German skills in the first three years of school points to a dynamic pattern of language learning that differed from the hearing children's pattern of German language acquisition. It would be valuable to follow up whether and how the two Deaf learners will differ at a later stage from monolingually (orally) taught students. Deaf children's general linguistic development was monitored and documented and proved to be age-appropriate: their sign language skills developed normally in comparison with those of the hearing children, thus permitting both teaching and learning of the L2, German. The hearing pupils' gains in ÖGS stem from bilingual immersion: interaction in ÖGS was omnipresent and always visible for them – via the signing teacher, the interpreter and the Deaf peers.

d.   On entering school, the Deaf pupils could be described as ÖGS monolingual. The data indicates that they were on their way to becoming ÖGS-dominant bilingual. The language of teaching and interaction, ÖGS, did not disrupt or diminish the Deaf learners' attention to and interest in the other language, German. In the educational and medical field in Austria, discussions on deaf bilingualism tend to use the term 'competition'; it is claimed that any time devoted to helping deaf children learn ÖGS is time lost that could have been used to develop their hearing abilities and in conclusion their German language abilities.[23] This oralist view also claims that children opt for the "easy option" by relying on ÖGS and not learning German. However, for the Deaf children in the bilingual class, ÖGS and written German were *never* competing languages in the sense described above. ÖGS, the Deaf pupils' L1, facilitated explaining, learning and understanding the L2 (German). Increasing knowledge of the L2 provided them with the opportunity to interact with hearing people, acquire new information and form part of the hearing peer group and therefore allowed them to broaden their horizons.

e.   Metalinguistic understanding and knowledge was part of the Deaf pupils' linguistic skills. Those skills allowed further learning and an in-depth understanding of the language they studied. They were required to put an extra effort into learning German, but they also benefitted from everyday communication and contact that was fully adapted to their needs.

   The Deaf pupils developed a positive identity and enjoyed manifold possibilities of partaking in everyday bilingual school life. By Grades Three and Four they had developed sufficient vocabulary and self-assurance to try and use the German language as the language for interaction through writing. It is my opinion that in terms of the Deaf learners metalinguistic competence, positive everyday communication experiences with both Deaf and hearing children and the development of literacy skills are inextricably linked.

f.   Bilingual teaching is a challenge that requires constant and concerted efforts from all the parties involved. In the classroom studied, the situations resulting from having several languages and linguistic groups were mastered positively and creatively by all participants. The bilingual setting had no negative impact on any of the pupils; on the contrary, they all benefited to varying degrees from this bilingual context.

   The Deaf native signer assumed a crucial role in the teaching of the Deaf pupils and it is my opinion that she could not have been replaced by a sign-language competent but hearing teacher. Visual teaching included the everyday use of the manual alphabet and was clearly of benefit to the hearing children. Furthermore, in social and linguistic terms, all the participants benefited positively from the

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23.   See statements by the Ministry of Education and by the director of the National Institute for Deaf Education in: Stellungnahmen zur BürgerInneninitiative für Chancengleichheit gehörloser Menschen im österreichischen Bildungssystem.

experience. The Vienna bilingual class analysed was officially recognized and its success confirmed by the awarding of the European Label for innovative projects in language teaching 2003.[24]

It seems plausible to claim that in a bilingual class both general and individual attentiveness towards language and culture is generally heightened. All children developed the skills necessary to make the correct communication/language choice according to their interlocutor and other situational factors; the hearing children knew that they could sign with both the interpreter and the Deaf teacher. They were fully aware that they could not use spoken German – and other signals, such as a bell – to communicate with their Deaf peers. Deaf-specific competences were developed by all the pupils and intercultural issues were resolved in a creative manner. Several of the incidents discussed above point to the fact that the hearing pupils perceived their Deaf peers not as being "deaf" but as "signing" members of the class. The hearing childrens' use of ÖGS outside the school context (as reported by some parents) is also evidence of their profound interest in using this new language. Deaf students also learned to respect the hearing pupils' sensitivity regarding noise. The range of sociolinguistic skills developed by children and adults presents a positive picture and are highly relevant to the evaluation of the described model.

On a critical note, it must be stated that the bilingual class was a one-off event extending over four years. Stinson and Kluwin's (2003) statement about the necessity of continuous bilingual programmes draw attention to the difficulties this entails:

> Co-enrolment appears to work well with dedicated and motivated staff when there are sufficient numbers of deaf students to create a viable free-standing program. Without the base of a moderately large deaf student population to continue year after year, as well as a dynamic and dedicated administrative structure, as in the Kinzie situation, these programs seem to flourish and disappear within a year or two (ibid.: 54).

In conclusion, the results of the bilingual class highlight the need for the reform of education for the deaf in Austria. Early intervention and pre-school facilities should aim to boost the children's communication skills in any language at an age-appropriate level by the time they enter school. Teacher training needs to be altered and specific teaching material for the deaf, at least for teaching L2 German to deaf students, should be developed.

As mentioned at the beginning of this chapter, the current curriculum of Schools for the deaf in Austria is under review, although the Ministry of Education has not yet published any results. Most recently, a study by Krausneker and Schalber (2007) has shown in great detail the state of Austrian deaf education in practice, by looking at the situations that deaf and hearing impaired children and students face at school and

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24. See www.sprachen.ac.at/esis.

university and by surveying and interviewing teachers, interviewing Deaf students, parents, experts and educational decision makers and analysing text material produced by the six Austrian schools of the deaf.

The recent legal recognition granted to ÖGS will probably bring about the effective realisation of language rights in addition to serving as an inspiration for change in the education of the deaf. At present, the Austrian Association of the Deaf (ÖGLB) is the sole driving force and the single official 'activist' aspiring towards this goal.

Acknowledgements

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Sign bilingualism in Spanish deaf education*

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This chapter is part of a larger research project that approaches the study of the sociolinguistic and socio-discursive changes that have taken place over the last decade in the Spanish Deaf community in the light of contact with the wider European and worldwide deaf movement. In the research presented in this chapter, the aim has been to observe these changes from an institutional perspective: (1) an analysis of the changes that have taken place in certain education centres, where oralist teaching methods have been replaced by bilingual methods and the reactions of the education authorities to such changes; and (2) an ideological analysis of political discourse on deafness by politicians and the latest publications of experts in deaf education.

Keywords: sign bilingualism, Spanish deaf education, sign language planning, linguistic minorities.

1. Introduction

> *"One never regrets knowing several languages*
> *but one can certainly regret not knowing enough,*
> *especially if one's own development is at stake.*
> *The deaf child should have the right to grow up bilingual*
> *and it is our responsibility to help him/her do so."*
> (Grosjean 2001: 114)

In previous research (Morales-López et al. 2002), we analysed how the social and educational changes that have occurred in Deaf communities all over the world in the last

few decades (Sacks 1991: Chap. 3) have influenced members of the Spanish Deaf community. In particular, we wanted to know to what extent the worldwide socio-political movement calling for a place for sign language in its own right has affected the attitudes and uses of Spanish Deaf people as members of the *Deaf community* (see also, Gras 2004, 2006; Morales-López 2008).[1] The study showed that, in the last decade, influenced by this worldwide and particularly by the European Deaf movement, deaf groups throughout Spain have been increasingly aware that their traditional means of communication really is a language, and they are beginning to organise themselves politically in order to achieve its legal status. The impact of various conferences, symposiums and meetings to discuss deaf culture and identity, together with early research into sign language has been such that the nineties can be considered as a period of unprecedented progress for this Deaf community (Gascón-Ricao 2004; Gras, this volume).

In Morales-López et al. (2002), we discussed a series of interviews held with members of two associations for the deaf in Barcelona confirming this change, although we also observed that this was still an ongoing process; specifically, this change consisted of a movement initiated by leaders within the community and teachers of sign language, but had not yet extended to all members of these associations. Indeed, one of our groups of respondents revealed, albeit indirectly, their opinions regarding this change, but failed to explicitly assume that their system of communication was in fact a real language. That research therefore reveals that their traditional system of communication began a process of conversion towards a *symbolic* instrument which they would use in order to escape from their "invisibility" (Marschark et al. 2002: 17) and achieve a certain power. In accordance with the writings of Bourdieu (1991: 37), for a group of these signers languages can be an instrument of *symbolic capital*.

My aim here is to continue with the research into the changes that have taken place within this community, but this time from an institutional perspective. I am specifically interested in analysing the reaction of national and regional authorities to the transformation of the Deaf community and one of its principal demands, namely the recognition of sign language in the education of deaf pupils (Reagan 2001: 151–152; Gras 2006). I will approach this question from two perspectives: (1) an analysis of the transformation of the linguistic model that has taken place in certain education centres, whereby the traditional oralist education has been gradually replaced by a bilingual methodology (using both sign and oral language) and the attitude of the education authorities to these events; and (2) an ideological analysis of the political discourse on deafness generated by the political authorities in office at the time our data was collected, together with an analysis of discourse published in recent years by experts in deaf education.

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1.   See the project description and the Spanish version of some of our papers in http://dspace. udc.es/community-list, and then click on "Bilingüismo lengua de signos/lengua oral".

2.   Theoretical framework

The theoretical starting point for this research comes essentially from the ethnographic tradition. Of particular personal interest is the idea that key notions such as those of *linguistic communities* and *identity* are of an empirical nature and are built up by specific communicative practices (Duranti 1997: chap. 2). As Geertz wrote (1973: 20), they do not constitute stable notions that can be explained by laws, but instead represent semiotic constructions requiring an interpretative analysis in order to reveal their various layers of meaning. However, and as Blommaert (2005: 207) points out, it is also important to realise that not all users play an equal role in their creation, as they do not all share the same status: "The capacity to enact such status identities will be unequally distributed and some people will never be capable of enacting them". It is therefore inevitable that this inherent inequality will also require us to consider notions such as *ideology* and *power* when studying the construction of *identity* (see Massone, this volume, for her position on ideology).

Turning to the issue of the constitution of the Deaf community as a linguistic community,[2] and in order to understand the underlying tensions and the conflicts that arise, as stated by Blommaert (op. cit.: 214), it is necessary to approach the study of these communicative practices at root level as we did in Morales-López et al. (2002). And, at the same time, it is also necessary to compare the discourse generated at this level with that coming from above (namely from the authorities). Only then will we be in a position to obtain an in-depth insight into the full range of intervening voices and social actors, and interpret their origin within their socio-cultural and socio-political context.

From this perspective, the contrast between the educational practices and opinions of those in positions of responsibility at the deaf schools (i.e., the ones included in this research regarding the implementation of a bilingual educational model for deaf children), and the discourse of policy makers for these issues (i.e. politicians), together with that of those considered to be experts on deafness (and who accept or reject this idea), provides us with a detailed insight into specific socio-political circumstances: a situation in which deaf people are still considered by those in power from a pathological perspective, despite their growing yet timid acceptance of the new role that sign language may play.

In the following two sections I will attempt to situate sign bilingualism within the general concept of bilingualism and the framework of Spanish bilingualism, and to show how bilingualism in deaf education is a further case of the need for linguistic planning where, in order for the desired results to be achieved, public institutions must consider it on equal terms with the planning carried out with other oral languages.

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2.   Here *linguistic community* is synonymous of *speech community*.

3.   Sign bilingualism in the context of oral bilingualism
and Spanish bilingualism

The research carried out by Plaza-Pust (2004: 150–151) into the various bilingual models that exist in European deaf education reveals the existence of a range of differing solutions in the countries analysed, including Spain. However, regardless of the nature of the variety, the analysis of this bilingualism cannot be carried out without considering the socio-political context of the country in question and its linguistic complexities (Haugen 1987: chap. 5, 8). This is of particular relevance when considering the situation in Spain over the last twenty years, due to the major ideological implications that have arisen surrounding the question of bilingualism, and by extension bilingual education (Rodríguez-Yáñez 1993: 235ff.; Rotaetxe 2002).

The term bilingualism and bilingual education in our public and semi-private[3] education system implies the existence of a minority linguistic community that claims a series of rights that were denied during Franco's dictatorship and that receives the support of certain socio-political groups in order to guarantee the continuity of a specific minority language (Bastardas-Boada 1996; Siguán 2001). The inclusion of sign language within our education system is therefore not an issue that is limited exclusively to the Deaf community, as sooner or later it will lead to the need to consider the recognition of the legal status of a new language, sign language, and its inclusion in the current panorama, by no means exempt of certain complexities. In addition, the decision by a deaf school to declare itself bilingual or not activates several ideological issues amongst the public, as it would also require a certain "redistribution" of our linguistic *ecosystem* (Calvet & Varela 2000: 62; Mufwene 2001) on an educational level. It is precisely for this reason that I have opted to focus my research on schools that are specifically classified as bilingual, as this allows for the direct association between these education practices and their general socio-political context.

A second key aspect when examining a bilingual project is to observe the role played by the languages involved in the education model. This role has determined the various bilingual models for oral languages observed in the different multilingual situations that exist throughout the world (Siguán 2001: chap. 6; Baker 2006: chap. 10; Myers-Scotton 2006: chap.12). These can be summarised as follows: (a) education systems where the teaching of L1 to pupils (normally a minority language with a low level of national and/or international prestige) is concentrated during the first years of junior education, and is later replaced by the country's official language or languages (as occurs in certain states within the USA and several African and Latin American nations) – a transitional bilingualism as Baker (op. cit.) states; and (b) models in which the teaching of L1 and L2 (one or more) occurs simultaneously or practically simultaneously from the early years on an almost equal basis (as occurs in Catalonia) or with

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3.   Certain private bilingual centres created for the teaching of foreign languages have been excluded from this model.

a slight bias in favour of one language (as occurs in Spain's other bilingual regions), and so on – a strong form of bilingualism, in Baker's terms (op. cit.).

In the case of some of these models, the inclusion of a minority language is used as an educational link aimed at improving literacy levels in the official majority language (an example of this is the presence of Spanish in the education systems of certain States in the USA with large numbers of Hispanic residents). In other cases, however, the inclusion of this minority language during part or the entire education process (where it is present to a lesser or greater degree) is based on the right that entitles all individuals or groups to develop their own culture and identity (Skutnabb-Kangas 1994). This latter case may imply the idea of contributing to the empowerment of impoverished and marginalised autochthonous communities (a situation that can be found in Latin American countries with large indigenous populations such as Peru, Guatemala, Bolivia, etc.); or alternatively represent an attempt to restore the first historically marginalised language within a certain territory and to place it on an equal footing with L2 (the State's majority language). This latter model describes the situation in Spain since the eighties, following the restoration of democracy; and therefore represents our *ideological framework* when referring to the issue of bilingualism in education. It is also the underlying context surrounding the demands made by the Spanish Deaf community in recent years, as discussed by Gras (2006: Introduction).

In all these instances of oral bilingualism, in addition to being the vehicular language (thereby extending its social functions), L1 forms an integral part of the school curriculum; pupils are therefore taught to read and write in this language and, if the teaching of this L1 continues throughout the education process, the objective is further extended to include pupils' grammatical competence in this first language. This education bilingualism thereby extends the definition of bilingualism to include both the development of pupils' communicative and grammatical competence in order to ensure that – naturally with varying degrees of success – the four basic skills of literacy (speaking, listening, reading and writing) are also achieved in L1 (Council of Europe 2001: 13ff.; Myers-Scotton 2006: 38–42).

Adding to this communicative and linguistic dimension, recent research into bilingualism in oral languages has increasingly drawn attention to the need to develop the intercultural competences associated with any bilingual process (Council of Europe 2001: 1 & 43; see also, Chick 1996; Hamers & Blanc 2000; Baynham 2003). The recommendations emphasise the need not to overlook the socio-cultural factors involved in the cognitive development of bilingual individuals, due to the impact that this may have not only on their bilingual development, but also on their intellectual and social growth. Within the scope of European plurilingual education, the Council of Europe[4] takes this objective even further by considering that this European plurilingual education must include the development of "intercultural awareness" (Council of

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4. The *Council of Europe* is one of Europe's governing bodies, made up of the Heads of State of its member nations.

Europe 2001: 103–105). Developing knowledge and understanding of the relation between the "world of the community of origin" and the "world of the community of arrival" (in terms of both the similarities and differences that may exist) leads to an awareness of interculturality and a realisation of the need to overcome the obstacles associated with cultural stereotypes: "intercultural awareness covers an awareness of how each community appears from the perspective of the other, often in the form of national stereotypes" (op. cit.: 103).

Before going on to describe the characteristics of deaf bilingualism, we shall take a brief look at the model of bilingualism in place in the Catalan education system, which represents an example of a fairly balanced exposure to the two oral languages included in the curriculum. As specified in the planning policy provided by the Department of Education of the Catalan Government at the time of data collection, during the course of a school year, the curriculum for Infant and Junior Education included 140 teaching hours for each of the oral languages and their literature; 105 hours are added to the initial cycle (3 to 8 years), and 70 hours in the case of the Middle (8 to 10 years) and Upper (10 to 12 years) cycles for the study of common linguistic structure (these normally consist of sessions in Catalan). As far as Compulsory Secondary Education is concerned, 210 hours were destined for each of these languages and corresponding literature (for the latest update of this educational model see the *Decrets 142/2007* and *143/2007*, published in the *DOGC* (*Diari Oficial de la Generalitat de Catalunya*, June 20th 2007).

In theoretical terms, Catalan/Spanish bilingualism can be considered to have achieved the highest level of equality (this parity has also been maintained in the latest legal reforms), as both languages receive the same number of teaching hours, as well as additional time dedicated to the reflection and comparison of the structures that are common to both languages. In the teaching of other subjects, Catalan is the most commonly used languages, as it represents the vehicular language for the entire period of compulsory education. Indeed, this bias discriminates against Spanish, and has been the object of constant criticism from certain social/political groups (details of the most recent of these are available on the following web site: www.ciutadansdecatalunya.info).

Considering that rights correspond to people, and not territories, the *Ciutadans de Catalunya* Association defends the notion that both languages form part of the heritage of the people of Catalonia, and that their equal consideration at the institutional level would represent an example of tolerance and mutual respect between these two communities, and contribute to reduce the widely spread association of low working class with Spanish in the Catalan society.

However, those defending the current educational model, inspired by the nationalist ideology that gives priority to the territorial adscription of language, consider that Catalan is the original language of that region, and therefore constitutes *their language*. In addition, they resort to the argument of the social inequality of the two languages in order to justify the majority presence of Catalan in the education system: the Catalan/Spanish contact situation is not a case of horizontal bilingualism (whereby the

languages enjoy a position of social equality), but is instead vertical (where one language is more powerful than the other). This is because Catalan, despite enjoying considerable prestige within its own territory, remains a minority language at the international level, whilst Spanish is the official language of a state and is undergoing constant international expansion.

In a paper devoted to the revision of the language planning models implemented in the last decades, Heller (2002) provides a critical analysis of the linguistic politics on which the current Catalan model is based (according to her, it is completely equivalent to the one in Québec, that she has researched for many years). She considers that this model is still dependent on the nation-state ideology, where languages are used as mechanisms of exclusion, because they are perceived as entities with clear borders and legitimized by a biological ecology (op. cit.: 178ff.). In her latest research of the Catalan case, Woolard (2005: 19) confirms how these linguistic politics have, in fact, excluded young working-class immigrants. These results show that the philosophy of the current educational system needs to be revised in order to resolve the problem of these citizens' linguistic inequality.

Despite this political controversy (whose in-depth explanation would exceed the limits of this chapter), from the point of view of the educational base actors (i.e., the different teacher groups), the ultimate objectives of this current model continues to be that to guarantee fluency in both languages and awareness of their respective cultures by the end of the school period (Siguán 2001: 127).

A comparison of sign bilingual with oral bilingual models (i.e., the one described for Catalonia) shows that sign bilingualism is in a unique position due to the fact that it is derived from hearing loss. Moreover, in most cases this pathology is not inherited genetically, and therefore it is still common for this type of deaf pupil (especially those coming from underprivileged family environments) to access the education system without any prior knowledge of sign language and with deficiencies in their knowledge of the family's oral language.

Likewise, the visual-gestural nature of sign languages means that they do not have a widely accepted writing system for use in work on literacy development; to date, the range of transcription systems in existence have been used almost exclusively for research purposes (*Signwriting*, *Hamnosys*, etc.). Consequently, deaf pupils are taught to read and write in the corresponding oral language, and, in most cases, embark on the learning of the written system of this oral system before having completed the process of acquiring oral competence (Chamberlain & Mayberry 2000: 239).

However, as far as formal characteristics are concerned, sign languages do have a grammar and discursive organisation on a par with those of oral languages.[5] In this respect, the formal acquisition of these aspects within the education system should coincide with that of oral languages, because, and as discussed above, the objective of

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5. The University of Hamburg offers the best electronic bibliography in Sign Linguistics: www. sign-lang.uni-hamburg.de/bibweb.

a bilingual model is to acquire both communicative and grammatical competence in the languages involved. In addition, in those countries where the Deaf community represents a developed and cohesive segment, thanks to the tradition of grouping them in schools and the proliferation of traditional deaf associations (Sacks 1991; Plann 1997; Morales-López et al. 2002; Gascón-Ricao & Storch de Gracia y Asensio 2004), cultural manifestations have also appeared as an inherent part of the linguistic community. As a result, this type of bilingualism also requires an intercultural dimension: deaf people live in hearing communities and therefore form an integral part of them (most of them within their own families, where they feel a strong sense of belonging), yet they also need to develop the creative side of their other cultural dimension, that associated to a visual-gestural model (Massone et al. 2003).

4.   Sign bilingualism and language planning

The need to lay down the objective of bilingualism in deaf education also leads us to a more general reflection regarding the role of bilingualism in the world and education in general, together with that of the involvement of public institutions in language planning. Furthermore, these objectives must be situated within the wider issue of the role played by the various languages in the world's linguistic "ecosystem" (Haugen 1987). Language planning in any education system cannot overlook the functions of each of the languages involved; functions which at the same time are the local and global product of both history and socio-economic processes (Calvet 1993, 2004; Chaudenson 2000; Heller 2002).

As discussed above, appealing to linguistic rights in order to justify bilingualism for the deaf represents a priority justification for the Deaf community in Spain. Also mentioned earlier is the fact that this is the ideological framework on which its arguments in favour of bilingualism are based in our socio-political context. However, in the case of sign language, there is a fundamental difference. The recognition of minority languages in Spain was sustained essentially on a principle of territoriality; indeed, Article 3 of the Spanish Constitution states that together with Spanish, the Catalan, Basque and Galician languages are co-official languages within their respective territories, seen as means of restoring rights which were previously denied to them.

However, sign language is not a territorial language; nor is it transmitted mainly from parents to children (Hugounenq 2005: 1); factors which may result in the contradiction whereby families that defend their minority language (e.g., in Catalonia), oppose the recognition of sign language. Despite this, it is equally true that the first association for the parents of deaf children to defend bilingualism in Spain (www.apansce.org) was an initiative set up by bilingual families (Catalan–Spanish) resident in Barcelona. Their awareness of oral bilingualism led them to acknowledge the advantages of sign bilingualism for their deaf children.

Even so, the non-territorial nature of sign language may represent, both in the context of Spain and other sociolinguistic circumstances to be found around the world, a powerful argument for slowing down and even hindering the development and maintenance over time of a fully bilingual education model, which, as with all projects of this type, is costly in financial terms for any State. In the light of these difficulties, bilingual education for deaf pupils must also fulfil more practical social functions designed to assist its users in their daily lives, as occurs with a territory's oral languages. As stated by Calvet and Varela (2000: 52ff.), *politically correct discourse* that defends the equality of the world's languages (regardless of the number of speakers) fails to correspond to the world's socio-political reality. In western countries with a considerable level of development, this has been the principal argument used in the defence of minority languages, despite the fact that in certain countries appealing to this argument is of no use at all. Indeed, for thousands of people living in poor countries and regions, their minority languages are not always a useful tool in order to survive in an environment where escaping from poverty is their sole objective. The result of this situation is that either consciously or unconsciously, these languages are abandoned in favour of others that will increase their chances of survival (Mackey 1980; Hornberger 1988; Mühlhäusler 2000: 354, 358; Rodríguez-Neira 2002–2003);[6] in such circumstances, the continuous outcries from linguists lamenting their disappearance (Hagège 2000) have little or no effect (Blommaert 2001). Languages fulfil a series of functions for both their users and the political powers, and therefore these contextual conditions must also be considered in any realistic form of language planning. And besides this realistic position, according to Heller (2002: 181), we would also need to take into account the real sources of this social inequity and the linguistic practices that still reproduce this inequity.

In this light, the inclusion of sign language/oral language bilingualism in a country's education system may be considered appropriate for the purpose of guaranteeing linguistic rights and therefore as a means of contributing to the empowerment of the Deaf community. However, in addition to this, and for some perhaps most importantly, this sign language must also fulfil another crucial function for deaf pupils: that of improving their level of literacy from the perspective of their linguistic competence in the corresponding oral language (mainly the written language) as well as their meta-cognitive development. It is important to consider this latter function particularly in those countries where no general consensus exists regarding the most suitable method of education for this group. Indeed, this is the case of Spain, but also that of other sociolinguistic circumstances (Plaza-Pust 2004), some of which are discussed in this book.

Finally, in our attempt to situate deaf bilingualism within the context of general bilingualism, a further issue that needs addressing is the fact that in any country,

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6.   The latter reference is a summary of the research already published in the following three books: Fernández Rodríguez, M. A. and Rodríguez Neira, M. (eds.) 1994. *Lingua Inicial e Competencia Lingüística en Galicia* (vol. I); 1995a. *Usos Lingüísticos en Galicia* (vol. II); and 1995b. *Actitudes Lingüísticas en Galicia*. Vigo: Real Academia Galega.

language planning is initiated and developed by the authorities (Fishman 1974: 9; Wiley 1996), and its success depends on the ability of these political institutions to group and involve the various actors affected. This is an example of the *in vivo* planning discussed by Calvet (1987: 108). Traditionally, language teaching for the deaf was left to the education institutions, although deaf people were not included as actors in the planning stages (today this would be termed as *in vitro* planning, op. cit.). However, in this new phase in deaf education towards which we would appear to be heading (Plaza-Pust 2004), that of bilingual education, there is a danger of the same errors being repeated if we fail to realise that the initiative must always come from the Government (a top-down model), as they are the guarantors for the education of the population, whilst at the same time ensuring that each of the various actors is involved: in this instance the deaf users, the pupils' families, the teachers directly involved in bilingual education and researchers into bilingualism. If any of these links in the chain is missing, then this highly complex bilingual model may break down or fail to fully meet all expectations, as will be shown below.

5.   Data collection

The methodology used for this phase of the project consists of qualitative research carried out during the course of the 2003/04 academic year in schools for deaf pupils that have explicitly adopted the *bilingual mode* of sign language and oral language;[7] these consist of several centres in Barcelona and Madrid where this method was implemented during the course of the nineties (see Table 1 for the summary of the socio-educative characteristics of these centres).

More recently, other Spanish cities have also begun to implement this method. In addition, a number of schools in various cities use sign language as support tool for the education of the deaf, despite the fact that officially they apply an oralist methodology or mainstreaming education. However, due to the recent nature of these initiatives, I have opted not to include them in this work as it can be assumed that they are unable to contribute any significant new data to my research; namely the analysis of the bilingual model implanted in certain schools and specified in their curriculum, with the corresponding official authorisation.

Qualitative methods corresponding to the ethnographic tradition were used for the collection of data from the various schools (Duranti 1997: chap. 4). These data correspond to interviews with the bilingual programme heads: head teachers or

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7.   Throughout this paper, and for reasons of simplification, I shall refer to this education model as *bilingual* both in the case of Barcelona and Madrid, despite the fact that in the former city the situation is really that of plurilingualism, as there are two official languages (Catalan and Spanish). Similarly, I shall use the term bilingualism to refer to general cases of the acquisition of two or more languages.

programme co-ordinators; oral and/or sign language teachers, and deaf advisers; and from written documents available at certain schools on their bilingual projects. Finally, these data were completed with the presentation given by the heads of the Barcelona schools at the *Bilingual Workshop* organised by the Catalan Federation for the Deaf (November 2003), and author's participant observation in three sessions of the Oral Language Classrooms in the *Consell de Cent* Secondary School.

The second section of data is made up of excerpts from the political parliamentary debate that took place in 2002 regarding the right to bilingualism in the education of the deaf and the need to reconsider the role of sign language as a means of facilitating communication with hearing individuals. This block also includes fragments from various works on deafness published in recent years.

In the analysis and interpretation of the data, I have opted for an eclectic combination of various traditions in Discourse Analysis: these include an ethnographic perspective (Duranti 1997; Blommaert 2005), Critical Discourse Analysis (Wodak et al. 1999, Wodak 2000; Van Dijk, 1995; among others) and discourse theoreticians such as Bourdieu (1991, 2001) and Foucault (1994), among others. The various analytical and theoretical instruments provided by these various lines of research have been applied in accordance with the idea put forward by Halliday (1994: xxvi) that language systems are mechanisms that build up meaning in which the use of linguistic forms always represents a specific *choice* (the emphasis is my own). For this reason, when analysing ideological meaning it is important to highlight those elements and/or linguistic constructions that *stand out* within a specific discursive and socio-political context.

The combination of these two sources of data will enable us to achieve the dual theoretical objective described in the previous section: namely research into one of the principal demands of the Deaf community, that of the application of bilingualism in the education of deaf pupils, contrasting its actual implementation in schools and the opinions of the teachers involved with the political opinions of those in office at the time and the theoretical contribution of certain experts in the field. My aim is to show that research in this area must not be restricted merely to an internal analysis of the education system in question (as is the case of the research carried out by LaSasso 2003), but should instead be interrelated with the wider context of the socio-political situation of a specific country, and considered within the framework of the global Deaf movement. It is important to take this link between education practices and the socio-political situation into consideration, and particularly so in the case of Europe, where the issue of education for the deaf provokes a wide variety of responses, yet where in addition the prototype offered by the model adopted in Scandinavian countries (models in both oral bilingualism and sign bilingualism) is a constant reference in the face of any demands for improvements to the sign bilingualism model.

Table 1. (a) Centres in Barcelona

Centres	Forestier School and Tres Pins School	Consell de Cent Secondary School	Josep Pla Special School	Cras Sabadell Special School[8]	IES Sabadell Secondary School
Type of centre*	Two municipal centres, one next to the other.	Public centre.	Public centre specific for deaf pupils.	Public centre specific for deaf pupils.	Public centre.
Level of education	*Forestier* School: Infant Education (0–3 yrs.). *Tres Pins* School: Primary Education (4–12 yrs.).	– Mandatory Secondary Education (13–16 yrs.). – Optional Secondary Education: (17–18 yrs.).	– Infant and Primary Education. – Mandatory Secondary Education for students with adapted curriculum.	– Infant and Primary Education. – Mandatory Secondary Education for students with adapted curriculum.	– Mandatory Secondary Education. – Optional Secondary Education.
Student profile	– Deaf and hearing children. – Newcomer deaf immigrant children.**	– Deaf and hearing students. – Newcomer deaf immigrant students.	– Deaf children and deaf with other disabilities. – Newcomer deaf immigrant pupils. – Newcomer deaf pupils from oralist schools.	– Deaf and other disabled pupils. – Newcomer deaf immigrant pupils. – Newcomer deaf pupils from oralist schools.	– Deaf and hearing students. – Newcomer deaf immigrant students.

Centres	Forestier School and Tres Pins School	Consell de Cent Secondary School	Josep Pla Special School	Cras Sabadell Special School[8]	IES Sabadell Secondary School
Languages in the curriculum	Sign Language, Catalan and Spanish.	Sign Language, Catalan and Spanish.	– Adapted curriculum if necessary. – Sign Language and Catalan or Spanish depending on the family language.	– Adapted curriculum if necessary. – Sign Language and Catalan or Spanish depending on the family language.	Sign Language, Catalan and Spanish.

*   In the Spanish context, the various types of school are as follows: (a) "Public School" means a centre dependent of the regional Government; its teachers are regional Government employees; (b) "Semi-private School" (*Centro concertado*) is a private school, although financed by public funds; and (c) "Municipal School" is a public centre run by the City Council.

**   In certain countries mentioning the case of new immigrant pupils would be of little relevance; however, in our context this is a new phenomenon that has appeared over the last few years.

8.   Sabadell is a city next to Barcelona, although located in the province of Barcelona. So in this paper, depending on the context, I will refer to Barcelona in either of its two senses.

Table 1. (b) Centres in Madrid

Centres	Piruetas School	El Sol School	Instituto Hispanoamericano de la Palabra Special School	Ponce de León Special School
Type of centre	Semi-private centre.	Public centre.	Semi-private centre specific for deaf pupils.	Semi-private centre.
Level of education	Infant Education.	Infant Education and Primary Education.	– Infant and Primary Education. – Mandatory Secondary Education for students with adapted curriculum.	– Infant and Primary Education. – Mandatory Secondary Education with or without adapted curriculum.
Student profile	Deaf and hearing children.	Deaf and hearing children.	– Deaf and deaf with other disabilities children. – Newcomer deaf immigrant pupils. – Newcomer deaf pupils from oralist schools.	– Deaf and deaf with other disabilities students. – Newcomer deaf immigrant pupils. – Newcomer deaf pupils from oralist schools.
Languages in the curriculum	– Balanced Sign Language/ Spanish bilingualism. – Adapted curriculum if necessary.	– Sign Language and Spanish. – Adapted curriculum if necessary.	– Sign Language and Spanish. – Adapted curriculum if necessary.	– Sign Language and Spanish [bilingual education in progress]. – Adapted curriculum if necessary.

6.   Description of the bilingual methodology.

As has already been mentioned, one of the objects of this phase of our research was to determine how the bilingual method has been implemented in the schools listed in Table 1 above. The aim was also to assess the degree of bilingualism achieved in comparison with other more consolidated bilingual models for both sign and oral languages. According to Reagan (2001: 164), assessing any language planning measures is precisely the most frequently overlooked aspect of processes of this nature.

For the purpose of highlighting the most relevant data in this respect, I have chosen to divide them into two sections, one for Primary Education and the other for Secondary Education.

6.1   The bilingual model in Primary Education

In describing this model, I have also opted to consider the following variables: (1) the type of curriculum used in the school; (2) types of teachers involved in the pupils' education; (3) function of the sign language in the curriculum; (4) training of the teachers involved and the education materials available; (5) teaching of oral languages; (6) supportive communication systems used; and (7) teacher attitudes to the bilingual method.

6.1.1   *Standard or adapted curriculum*
At the time the data was collected, the schools analysed made a clear distinction between the standard curriculum and the adapted version (the latter was only accepted in Special Schools), pursuant to the Education Act in force at the time the data was collected (*LOCE*, December 23rd, 2002; a more detailed explanation of this Act is provided in section 8). With the first type, deaf pupils receive practically the same programme of study as hearing children (despite a series of differences which will be referred to later); whilst in the second case, considerable changes are made to the curriculum, either because the pupils have an additional disability, or because they have obtained unsuccessful results from an oralist model, or because they are immigrants who have entered the education system at a later stage, and therefore do not have sufficient knowledge of the sign language and/or the oral language.

In addition, the schools in Barcelona with an adapted curriculum may also create a further division for deaf pupils: groups in Catalan or in Spanish, depending on the language used by the family. In the case of immigrants, they opt for Spanish; if the immigrant child progresses rapidly, then he or she is transferred to the standard curriculum model (this is the case of a female Russian pupil at the *Josep Pla* School, who acquired a fairly high level within a short period of time following her arrival as she had a prior knowledge of Russian sign language).

6.1.2   *Teachers involved in the education of deaf pupils*
The various schools include the following categories (their distribution in each of the centres may be a little different depending on its needs):

1.   Qualified hearing teachers fluent in sign language.
In the case of the schools in Barcelona, Sabadell and El Sol in Madrid, the process of hiring these teachers is the same as for other public schools for hearing pupils (a public examination convened by the regional administration, with a panel of examiners made up of a group of practising teachers selected at random); this means that a new teacher may arrive at the school with no prior knowledge of sign language. This is not the case of three of the four schools visited in Madrid (*Piruetas*, *Hispanoamericano de la Palabra* and *Ponce de León*), as these are semi-private establishments that are free to hire the teachers of their choice and may therefore specify a knowledge of sign language in the job profile. In some of these schools, the question of the linguistic competences of the staff with a limited knowledge of sign language already under contract remains pending; at the time the data was collected this was the case of the *Ponce de León* School.

2.   Qualified deaf teachers.
Only *Forestier, Tres Pins*, *Josep Pla* and *El Sol* have deaf teachers who are qualified in Teaching and Speech Therapy. *Forestier* has a deaf teacher who divides her time between this school and the lower years at the Tres *Pins*; similarly, the second deaf teacher at *Tres Pins* (who is responsible for the upper years) also works at the *Consell de Cent*.[9] *Josep Pla* and *El Sol* each have a qualified deaf teacher. As these teachers hold the qualifications necessary to teach in Primary and Junior Education, they are able to teach the full range of subjects, although in practice they teach sign language and provide support for deaf pupils.

3.   Speech therapists.
In oralist schools their main role has traditionally been oral speech rehabilitation of deaf pupils. However, in the bilingual centres mentioned (the ones with standard curriculum and special schools during the whole period of compulsory education), they may perform educational duties using sign language as the language of instruction as well (their level of sign language is very high because most of them have been studying or/and working as sign interpreters). They can be co-tutors of deaf pupils in a class with both deaf and hearing children, oral (written) language teachers of deaf students or teachers that individually attend deaf pupils who need special support in a particular topic (maths, written language, etc.). Despite this educational role, they have a different professional status, superior to school teachers; in Barcelona they depend on the *CREDAC* 'Educational Resource Centre for the Hearing Impaired' and in Madrid on

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9.   These deaf teachers from *Forestier* and *Tres Pins* are not employed directly by the school, but by the CREDAC *Pere Barnils.* CREDAC means 'Educational Resource Centre for the Hearing Impaired'.

the *Equipo de Profesionales de Sordos* ('Professional Groups for the Deaf'); there is one of these centres in each county of both Barcelona and Madrid provinces.

4.   Deaf advisors.

They are unqualified deaf persons with an extensive knowledge of sign language. With the exception of *Cras,* this figure exists in all the schools. These advisors accompany the qualified hearing teachers in the classroom and provide them with all the help and assistance they may need. Their main function is to ensure that the children acquire an optimum level of sign language and that they have a deaf role model. Training of these deaf advisors is carried out by the corresponding Associations for the Deaf.[10] At the *Cras* School, instead of a deaf adviser, they employ a deaf monitor who accompanies the pupils on the school bus and in the dining room, and who helps the teachers at the schools with a range of afternoon activities and tasks; the absence of the deaf adviser at this school is also compensated for by the presence of a bilingual hearing teacher, the son of deaf parents.

6.1.3   *Sign language on the curriculum*

If, as we have already mentioned, these schools have opted to call themselves centres for bilingual education, one of the aims of my interviews was to obtain data regarding the role assigned to sign language and the time spent to teaching it.

In all cases sign language is the principal means by which deaf children receive information; it is therefore clear that it is the *vehicular language* in both teaching and internal communication at the school. In those schools with both deaf and hearing pupils, the classrooms have two teachers, one who teaches in the oral language, and another who acts as a co-tutor and who always addresses the pupils in sign language.

As for the amount of time specifically spent on sign language teaching, in the majority of cases this is limited to two hours (or sessions) a week, with the exception of the *Forestier* School (four hours) and *Tres Pins* (four hours in Infant Education, but only three in the case of Primary Education; one of these is taught outside school hours by a deaf adviser contracted privately by the PTA –Parents Teachers Association).[11]

According to our respondents, the objective of these classes is to enable deaf children to become fluent in this language by the time they have completed their schooling. However, and in the opinion of several of the teachers at these schools, the fact that the time dedicated to this activity is so limited means that there is little time for critical linguistic reflection; and if the child suffers any other type of additional disability, then this reflection simply fails to take place, as the teachers' main objective in these cases is to ensure that by the end of their schooling the pupils have acquired communicative competence in at least one language.

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10.   The legal bases for the figure of the deaf collaborator are given in *El Libro Blanco* ('The White Paper') (2003: 30ff.).

11.   The name of this association in Spanish and Catalan is *AMPA* or *Asociación de madres y padres de alumnos / Associació de mares i pares de alumnes.*

The case of the *Piruetas* School is different as it dedicates the same number of school hours to sign language as to oral language; this school is also the only one to have hired two interpreters to ensure that all activities involving deaf people (teachers' meetings, parents' evenings, etc.) are carried out simultaneously in the school's two languages.

6.1.4   *Training of the teachers involved and education materials*

With regard to the training of the teachers who are most directly involved with the bilingual projects, it must be said that none of the teachers have received specific training in bilingualism or in second language acquisition and methodology, or have received ongoing training in sign language linguistics (with a small number of exceptions). Generally speaking, their grammatical knowledge of sign language is limited to that received during the sign language classes taught by deaf teachers, which did not deal in any depth with the structural features of this language.

Several of the (deaf and hearing) teachers interviewed at the schools stated that the contrastive analysis they occasionally make between the oral language and the sign language is based to a considerable degree on intuition. Very few of them are in contact with or participate in the various sign language research groups that exist. Nevertheless, several of them have travelled abroad to learn about other bilingual experiences and are creating their own teaching methods and materials (see Ardito et al., this volume; Yang, this volume). Exceptionally, a small number of teachers have learnt to create written glosses, which they use to transcribe the sign language texts they work on with their pupils; using this method they teach their pupils (particularly those in the upper years of Primary School) to compare the grammatical and discursive differences between sign language and oral languages. However, several teachers admitted that they have a considerable number of gaps in their knowledge, and they consider their linguistic training to be insufficient in order to enable them to cope with their day to day teaching requirements.

6.1.5   *Teaching the oral languages included in the curriculum*

In Madrid, the oral language in schools is Spanish; whilst in Barcelona, Spanish and Catalan are used; this constitutes a real situation of trilingualism in the teaching of deaf children, except in the case of those pupils who are taught the adapted curriculum. Furthermore, in both Madrid and Barcelona, and depending on the level of the corresponding group, the number of oral languages taught at Primary level may also include English (to a varying degree of competence), although this is not always the case.

Sign language is always used as a support tool in the teaching of oral language or written oral languages. This is in order to ensure that the pupils fully comprehend the explanation of the corresponding phenomenon. Also, and in order to reinforce the spoken oral language, the teacher pronounces and signs simultaneously; the result of this is that throughout the class both sign language and the contact variety are used (within the bimodal-signed oral language *continuum*) as the simultaneous use of

speech and sign almost always results in a signed version that is closer to the structure of the oral language (Lucas & Valli 1989, 1992).

In addition, each child spends a certain number of hours with a speech therapist, who is not the same person that teaches the written oral language. During this time, attention is paid to the individual level of each pupil in the spoken oral language. One of the teachers interviewed commented that the learning objective in these classes (the group written oral language classes and the individual speech therapy classes) differs: in the former, the most important thing is to learn the structural organisation of the message in order to facilitate the production (both oral and written) of grammatical phrases and the comprehension of information, whilst in the latter case the principal aim is voice rehabilitation.

6.1.6   *Supportive communicative systems for the teaching of the oral language*

In order to facilitate the learning of both the spoken and written oral language, the teaching staff resort to a variety of communicative methods that have traditionally been applied to deaf education (namely, fingerspelling, signed systems, cued speech, etc.). It is common practice at the schools in Barcelona to fingerspell the corresponding oral word using the fingerspelling alphabet as this both helps with comprehension and reinforces the spelling of that word in the oral language as well as increasing the pupils' phonological and syllabic awareness (in the latter case, the rhythm used in the fingerspelling process is adapted to enable the pupil to perceive the syllable as a unit of the oral word). However, fingerspelling is less used in the schools in Madrid, which choose instead cued speech (Torres-Monreal et al. 2000; Domínguez et al. 2003).

In Barcelona, a contact code is used that the deaf teachers refer to as *Signed Catalan* or *Signed Spanish* in order to explain sentence word order and the basic principles of discourse cohesion in oral language; in other words, a signed variety that respects the order of the corresponding oral language.[12] When explaining more complex texts, several teachers provide texts in written sign glosses.

In two schools in Madrid, explanations about the organisation of oral and written texts are given using *cued speech*. Therefore, when a grammatical element appears in the textual explanation of the oral language that does not coincide or appear in sign language (normally functional words), it is pronounced using the complemented word technique. Little or no use is made of the S*igned Spanish* variety or written sign glosses. However, in another of the schools, both Signed Spanish and cued speech are used, especially when the children are hard-of-hearing or cochlear implanted; if the pupils are profoundly deaf, then the use of sign language prevails.

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12.   References in this section to the use of signed oral language as an educational strategy mean their deliberate use as a communicative resource; however, references in the previous section to the use of signed oral language correspond to their spontaneous (and occasionally unconscious) appearance in communication, a phenomenon that also occurs in communication between deaf people.

When the Madrid-based teachers are asked what they understand by the term *bimodal* (the commonly used term in our context to refer to this contact variety), they respond that it refers to the combination of Spanish and sign language; however, at the Barcelona schools, two of the deaf teachers we interviewed rejected the use of this variety, claiming to prefer instead another mode which they refer to as s*igned oral languages* (*Signed Catalan* or *Signed Spanish*, depending on the oral language mouthed) or *signing exact oral languages*. When I insisted on the difference between *bimodal* and s*igned oral language*, the responses I received were varied: (a) the use of the term *bimodal* should be avoided due to its negative connotations, and it is therefore better to use *Signed Catalan* or *Signed Spanish*; (b) *bimodal* corresponds to *Signing Exact Spanish*; the difference between Signed Catalan (or Signed Spanish) and Signing Exact Catalan (or Signing Exact Spanish) is that the latter includes the signs of the morphosyntactic units of the corresponding oral language (prepositions, conjunctions, etc.); or (c) *bimodal* is closer to the structure of Spanish.[13]

Their answers therefore reveal that they do not consider these resources as mere teaching resources, but instead the use of one or the other system has certain ideological implications: the rejection of varieties that are considered to have been contaminated by the oral language. As we pointed out in Morales-López et al. (2002), the teaching of the deaf in Catalonia was traditionally carried out in Spanish, with Catalan being entirely overlooked. This may explain the negative attitudes expressed in certain responses towards the *bimodal* option (always associated with Spanish), and the fact that the tendency is to replace it with a structural version that is closer to sign language (Signed Catalan or Signed Spanish). This negative attitude was not observed in the responses of the Madrid-based teachers.

6.1.7   *Attitudes of the teaching staff to the bilingual method*
Finally, and in response to the question regarding the linguistic competence of deaf pupils on completion of their primary schooling, the unanimous opinion is that by the end of this period practically all the pupils are fluent in sign language communication (i.e., a level of full communicative competence is obtained in L1).

In the case of oral written language the level is low; and even in the case of those deaf children who reach a fair level of proficiency, it is never comparable to that of hearing children. As one of the respondents pointed out, the principal challenge facing these schools in the future lies in finding the methodology that will enable children,

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13.   To date, no research has been carried out on these contact varieties; this means that we are unable to determine the extent to which the terminology used by the teaching staff (of which I have taken careful note and which has been duly translated into English) corresponds to that used for other sign languages (LaSasso 2003: 79). We don't know either if there is any grammatical difference between what teachers call Signed Catalan and Signed Spanish, except for the mouthing of the Catalan and Spanish words.

who complete their schooling with a high level of signing, to also become proficient at reading and writing.

As far as oral language production is concerned, the teachers' response is that levels of proficiency vary considerably among pupils. Some reach an acceptable level and are able to make themselves understood, whilst others are unable to do so. However, in the case of lipreading the results are better.

6.2   The bilingual model in secondary education

In the Spanish education system, Secondary Education includes an initial four year period (Compulsory Secondary Education between the ages of 13 and 16), plus a further optional two year period (the *Bachillerato* from 17 to 18). As this initial phase is compulsory for all, those students requiring a considerable degree of modification to the standard curriculum must attend Special Schools.

In the case of the standard curriculum in Compulsory Secondary Education, we encountered various differences between several schools in Barcelona (*Consell de Cent* and *IES Sabadell*) and the Madrid school *Ponce de León*. The model used in the two Barcelona schools coincides as they are both public schools; we have therefore opted to include only the data corresponding to the former school, which we have contrasted with the details obtained from the semi-private *Ponce de León* School.

6.2.1   *Consell de Cent Secondary School (Barcelona)*
At this school, the group of deaf students is mixed with hearing pupils. Those lessons where considerable amounts of information are transmitted (e.g., Social Sciences) have two teachers, a hearing teacher and a speech therapist who acts as a support teacher (or co-tutor). The former does not always have knowledge of sign language because in these state-run centres, there are no special conditions for hiring teachers unless they are specifically for support purposes. The speech therapist always communicates with the deaf pupils in sign language; her mission is to explain the contents of the class in sign language, adapting them when necessary to guarantee an optimum level of comprehension, as well as to monitor the students' progress outside the classroom.

The difference between the functions of a co-tutor and an interpreter is that the former may adapt the tutor-teacher's explanations in accordance with the pupils' needs; in other words, instead of merely interpreting, he or she would take on a more active educational role. During the course of a debate I attended as an observer, most of the deaf students stated that they preferred the presence of the co-tutor to that of the interpreter as with the former they were able to interact about the educational contents of the class and adapt them to their needs; the interpreter, on the other hand, would not be able to carry out this task.

In the case of other subjects that do not require such an extensive use of oral language (mathematics, drawing, etc.), the co-tutor does not have to be a speech therapist (at this moment, the most highly specialised professional in deafness and the most

fluent in sign language), but can instead be another teacher from the school with a certain degree of fluency in sign language. As for the teaching of a foreign language (specifically English), this may be eliminated in the case of certain groups of student, despite the fact that the *Consell de Cent* is a school with a standard curriculum; however, on occasions, it is the students themselves who demand coaching in this subject.

The pupils come mainly from the *Tres Pins* School, although there are some from other districts of Barcelona and other oralist schools. As the district is home to large numbers of immigrants, in recent years the school has also received foreign students of varying ages with practically no knowledge of either the signed or oral languages used in the education system (sometimes they are not even competent in the family's oral language). Therefore, and despite the fact that the school is supposed to receive deaf children able to follow the standard curriculum, this is not always the case. The communicative levels of the deaf children vary considerably, and therefore on occasions the contents of the subjects have to be adapted to this unforeseen diversity.

There is no specific teaching of sign language, and therefore the role of this language is that of the vehicular teaching language in which information is transmitted and received. In the lessons used for the teaching of oral languages (Catalan and Spanish language and literature), the deaf students are separated from the hearing pupils and are taught by the corresponding speech therapist. Up until the 2003/04 school year, this separation was organised according to years, but from that period on, the students were streamed according to their level, and a slight curricular adaptation was introduced into these subjects (mainly with regard to the selection of the literary texts).

In these oral language classes, the teachers use sign language in order to provide the corresponding linguistic explanations, and occasionally to contrast the structures of each language, despite the fact that they believe that this still relies too heavily on intuition. Furthermore, and in view of the fact that at this stage of their education the pupils no longer receive private tuition from the speech therapist, the oral language teachers are aware that their workload has doubled: they are not only required to teach the written form of the corresponding oral language, but also have to continue with the rehabilitation of the spoken oral language. As a result, they tend to sign and speak aloud at the same time, which means that at certain times during the lesson, the sign language variety used is signed oral language instead of actual sign language. Consequently, these contact varieties are always present in the classroom, just as we mentioned in the description of Primary Education.

Pupils who successfully complete their Compulsory Secondary Education and who wish to obtain their secondary school diploma, the *Bachillerato*, go on to classes where the teacher is accompanied by an interpreter, whose fees are funded by the Catalan Government (at this stage the figure of the co-tutor disappears in these bilingual schools). At the time of our research, interpreters were available for practically all the hours deaf pupils needed; each deaf pupil is entitled to 10 hours, and as at that time the number of deaf students registered at the school was quite high, interpreters were available for practically all subjects – a situation which may not occur if the number of

deaf students falls, and which would mark a return to a situation of oralism in a supposedly bilingual school. In the oral language classes, they are separated from the hearing students as during the Compulsory Secondary Education period, with a slight adaptation in terms of both the language and literature programmes. The oral language teachers at this level are also speech therapists, and therefore possess a high level of sign language competence.

This bilingual model at the two levels of Secondary Education began as a pilot scheme in the mid-nineties and has gradually been adapted with the specific authorisation of Catalonia's Department of Education, despite the absence of a specific legal framework. At the time our data was collected (the 2003/04 school year), negotiations with the aforementioned Department had failed to obtain the introduction of specific sign language teaching hours. However, in November 2003 a pilot scheme was set up whereby one of the deaf teachers from the *CREDAC* – Educational Resource Centre for the Hearing Impaired – (who also teaches at the *Tres Pins*) began teaching sign language two hours a week to all students.

In general terms, the intuitive overall appraisal of this school's management team is that the pupils are cognitively better prepared than with the oralist method. They also highlight the presence of other social factors in this pupils, which they consider to be extremely positive: these include an increase in their self-esteem (they see themselves as forming part of a social group instead of individuals with a specific pathology), and the satisfaction they feel at the fact that their language and specific problems have been included within the formal education scope.

6.2.2 *The Ponce de Léon School (Madrid)*

At the time of my visit this school was undergoing the reorganisation of its Compulsory Secondary Education, including both hearing and deaf pupils in the same classroom, in accordance with a model of integration for deaf and hearing students similar to that adopted by the *Consell de Cent* School

With regard to teacher distribution, each classroom has a qualified tutor who uses the *bimodal* method (or Signed Spanish). In addition to the qualified teacher-tutor, a support teacher is assigned to each classroom and there are also support teachers on duty in school. These support teachers are qualified *Hearing and Language Teachers* (one of the areas of specialisation for qualified Primary School teachers). We were informed that they have explicitly rejected the use of the interpreter, as they feel this may upset the rhythm of the class; one of the reasons given is that as the interpreters are not specialised in the subjects included on the curriculum, the students may not receive certain information.

The hearing and deaf pupils remain together in the same class to receive oral language lessons in which both groups follow the same programme, although on occasions the texts are adapted. The level is low because this is a working class district that is currently receiving large numbers of immigrants with limited language skills; a situation and background similar to that of the *Consell de Cent* School in Barcelona.

Sign language is not included as a specific subject. At the time of the data collection, the teachers of the various subjects were currently learning this language, although those qualified to teach oral language are also qualified interpreters and therefore have a high level of competence in sign language.

The overall assessment of the school's management team is that the teaching staff have reacted well to the gradual implementation of the bilingual model (despite its oralist tradition) and have adopted an extremely positive approach towards the need to improve their level of sign language. They are satisfied with the advice they have received in designing the curriculum from the psycho-pedagogues from the *Equipo de Profesionales Sordos* (the centre that co-ordinates the education of deaf students in the Madrid area, the equivalent of Barcelona's CREDAC referred to earlier), although they feel a need for further training in order to extend their knowledge of bilingualism and Sign Linguistics.

7.   Data interpretation: An appraisal of the bilingual project described

When appraising the bilingual model implemented in the schools described above, together with its degree of implementation with regard to other more consolidated bilingual models, the following aspects will be taken into consideration: organisation of the *curriculum*; the situation of research into bilingualism, teacher training and the design and development of educational materials; and the debate on the role of sign language compared with the use of contact codes and other artificial codes.

7.1   Curriculum organisation

As was mentioned in section 2, one of the key aspects in the appraisal of a bilingual project is to observe the role played by the languages included in the educational model implemented. Our data reveal that the organisation of the language curriculum in the schools for deaf students analysed (with the exception of the *Piruetas* School, as we will see later on), is marked by a move away from the oral bilingual models described, a phenomenon which is even more in evidence in the case of the Catalan educational model, where most of the deaf schools we looked at were located.

Sign language is only considered to be a specific subject in Primary School Education. However, this is not the case in Secondary Education, with the exception of the pilot scheme at the *Consell de Cent* School, where it is taught for two hours a week (it is worth highlighting the fact that this is a recent initiative, which began in November 2003). Consequently, the time spent on the formal teaching of the structural characteristics of sign language and critical linguistic reflection is extremely limited or non-existent in these colleges. Despite this, the acquisition of sign language on a communicative level would appear to be fully guaranteed due to the fact that in the schools we

analysed it is the vehicular language for communication between deaf pupils and their teachers (if not all of them, then at least with the deaf teachers and support teachers who are always present in the classroom and for whom sign language can practically be considered their first tongue). As a result, deaf pupils acquire sign language skills naturally, and for most of them it becomes their L1, allowing them to receive the same information as hearing students in a form of interactive communication that the teachers are no longer required to adapt, in keeping with the requirements of the oralist model (Silvestre-Benach 1991).

We have therefore observed that the design of the bilingual model used in schools for the deaf includes an essential flaw in its bilingual methodology: the teaching time devoted to the development of *critical linguistic awareness* has either been reduced to a minimum or is practically non-existent; in other words, very little time is spent on explaining the linguistic characteristics of sign language in order to enable pupils to develop an explicit *critical linguistic awareness* of this language (Daigle & Armand 2004; Baker 2006: chap. 8). Consequently, and from a linguistic point of view, it could even be concluded that this is sufficient reason to claim that this is not really a bilingual model in the strictest sense of the term (compare, for example, the Quebec model described by Vercaingne-Ménard et al. 2005; or the Swedish model, in Svartholm 1993, 1997; despite their differences, in both cases sign language is a clearly differentiated object of study). With the exception of the *Piruetas* School, the Spanish model I have described could be termed as *pre-bilingual*, as will be explained below.

On the one hand, this education model achieves full communicative competence in sign language; this is further confirmed by the results of the test drawn up by Silvestre-Benach and Ramspott-Heitzmann (2003) to determine the sign language competence of deaf pupils carried out at the bilingual schools in Barcelona; this test will be referred to again at a later stage. This means that one of the most severe restrictions of pure oralism has been resolved: namely the deaf student's difficulty in receiving the contents of the class without adapting the teacher/student communication and inability to participate actively in educational activities in the same way as a hearing pupil (Cummins 2000: chap.10).

However, it fails to achieve the second objective of bilingual education (Massone et al. 2003: chap. 2): the development of a level of linguistic competence in sign language that provides pupils with a certain degree of critical linguistic awareness. The time dedicated to the teaching of sign language in Primary Education is insufficient in order to achieve this objective (this same opinion was also expressed by several of the teachers interviewed), whilst in Secondary Education, this opportunity simply does not exist as sign language is not included on the curriculum.

Consequently, the bilingualism studied in our research remains firmly rooted in the monolingual oralist method due to the fact that it essentially reduces actual language study to that of the oral language or languages. In addition, and as shall be seen later on, the teaching of these oral languages fails to explicitly recognise that their acquisition process coincides with that of second languages. Explained in accordance

with the opinions of Castorina (2003: 87), this education model, despite certain achievements, continues to represent an "educational practice that tends to present oralism as the only acceptable resource, which confuses language with oral language".

As we have already mentioned, only one of the Madrid-based schools we studied – the *Piruetas* Infant School – has a fully implemented bilingual model (even for hearing students). At this school, the bilingual curriculum corresponds to a fully bilingual programme, as 50% of the teaching is in sign language and 50% oral language for both deaf and hearing pupils. Besides, both are vehicular languages in this centre, as all formal communicative activities include an interpretation service. The school's philosophy places particular emphasis on its bicultural nature, acknowledging that a language is always associated with a social group with its own cultural experiences. However, the impact of a project such as this on deaf pupils is limited as this school is only for children aged between 0 and 3; once they reach this age, deaf children have to continue their education in one of the other schools we have studied in Madrid (where the bilingual model is not used so extensively) or at a normal school with oral education system. This bilingual model is therefore cut short at a crucial moment for the linguistic development of the deaf child, in a clear example of a lack of educational coherence.

7.2   The situation of research into the bilingual model adopted, teacher training and the design and development of specific educational materials

The only research project into the bilingual model known to us is that carried out at the request of the Catalan Government by Silvestre-Benach and her team as part of a larger project to assess the psychological and linguistic development of deaf pupils in Primary and Secondary Education (Silvestre-Benach & Ramspott-Heitzmann 2003); this project covered all the schools in Catalonia, including the Barcelona schools that are part of our research. The specific objectives described in the research report were to observe the psychic development in relation with the type of education model used: oral education and bilingual education (op. cit.: 5); and also to analyse the level of linguistic development (production and comprehension) in the oral language, sign language and written language (in the case of the oral language, we can assume that this refers to Catalan, although no specific mention of which of the two oral languages included on the curriculum was the object of this research).[14]

The general conclusion of this report is not very favourable towards the bilingual model. In the first place, the authors claim that this model fails to achieve a balanced bilingual development. According to them, although the group of pupils receiving bilingual education accomplish a higher level of sign language than oral languages in the oralist method, their linguistic competence in oral language is lower. In other words, a

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14.   When assessing oral language the researchers used tests that they had already experimented with in earlier projects. As for sign language assessment, they used an adapted version of the test drawn up by Prinz et al. (1995).

comparison of the pupils' production and comprehension in bilingual education and oral education reveals that the latter group is more competent in oral language (op. cit.: 23, 28). In addition, no significant relation is observed between the pupils' acquisition of sign language and their cognitive development at any of the stages of their education; therefore, neither linguistic model offers any significant advantages in terms of cognitive development. However, major differences between the two models are observed in terms of the social and affective development both at Primary and Secondary School level. In the case of Primary Education, pupils educated using a bilingual system score higher in this social and affective category. In Secondary Education, the group following the oral model display a preference for self-definitions with negative psychic characteristics and express their worries and concerns about the future, whilst the bilingual mode group use more abstract statements in order to define themselves, such as "I am a person" (op. cit.: 26–27).

According to several of the respondents we interviewed at the schools in Barcelona, the negative response to the conclusions of this report from both the education community involved in bilingual education and the Deaf community has been enormous. Their opposition is attributable to two reasons: (a) the assessment system was imposed from above and failed to contemplate the active involvement of the schools' teaching staff; and (b) it didn´t include a number of variables that are of major importance in research of this type; for instance, there is a clear lack of socio-communicative data on the pupils researched. The plurilingual and intercultural situation that we found in these schools has been completely overlooked in this research. In our data, all the schools included pupils whose home language was Catalan, but there were also pupils who came from families who spoke varieties of Peninsular or Latin American Spanish in the home, or who came from Moroccan families, etc.

However, in my opinion, and following a careful reading of this report, I feel that the principal failing of this project is that at no time does it question the type of bilingualism that has been implemented. This is even more significant if we consider Catalonia's long-standing experience in this field. Instead, it bases its assumptions on the existence of two education models that have been fully implemented in schools with deaf pupils: the oral model and the bilingual model (op. cit.: 4). This assumption is clearly contradicted by the data described in the previous sections.

Apart from this project, we are not aware of any other published empirical research into the bilingual model, despite the recent appearance of a document providing guidelines regarding the type of contents that should be included in a model of this type, drawn up by the educational material design team at the CNSE ('Spanish Confederation for the Deaf') and a group of teachers from various schools for the deaf (*El Libro Blanco* ['The White Paper'] 2003).[15] This document includes an initial chapter which

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15. There is also a work that defends bilingualism as a totally feasible option for deaf pupils (Fernández-Viader & Pertusa-Venteo 2004); however, it takes a fairly generalised approach towards this issue and no reference is made to empirical studies into bilingual education.

justifies the need for a bilingual model due to the educational inequalities deaf pupils still suffer in comparison with their hearing peers (an aspect which is also confirmed by Silvestre-Benach & Ramspott-Heitzmann 2003); the document then goes on to provide a general overview of the arguments behind this claim and finally it describes a curricular proposal for the teaching of sign language as a differentiated subject (considered as the pupils' L1 and as an instrument for the acquisition of L2) and briefly goes over the contents that should be included in the oral language curriculum.

This document represents a major step forward simply because it includes the basic ideas for a bilingual model of this nature and because it has been drawn up jointly by various groups working in schools for the deaf. However, it must be seen merely as a starting point for the implementation of this model, where we believe much still remains to be done. The development of this model must extend to include a further two actors: representatives from the authorities and a research team in bilingualism (compare this design with the bilingual model implemented in Quebec, Vercaingne-Ménard et al. 2005; Dubuisson et al. this volume; and almost one decade before the Danish model, Bergmann 1994: 84–86). As we have already stated, the language planning of any country begins and is developed with the authorities, and to a large measure its success will also depend on their capacity to bring together all those actors involved. This issue will be more fully addressed in the final section.

The information obtained in our interviews regarding teacher training in the areas related to the bilingual mode (Bilingualism, Second Language Learning and Methodology and Sign Language Linguistics) reveals that very few of them have received any kind of systematic practice. However, we observed a clear interest among these teachers in learning about the latest developments and research and the generalised criticism of the education authorities for failing to provide them with this knowledge. Furthermore, at the time of our research they had very few sign language teaching aids and materials, and those they did have had been produced by the teachers themselves. Several of these teachers mentioned that in their search for teaching ideas for their pupils, they had resorted to the use of certain text books for the teaching of Spanish and Catalan as a second language.

This information enables us to conclude that the bilingual language planning carried out in these schools has been the opposite from standard practice: it has started from the bottom, in what could be termed as an example of *bottom-up* planning. In other words, it has not come about as the result of a political initiative from the education authorities of Madrid and Catalonia aimed at setting up a coherent bilingual project, backed up by prior research. Instead, it would appear to be the authorities' response to specific proposals from schools for the deaf that have presented a series of claims in order to obtain certain improvements in the education of their deaf pupils. In this aspect we are also aware of the constant calls for action from deaf associations and a number of associations of parents of deaf children. We could even go so far as to state that the degree of bilingualism achieved in these schools at the time of our research represents a minimum concession from the authorities in the light of the determination

of certain groups involved in the issue of deafness, who in the last decade had come to question the oralist ideology (Castorina 2003: 91).

In my opinion, the lack of institutional involvement is one of the principal causes for the deficiencies suffered by the bilingual model currently in progress: namely the lack of university research into this issue and the absence of specific teacher training actions prior to the implementation of the model and suitable teaching aids and materials. Furthermore, there is also an urgent need to provide a clear definition of the role of sign language in comparison with the other contact codes and artificial codes traditionally used in the education of the deaf (this issue will be discussed below in the next section).

7.3   Sign language, contact codes and supportive means of communication

Along these same lines of generalised improvisation in the schools we have researched we also find the continued use of contact codes, as discussed in section 6.1.6: the use of the *bimodal* system or signed oral language as means of explaining the structural differences of the written oral language at the *Tres Pins*, *Josep Pla and El Sol*, or in order to transmit course contents at certain moments of the lessons as occurs at the *Consell de Cent* or indeed the entire programme of certain subjects as happens at the *Ponce de León*. The use of all these contact codes (simultaneously with the oral language) would appear to clash with the theory behind the bilingual model.

Authors such as Johnson et al. (1989) have already emphasized their failings as a communicative vehicle in the North American context. According to them, the idea lying behind education programmes that use these artificial codes simultaneously with the spoken word is as follows:

> [C]hildren will acquire Spoken English through seeing and hearing it, and that this acquisition will lead to more complete integration with the 'hearing world'.… They have traditionally failed because deaf children cannot hear and because only a small part of the spoken English signal may be comprehended visually (op.cit. 4).

Furthermore, various comparative studies into processing highlight the difference between the speed of sign production and speech; consequently, when signing and speaking at the same time, production is slower than when each code is produced separately (Messing 1999: 189–190); this factor may affect the complete reception of the message.

On the other hand, contact codes are limited communicative instruments for use in a unique context by hearing teachers, and as such lack the social and cultural background that surrounds any language (Shannon-Gutiérrez 1998: 113; Komesaroff 2003: 51). This means that the education system may act as an impediment to the generational transmission of sign language and its structural and functional development aimed at extending its use to a wider variety of contexts and situations of social interaction. As we mentioned in section 2, it is only within the light of these two requirements that a language system can act as an efficient instrument for full communication

(private and institutional), and for the complete cognitive development and access to knowledge of the world of its users. Also of relevance here is the issue of interculturality in sign language, defended by a number of authors (Drasgow 1993; Mason & Ewoldt 1996; Massone et al. 2003; among others).

Parallel to the use of these contact varieties, at two of the Madrid schools (*Hispanoamericano de la Palabra* and *El Sol*), we also observed the generalised appearance of the artificial code known as *cued speech*, as a means of support in the acquisition of reading and writing skills and in explaining the syntactic differences between both languages. Indeed, the use of this code as a teaching strategy must not be immediately ruled out because the role these artificial codes may play in the development of the written oral language and the contrastive analysis of the two languages still remains an empirical issue (Wilbur 2000: 96). However, given that these schools have been defined as bilingual, there is perhaps a need to look at the possible use of resources that are closer to sign language and oral language such as fingerspelling (Mahshie 1997). Recent studies (e.g., Padden & Ramsey 2000) have looked into the potential of fingerspelling as an aid in the acquisition of reading and writing skills. Although the temporal development of each may differ, they all converge at a latter stage of the literacy acquisition process (op. cit.: 177).

Our final reflection in this area leads us to pose the following questions: if sign language is indeed a complete system of communication and a definite claim is made that a bilingual method has been implemented, does the continuous use of these contact and artificial codes represent an acceptance of the fact that it is not possible to implement sign bilingualism in the same way as in oral languages? Or should we instead accept the fact that we have little knowledge as to the way the two languages interact in the bilingual development of deaf people? Is it not possible that the reiterated use of these supportive codes is also transmitting to the deaf pupils an unequal perception of sign language in comparison with the oral languages included on the curriculum? The answers to questions such as these, set within the context of the enormous challenge this bimodal bilingualism represents, cannot be found exclusively in the daily teaching practices of the staff. Instead, and as we discussed in the section dealing with the general design of the bilingual project, they must come essentially form systematic linguistic research into bilingualism and acquisition processes for both languages throughout the development of deaf pupils.

We can consider these contact and/or artificial codes to be of use as a pedagogical or instructional resource, as has been suggested in recent research (Biederman 2003), and/or as a temporary measure until part of the teaching staff become fully skilled in sign language, but never as a replacement for linguistic reflection of both languages (including the reflection on their contact varieties) and the contrastive analysis any bilingual method requires in order to guarantee its effective implementation. For, as Massone et al. (2003: 57) have indicated, "the purpose of a multilingual-intercultural education centre is to turn its deaf pupils into competent bilingual grammarians and skilled communicators". Indeed, bilingualism considers the deaf person to be a member

of a linguistic and cultural group, in permanent contact with oral society; therefore, without overlooking the pathology (the real cause of the problem), this new model represents a move away from the traditional compensatory view that has always formed part of oralist education (Reagan 2001: 168), by focusing on the fact that the deaf pupil may be comparable with the hearing pupil in the development of L1. In this sense, the code-switching analysed by Mugnier (2006) in a deaf class (with the use, in a reflexive way, of repertoires such as French sign language, written French, signed French, etc.) shows a dynamic bilingualism that can enrich deaf pupils and help them to develop their linguistic and communicative competence –see also this dynamic perspective defended in oral bilingualism by Hornberger (1996: 452–454).

Our description and interpretation of the bilingual model implemented in the schools we have mentioned is now complete, bringing the first of the two objectives (section 1) set out at the start of this chapter to a close. We will know go on to show how deafness, sign language and sign bilingualism was perceived by the two political groups in office at the time of our research (both in Catalonia and in the Spanish Government) as well as by the experts who have written on this issue in recent years. As we have already mentioned, the contrast between these two objectives may also help to provide a holistic and complex vision of this phenomenon. The difficulties involved in implementing this bilingual model in deaf education not only lie in daily teaching practices, but also in the attitude of the political classes, whose actions may hinder initiatives which, in a moderate manner and backed up by innovative research, aim to find new ways of improving literacy levels among this type of pupils.

8.   The political debate surrounding deaf people's right to bilingualism

This education planning which we have termed as *bottom-up* can be clearly seen if we take a brief look at the debate on the right of deaf people to bilingualism which took place in the Spanish Parliament, an initiative of the *Partido Socialista* – or the *PSOE*, the main opposition party at that time, with a centre-left tendency – which reflected the views held by the majority of the Deaf community and other associations (interpreters, parents and educators in favour of bilingualism, etc). This debate was held on 26 November 2002, a year before our data collection (the text we have analysed comes from the official minutes published at the time on the Spanish Parliament web site www.congreso.es).[16]

The party in government in Spain at the time was the *Partido Popular* (or *PP*, which includes centre-right and right wing politicians); the regional Government of Madrid was also in the hands of the PP and the Regional Government of Catalonia corresponded to *Convergència i Unió* (or *CiU*, a nationalistic, centre-right party). As far

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16.   For further information regarding the various EU legal sentences in favour of the recognition of sign language, see Muñoz-Baell (2003).

as the socio-political context of the debate is concerned, this Bill represented a hostile initiative from the main opposition party at a time when the centre-right governments of both Madrid and Barcelona appeared to consider it to be excessively progressive.

All the parliamentary groups, with the exception of the *PP*, accepted the basic lines behind this proposal: namely that sign language should be considered the system of communication for this Deaf group, who should therefore be entitled to be educated in this language and in oral language. This vision of bilingualism was also defended by *CiU*, albeit in a slightly more ambiguous manner than the other parties backing this initiative. Below are the most revealing excerpts of the interventions made by the *CiU* and *PP* spokespersons, which state the arguments they put forward; in the case of the former, to support the initiative (despite drawing attention to the difficulties involved) and, in the case of the latter, to reject it, as they consider it could even have a negative impact on the Deaf community. The proposal was finally rejected as a result of the *PP*'s parliamentary majority.

The first excerpt (see (1)) is taken from the intervention of the *CiU* spokesperson (in all the examples the highlighting in bold is my own; see the appendix for the original Spanish versions):

(1)   … Our Constitution… states that all citizens are equal before the law, and cannot be discriminated against for any personal or social condition whatsoever…And it precisely this idea and the current situation that lead us to consider the need for the specific recognition of deaf people's right to see their sign language acknowledged by law…Why is it that over the years the State has failed to progress in this direction at the same rate as other societies have? Undoubtedly because we are all aware of the considerable practical **difficulties** involved in setting up an initiative of this nature, one that will require the various administrations to put aside their inertia and tackle the **difficulties** involved in its implementation. And in this matter, nobody, no political group has sufficient moral authority to consider this initiative as their own, as we have all shown a lack of sensitivity in providing a solution to this problem… (Intervention of Mr Campuzano i Cadanès (*CiU)*, November 26th, 2002, p. 10575).

In the first intervention, the *CiU* spokesperson accepts the legitimacy of sign language as a right to which deaf people are entitled, whilst at the same time admitting the slow progress that has been made in this direction by all parliamentary groups. From a discursive perspective, of particular significance is the use of the abstract expression "the State" and the deictic personal pronoun (*we*), thereby sharing responsibility for the lack of sensitivity towards this problem (in comparison with the progress made in other countries) equally amongst the parties. The principal reason for this lack of initiative is expressed through his use of the term *difficulties*, which he repeats twice: "we are all aware of the considerable practical *difficulties*" and "tackle the *difficulties* involved in its implementation". It can therefore be concluded that he is supporting the

proposal, although the strength of his conviction is reduced by the repeated references to the difficulties involved in its implementation.

We will now go on to look at an excerpt from the intervention of the spokesperson representing the *PP*:

(2)   My parliamentary group considers that the motion that we are discussing at this Session **offers nothing new** in terms of the Congress…**we do not see this as being the most effective way** of guaranteeing what we consider to be a primary objective: breaking down the communication barriers that currently exist and that prevent the social integration of the deaf…For many years… we have been actively working in a positive, and I would even go so far as to say in an insistent manner…to contribute ideas aimed at turning the social integration of the hard of hearing into a reality, through what I believe to be the most direct means of guaranteeing full integration, namely education, training and employment.

…The People's Party Parliamentary Group… cannot accept this motion…**as it fails to make a serious contribution to the elimination of communication barriers**…The world of the deaf, of the hard of hearing, the groups who express their concern about the situation of the deaf in our country have failed to adopt a united front regarding the recognition of sign language… **If we accept the right of the deaf to use sign language**, then instead of facilitating their entry onto the labour market, what we may actually be doing is making it even more difficult, by making it more expensive to employ them. This is because when giving instructions for a specific task, this could invoke their right for these instructions to be given in sign language, which could be a serious drawback that, regardless of the immediate future of sign language, requires careful consideration and specific solutions.

… [M]y parliamentary group is **always ready to analyse any positive and feasible contributions** to the elimination of communication barriers…Yet what we are not prepared to do is to generate false expectations, which ultimately act as an impediment to what we consider to be the essential objective of all these proposals, namely to guarantee the integration of the physically, mentally and sensory handicapped in our society... (Intervention by Mr de Luis Rodríguez (*PP*), November 26th, 2002, pp. 10576–77).

The second intervention constitutes an outright rejection of the recognition of sign language through an appeal to its possible contrary effect. This approach is clearly in line with traditional oralist approaches: the deaf person has to integrate into hearing society and sign language may act as an impediment to this goal rather than as a means of achieving it. This also leads him to list the achievements of his party in terms of the early detection of deafness and specific medical rehabilitation measures adopted (a fragment that has not been included in example 2). Likewise, his alignment with the more traditionalist stances leads him to highlight the lack of unanimous agreement

between the various groups involved regarding the role of sign language in deaf education (second paragraph of the text).

However, at the end of his intervention and despite rejecting this parliamentary proposal, he does leave the way open for future initiatives, stating that his party would be prepared to "to analyse any positive and feasible contribution to the elimination of communication barriers". We believe that this position explains the acceptance of the "special projects" set up at the Madrid schools we have mentioned, where the *PP* has direct responsibility for education, in its capacity as the ruling party both in the Region of Madrid and until 2004 in the Spanish Government. In actual fact, this flexibility is in keeping with that contemplated by the *LOCE* Education Act, which came into effect on 23rd December 2002 and which was in force at the time our data was collected. Section 4 (art. 44–48) of this Act states that "the education system shall have the necessary resources [...] to ensure that [pupils with special education needs] may reach the general objectives established for all pupils" (see also the reference contained in *El Libro Blanco* 2003: 36). Responsibility for the specific nature of this increased flexibility fell directly to each regional Government, but in general terms they included the education models based on insertion in normal and special schools.

Nevertheless, as we have already seen in previous sections, these "special projects" to which the *PP* spokesperson refers are classified as bilingual projects by the teaching staff at the schools of our research. We are therefore faced with a clear contradiction between the planning accepted in government spheres ("special projects") and the specific planning that takes place in the schools themselves ("bilingual education"). This contradiction reveals that, despite the *PP* parliamentary spokesperson's confidence in the oralist methodology, the truth is that his Government has not outrightly rejected the implementation of bilingualism as part of the search for new solutions. Indeed, it can be considered as the tacit acceptance of the fact that teaching literacy skills to deaf learners remains an unresolved issue throughout Spain.

This brings us to the heart of the issue. On the one hand, the oralist model has failed to achieve generalised progress in the literacy levels of deaf pupils. Consequently, and as in other countries, in Spain the literacy levels of the deaf, who mostly attend oralist schools, are still extremely low; the statistics show that currently 47% of this group have no formal educational qualifications and many of those who completed their Primary Education are also functionally illiterate (experiencing serious difficulties in reading and understanding texts) (*El Libro Blanco* 2003: 20–21). On the other hand, the bilingualism implemented in the schools we have studied is still deficient, thereby reducing the current possibilities of reaching a situation of equality in the literacy levels of deaf pupils (without any other additional disability) and hearing students by means of this new methodology. If this goal is to be achieved using this latter method, then we believe it will require a type of bilingualism that manages to overcome the theoretical contradictions we have discussed on previous pages. However, the political discourse of those in power at the time is still firmly rooted in oralism, and there would therefore appear to be a lack of political willingness to allow the full

development of bilingual methodology. This issue will be addressed in greater detail in the final section of this paper.

9.   The voices of the experts

Once we have interpreted the political context against which our data was collected, it is important to determine the predominant discourse (Massone et al., this volume; see also, Raiter 2003) that exists in the field of research into deaf education. This aspect is also of relevance here because these same researchers are the "expert-scientists" (Foucault 1994: 51; Bourdieu 2001) that the political powers, health professionals and most of the families with deaf children have turned to in search of help, training and advice.

As we have already mentioned, linguistic research into bilingualism (of vital importance within the Spanish context if we consider the recognition afforded to minority languages during the seventies and eighties) has practically been ignored within the case of deafness. Up until fairly recently, linguists knew very little about sign languages, and when they did finally begin to address this issue in the early nineties, they began with the description of their grammatical structures. For this reason, the interest in deaf education can be found solely amongst researchers into deafness as pathology.

What are the characteristics that these experts highlight in relation to deaf pupils and their particular problems? Below are several excerpts from discourse published in recent years; they include the most relevant features of the traditional vision of deafness and sign language, although the final excerpt indicates that certain changes are on the way.

(3)   Generally speaking, deaf people continue to experience great **difficulty** in reading and understanding written texts…deaf people have few or limited communicative-linguistic resources, and therefore encounter obstacles that hinder communication in all aspects of their lives… The perceptive or cognitive **difficulties** or **limitations** experienced by deaf people are principally due to the **absence** or **insufficiency** of a **communicative-linguistic system**, which is produced as a result of the interaction between deaf people and the limited or non-existent appropriate educational response to the specific needs of these individuals… We must not overlook the **high degree of variability** that exists between **pupils**, the result of the interaction between internal and contextual variables. For this reason, the conclusions regarding discursive and syntactic fluency in written forms of expression can not be extended to the community of deaf pupils, without taking into consideration the specific situation of each individual…There is currently no method designed to improve the expression of written texts that addresses the **specific needs** of **each deaf pupil**. Furthermore, the education methods that are developed are mere adaptations of those used with hearing pupils (Gutiérrez-Cáceres 2004: 10, 85, 90).

(4)   The contributions from disciplines such as Textual Linguistics or Psycholinguistics to the field of textual functions and the factors involved in the reading and writing processes are invaluable in helping the specialist to locate the origin of numerous problems in production and comprehension…One of the possible causes for the **difficulty** experienced by deaf people in following the theme of written discourse is their **inability to recognise the cohesive procedures** that language possesses in order to carry out that function. In other words, **the language** contains a series of mechanisms… (Ramspott-Heitzmann 1999: 164–165).

These two excerpts, taken from works whose aim is to identify the education needs of deaf pupils, limit the description of these pupils to the perspective of their disability; in other words, they emphasize their deficiencies in a specific linguistic area, that of textual creation. The first excerpt (see (3)) refers to the "difficulties" or "limitations" of these individuals due to the "absence or inefficiency of a communicative-linguistic system". The question of this insufficiency is not restricted to these pupils, but, as the author explains, is "the result of…the limited or non-existent appropriate educational response to the specific needs of these individuals". In her opinion, the problem therefore also lies in the level of education, although her solution remains rooted in the traditional oralist method: she proposes looking at the variability of each individual pupil, as a prior means of searching for individual, and clearly compensatory, solutions. She doesn't consider the fact that those limitations are a consequence of the constant L2 status of the oral language of deaf pupils; they would acquire the sign communicative-linguistic system as L1 without any limitation.

The second excerpt (see (4)), which addresses the question of discursive coherence, also activates the contextual frame of deafness as a pathology with its explicit reference to the "difficulty" experienced by pupils in tackling this activity. In addition, the use of the definite article to refer to the term language ("the language") leaves no room for doubt as to the specific reference, totally overlooking the fact that these pupils would be capable of using discursive cohesion devices in a completely natural manner in sign language (Morales-López et al. 2005b).

The following two excerpts refer to sign language and its use among deaf pupils. We will now go on to consider their conception of this language:

(5)   The early learning of sign language in deaf children born to deaf families clearly shows their normal cognitive development at this initial stage, as it reveals that the problem lies not in the capacity to symbolise, but in the acquisition of verbal forms…In the light of this information, certain authors have recommended the **use of sign language**... However, the use of **this option should not be generalised**, but must depend on the prior analysis of the characteristics and possibilities of each case…Naturally, sign language is **not the only linguistic mediator possible** for deaf children in early infancy, even those who are profoundly deaf…they can communicate orally with the help

of other visual aids, and indeed this is highly recommendable when **oral language is used regularly by the family**… **[I]n certain cases** where there are difficulties in the development and the acquisition of oral language, sign language **may be** of great help (Silvestre-Benach 1998: 24–25).

(6)   We consider this as a disability on a social and not merely an individual plane; resulting from the interaction of each individual within their context…we consider the value and role of sign language in the education of deaf pupils as both an instrument for communicative interaction and a vehicle for the teaching-learning process…

The introduction, **if necessary**, of a "curricular area" for sign language, with objectives and contents designed to guarantee communicative competence in this language, as well as the corresponding critical linguistic reflection…The use of sign language in bilingual education models is allowing for progress in the teaching-learning of written languages as a second language…**It would appear** that sign language **facilitates** prior experiences with books, stories, tales, etc…Therefore, sign language **may be** of great use in activities aimed at *motivating and boosting the acquisition of reading skills* (Domínguez & Alonso 2004: 17, 33, 102–104).

Example (5) contemplates the use of sign language, although it adds that this is only a solution for specific situations: "this option should not be generalised" because "it is not the only linguistic mediator possible", especially when the family uses oral language, and only recommends its use "in certain cases". Consequently, it positions this language on a par with the other artificial gestural systems (in other word, a support system) and restricts its use to those times where it is absolutely necessary. Moreover, the use of the epistemic modal verb in this statement ("may be of great help") also confers a degree of incredulity on this resource.

Finally, example (6) implies an explicit alignment with bilingual stances (as expressed in the first paragraph), through its consideration of the role played by sign language in both the development of the communicative competences of these pupils and as an instrument for the transmission of educational knowledge. However, in the second paragraph, the illocutionary force of the statement in favour of sign language is detracted from by the discursive structures that follow: the use of the conditional ("the introduction, *if necessary*, of a 'curricular area' for sign language"), and the two modal epistemic expressions ("it *would appear* that sign language facilitates" and "*may be* of great use"). The authors in this final excerpt do not appear to be too convinced that the bilingual model (in terms of the development of communicative and linguistic competence in the languages involved) represents a truly feasible alternative to traditional models.

This discursive overview reveals that in Spain, discourse relating to research in deaf education leans heavily in favour of oralism and that only a few timid attempts have been made to consider the possibility of sign language playing an active role. To date, the only voices to have spoken up firmly in favour of bilingualism as a full

education option would appear to come from bodies that do not exert any considerable degree of influence or power: deaf associations, teachers in direct contact with deaf pupils and a minority group of parents (hearing and deaf) of deaf children. However, at the time we collected our data, this group had still not managed to persuade the education authorities of the "truth" of their claims. The "truth/power" axis (Foucault 1994: 53) still belongs to oralist thought.[17] It is therefore comprehensible that the political discourse of those in power at the time (discussed in the previous section) and the analysis of the discourse of the experts (analysed in this section) contain a considerable number of similarities.

10. Rethinking the sign language / oral language(s) bilingual model

At the time of the last version of this chapter (June 2008), the political situation regarding the issue of deafness in Spain has experienced a series of changes. The *Partido Socialista*, in power since the General Elections held in March 2004, presented another Bill for recognition of sign language as the language of the deaf; on October 23rd, 2007, the Act for the recognition of the Spanish sign languages was passed by the Spanish Parliament (BOE 2007). This Act also includes specific proposals for bilingualism to be considered as one of the education models for deaf pupils (it must be remembered that the first project by this same political group was rejected in 2002 by the party in office at the time). Therefore, if everything goes to plan, we will shortly be entering a new phase in which sign language can occupy a relevant role in deaf education.

In my opinion, this new situation will require some serious work into three different aspects of bilingualism: (a) the precise meaning of bilingualism in this type of language and the differences with regard to oral language bilingualism; (b) the real and gradual changes that will need to be carried out on this model over the next few years in order to complete its implementation into formal education; (c) the objectives of this type of bilingualism, and the way in which their achievement will improve the integral development of deaf pupils and prepare them for a more active role in society.

The response to these issues must go hand in hand with a new bilingual education approach based on a real *top-down* model (for instance, similar to that recently applied in Quebec, Vercaingne-Ménard et al. 2005; Daigle & Armand 2004; which in turn was based on the model used in Scandinavian countries; Svartholm 1993). In other words, a model based on real and effective planning by the education authorities (who always act as the developers and guarantors of initiatives of this nature), but which is also

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17.   Foucault (op. cit.) explains the relation between power and truth in the following terms: "[T]he truth is not beyond power… Truth belongs to this world; it is produced in this world thanks to multiple impositions and produces effects regulated by power. Each society has its own truth regime, its "general politics of truth": that is, types of discourse which it accepts and makes function as true…".

based on the consensus of all those involved, namely teaching staff, parents and university researchers (Calvet's *in vivo* planning, which we referred to earlier -1987).

In a country such as Spain which has constitutionally accepted the linguistic plurality of the various regions of the State (Siguán 2001), denying the Deaf community the possibility of a fully developed bilingualism in the education of deaf children and young people would be completely lacking in congruity. This is even less likely in the context of Catalonia, where there is a situation of complete unanimity among both the general population and the political parties in protecting Catalan (their minority language) and maintaining it on an equal footing with Spanish (the majority language of the entire State). In the *ecolinguistic system* that currently exists in Spain, space must be left for sign language, not in order to enable it to compete, but instead to preserve the democratic rights (Aznar-López 2005: 290–292) and improve the literacy levels of deaf pupils. The fact that certain hearing families with deaf children reject bilingualism and opt instead for the oralist methodology does not mean that the former system cannot represent a fully implemented education option.

Our stance therefore differs from the opinions of Silvestre-Benach and Ramspott-Heitzmann (2003: 4), who see bilingualism as a necessary and appropriate solution only for the deaf children of deaf parents as they are the only ones who will receive this language within the family context. From our perspective, bilingualism is a suitable option for any deaf child or young person, regardless of whether they have deaf or hearing parents. The basis for this opinion is strictly linguistic: it is difficult for a deaf person to achieve a certain *level of creativity*, linguistically speaking, in the oral language when the input received will always be limited. Cochlear implants are proving successful in certain cases, yet for the time being, this success has not spread to the entire Deaf community (Marschark et al. 2002: 51–56). Besides, and as the various teachers interviewed pointed out, children with implants require a relatively long period of re-education. Whilst this occurs, these children continue to grow up and develop without language or with a deficient language, and are therefore missing out on part of their cognitive development (Grosjean 2001). The advice that certain medical teams in Spain who carry out cochlear implants continue to give to parents is the total rejection of any signed code ("zero signing"). Yet this attitude clashes directly with other opinions, including that of Ann-Charlotte Gyllenram, President of the Swedish *Association of Implanted Children in Sweden*, who defends the view that these children are capable of becoming completely bilingual in Swedish and Swedish sign language precisely because of these implants:

> Most parents of children with cochlear implants in Sweden believe –as I do myself– that our children need both languages in order to be able to communicate fully… [B]oth languages support each other during the learning process (1999: 22).

For deaf children and young people, sign language is the only system of communication in which they will be fully active, and above all creative users; in other words, they are going to use the language for the same functions as their hearing counterparts: to

inform, argue, counter-argue, deceive, think up jokes, criticise, create literature, etc. Expressed in the terms of Wittgenstein (1958), all the plays on language are also possible in sign language because it represents a complete system of communication, and therefore guarantees the full cognitive development of these pupils (in the sense adopted by Vygotsky 1934) throughout their lifetime and in a natural manner (Bouvet 1990; Andersson 1994; Shannon-Gutiérrez 1998; Evans 2004). They will be able to learn oral language, to varying degrees of success, but it will always represent a process whose acquisition required considerable efforts, even in the case of many implanted children. The process of acquiring the oral language clearly coincides with that of a second language, a fact which can be corroborated especially through the analysis of the linguistic errors committed by deaf people when writing texts in oral language (Plaza-Pust 2005; also this volume).

Nevertheless, and as we have mentioned earlier, the object of the bilingual education of these pupils is not restricted merely to the development of their communicative competence through sign language, but also includes the acquisition of a level of literacy within the context of a society where the inability to achieve minimum reading and writing skills in the oral languages of a community (i.e. the required level on completion of Compulsory Secondary Education) implies a degree of social exclusion, regardless of whether their occupation is skilled or unskilled (Cummins 2000: 54–55, Grosjean 2001: 113). This is the grand challenge that in Spain to date neither the oralism of integrated schooling nor the bilingualism applied in the schools I investigated have managed to overcome.

The new Act recently passed by the Spanish Parliament (although not developed yet) will allow the bilingual model to be developed in deaf education, but it will have to co-exist with the oralist model and other traditional educative solutions. This means that a single deaf education budget will have to suffice for each of these models. In our opinion, it is therefore essential for the implementation of the bilingual model to be both appropriate and realistic, in order to ensure that it represents an efficient alternative that meets the education needs of deaf pupils. There might be a dangerous divergence between the contents of the law and the possibility to implement these contents; this was the case in France, as Mugnier (2006: 149–150) explains; the *Fabius* Law of 1991 recognized the right to use sign language in deaf schools, but it didn't provide neither legal procedure nor additional budget to develop this right.

Along these lines, below are a series of proposals designed to improve the bilingual model of the schools I studied. These proposals aim to be as realistic as possible, but I believe that they are all equally essential in the short term. They have been formulated to allow them to act as a guide for other linguistic communities where the bilingual education model is also underway. These proposals are the following: the immediate creation of a research group into bilingualism, the urgent need for the training of teachers involved in this model, and extensive legal reforms that allow for the necessary changes to be made to the curriculum. These three proposals are explained in further detail in the following paragraphs:

1.   The creation of a quality *linguistic unit for research* into the field of *sign language/oral language(s) bilingualism*, situated in a university or research centre close to schools where these bilingual projects have been set up, in order to enable this team to carry out their empirical research in these schools and monitor the ongoing progress.

The principal objective of this team would be basic research into bilingualism aimed at obtaining the highest possible degree of communicative and grammatical competence of deaf pupils both in sign language and oral language. This linguistic development would create improved conditions from which to tackle the challenge of improving the literacy levels of deaf children (placing them at least on a par with the most advanced countries in terms of cognitive development and knowledge acquisition), as well as leading to the acknowledgement of the fact that in those linguistic communities with various oral languages, the education of deaf pupils is considerably more complex (as in the case of Catalonia, described in Morales-López et al. 2002).

In this sense, the group would have to focus its efforts principally on the following issues:

a.   A description of sign language, particularly those aspects which do not coincide with the corresponding oral language and which would have to be contrasted in the teaching of both languages: use of space, textual organisation, etc. (for further details consult our team's work in Morales-López et al. 2005a, b, 2008).

b.   Research into the development of L2 (mainly on a written level): development of reading and writing skills (in order to determine whether these processes are common to those of hearing pupils, or whether alternative non-phonological strategies are used; Musselman 2000; Wilbur 2000; Daigle & Armand 2004); and the development of various grammatical aspects and textual organisation (Plaza-Pust 2005).

c.   Research into bilingualism focusing on the analysis of the problems experienced in the learning of L2 in relation to the transfer from L1, or general/specific problems associated with the acquisition of L2 by these persons; in this sense, a possible starting point could be the work already carried out on second language acquisition (Larsen-Freeman & Long 1991; Ellis 1994; Muñoz 2000; Gass & Selinker 2001; Sanz 2005; etc.). A further major consideration should be research into the social aspects of bilingualism (attitudes, motivation, etc.). As we have already mentioned, this is also one of the priority objectives included in the European framework document for plurilingual education (Council of Europe 2001).

d.   The development or suitable adaptation of methods for assessing pupils' bilingual development (for further details, see the various articles included in Chamberlain et al. 2000; also Niederberger, this volume; and Dubuisson et al. this volume).

From this theoretical perspective, it would also be possible to address the varying degrees of linguistic competence of deaf pupils caused by their often late and gradual inclusion in the education system and differing deafness detection rates. These pupils pick up sign language extremely quickly, turning it into their L1 in a short period of

time; however, the rate at which they acquire the oral language differs considerably (Svartholm 1993).[18]

Seen from the general theoretical framework of second language acquisition (Ellis 1994: chap. 4), it may appear that this difference is similar to that of the various stages observed in hearing pupils. As Cummins points out (2000: 34–35), pupils from linguistic minorities take at least five years to achieve the same level as their native classmates in terms of the academic functions of the language (this author was referring to the case of socially underprivileged minorities). It should therefore not be so surprising that this should also occur amongst deaf pupils whose oral input may be relatively limited on entering the school. Indeed, their physical incapacity to receive oral linguistic input will represent one of the obstacles that will mark the difference between hearing pupils from the minorities mentioned and deaf pupils. Rather than a qualitative difference in the type of linguistic error patterns, this will lead to differences in the persistence of these patterns over time (Wilbur 2000: 84) and their resulting fossilisation unless specific (educational) measures are taken to prevent it happening.

Consequently, one of Cummins' most convincing arguments for the defence of bilingualism in the education of socially underprivileged linguistic minorities – namely the importance of including their native language as well as the majority language in the education system – can also be extended to sign bilingualism: "[The] continued development of both languages into literate domains (additive bilingualism) is a precondition for enhanced cognitive, linguistic, and academic growth" (op. cit.: 37). In this sense, we believe that the teaching of sign language in the education system of deaf pupils is crucial both for their linguistic development of the oral language and their cognitive, and above all, academic growth. For this reason, all research prior to the establishment of this bilingual model must act as the foundation for its correct implementation.

2.   The urgent need for the research team to implement teacher training programmes in the bilingual schools – an advice already given by Spanish intellectual authors such as Hervás y Panduro (in the XVIIIth century), as mentioned in Gascón-Ricao and Storch de Gracia y Asensio's book about the history of Deaf education (2004: 250–255, 458).

In this case, I am not referring to short courses or the occasional workshop, but ongoing *in situ* training for the teachers involved in the form of regular seminars where the research team would provide the necessary theoretical content (which would be constantly updated), and which would also act as a forum enabling researchers and teachers to swap experiences (*research-action*) (Nover & Andrews: 1998/1998–1999, 1999–2000; Nover et al. 2001).

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18.   With the first proofs in hands, I read Bagga-Gupta's book (2004) about Deaf education in Sweden. I agree with her defence of ethnographic research as a way to test empirically sign bilingualism. However, I disagree on her doubt to consider sign language as deaf children' s L1.

This dialectic relation between theory and practice would generate innovative proposals and/or ideas for adapting experiences already implanted in other education situations, yet which require specific adaptation processes in order to prevent them from becoming mere copies. In addition, this interaction between researchers and teachers may also facilitate the design and production of teaching materials for sign language based on the adaptation of the basic research.

This mutual co-operation could lead to the creation of university studies designed to provide deaf sign language teachers and those who will be working with the bilingual method with linguistic training. Studies of a similar type have already been set up in the USA and many European countries (I have visited two of these centres personally: Gallaudet University and Hamburg University).

3.   *Changes in the legal framework* of schools, enabling them to be officially acknowledged as bilingual centres, and therefore authorised to make the necessary modifications to the school curriculum.

These changes include the need to increase the number of teaching hours dedicated to sign language during the Infant and Primary phases, thereby guaranteeing from an early age the acquisition of communicative competence and the gradual acquisition of formal knowledge over time. A further measure would be to include a number of formal teaching hours for sign language in Secondary Education, as well as modifying the regulations regarding the hiring of teachers in Public Schools in order to ensure that they are fluent in sign language.

We also believe that the individual speech therapy sessions should also be included at the Secondary Education phases, thereby ensuring that the teaching of the written oral language and the spoken oral language constitute two separate objectives. This would avoid the repeated use of contact varieties in the written oral language classes (as occurs in the schools I studied) in replacement for sign language. A further advantage would be a clearer distinction between the functions of these contact varieties (for instance, as communicative strategies for educational purposes designed to facilitate the learning of the written oral language, among others) and actual sign language (a language whose functions are comparable with those of the oral language, except in terms of written literacy levels).

Whilst the oralist method is based on the supposition that the oral language is the only language included on the curriculum, in the bilingual method the opposite approach is adopted: the aim is to obtain maximum advantage from the potential sign language offers for pupils' linguistic and cognitive growth, developed through the natural acquisition of this language, a positive link in the learning chain for the corresponding written oral language or languages. It is therefore necessary for pupils to develop as far as possible their critical linguistic awareness of sign language, as this reflection may serve as a point of reference when addressing doubts and queries regarding the written oral language. This is the process that all bilingual individuals use when speaking and writing in their second language or languages: they construct the L2 structures that have become automatic to them, but occasionally resort to their L1

when other structures are activated that they have not yet automated. L2 learning would appear to be a combination of spontaneous processes and other more reasoned operations where the degree of awareness is higher (Council of Europe 2001: 139–140); in the case of deaf people, in this latter process a reflexive linguistic knowledge of sign language may prove crucial for them.

11. Conclusions

With this chapter we have attempted to assess the bilingualism implemented in deaf education in Spain, based on data collected during the 2003/04 school year. Our research has shown that this model is still a long way from being considered truly bilingual, hence our decision to classify it as *pre-bilingual*: sign language is the vehicular language of the school and for the contents of the curriculum, but it is still not the object of formal teaching that allows for the full development of the students' critical language awareness.

The difference in the opinions of the professionals working at these centres and the education authorities (in other words the concessions granted for the implementation of this model) and the parliamentary political debate on this issue reveals the conflict between the professionals' day-to-day work with deaf pupils and decisions adopted at a macro-institutional level. In order for bilingualism to be correctly implemented in education, it requires *top-down* planning that starts with the authorities, but which includes the close co-operation of all those involved. However, the model we observed in the schools we studied reveals a clear *bottom-up* model, where the authorities display a considerable degree of scepticism – hence the multiple deficiencies and incongruities.

The analysis of the specialists' discourse regarding deaf education also shows that the oralist philosophy is still firmly in place as a theoretical perspective. This makes it easier to understand why the governing political classes have still not made any move to change the model, despite the calls to do so that have appeared at root level. As we have seen, the obstacles to the implementation of the bilingual model are still anchored in external causes (Evans 2004: 25); that is, politicians and professionals who have traditionally had the power to make decisions in deaf education and whose discourses reveal their particular ideological position.

From a more general perspective, our description of the Spanish bilingual model has also enabled us to reflect on the development of bilingualism in deaf education, based on a comparison with bilingual models of oral languages. If we start from the assumption that the objective of all forms of bilingual education (to a lesser or greater degree) is both the formal and communicative development of the languages involved, then this dual objective is also applicable to bilingualism in deaf education. Consequently, even though sign language lacks a writing system on an educational level, this does not imply that there is no need for critical linguistic awareness or an intercultural dimension in a bilingual model that includes this language. The solutions created for

deaf education will vary according to the country (as we have also shown in the case of Spain: special schools and normal schools with hearing pupils and two types of teaching staff, etc.; see also Pertusa-Venteo 2005; Torres-Monreal et al. 2000: chap. 6). However, in my opinion, not all the education models that use sign language may be classified as bilingual. It is necessary to take the requirements discussed above into consideration: the development of the communicative competence, as well as the critical language and cultural awareness of the languages involved.

Finally, and based on the case of Spain, we can also draw a series of conclusions that are of use to other linguistic communities where there is no generalised consensus regarding the most suitable communicative method for the teaching of deaf pupils and where the bilingual model is forced to co-exist with other more traditional models (oral and even total communication). In these cases, the defenders of bilingualism would have to support a form of language planning that is as realistic as possible. The argument based on the linguistic rights of the deaf person does not always serve to convince the political powers (current and future). There is a need for a general consensus that by the end of their schooling period, the bilingual model must have provided young deaf pupils with a series of advantages over the more traditional methods, both in terms of their cognitive, linguistic and social growth. Furthermore, these advantages must be objective and suitably assessable at each level of communicative and linguistic competence (spoken and written oral language and sign language), as well as in terms of these pupils' integral academic development. For this reason the heads of these schools would have to guarantee that the model they are implementing really is bilingual; otherwise they may be providing results for a methodology that still does not really exist.

Finally, by defending the right of deaf pupils to bilingual education, we are promoting a model of integration that represents a move away from that defended by oralism. As Powers states (2002: 242), deaf education requires a wider definition of the term *inclusion*, in order to ensure that it is considered as part of a system of values. The best way of responding to the special education needs of deaf children is to place the emphasis on their individual rights, and their communicative and cultural needs. In our opinion, bilingualism enables us to position ourselves on a road that will lead us *naturally* to the growth of their linguistic competence and intercultural and critical cognitive awareness.

In today's global society, where diversity and interdependence no longer represent two opposing positions, the values associated with plurilingualism (the development of new linguistic skills, a more tolerant attitude to others thanks to a heightened sense of interculturality, etc.) form an essential part of the education objectives for today's students. This same sentiment is echoed by the Council of Europe within the scope of European education (2001: 4–5) and by such leading intellectuals as Morin (1999). Seen from this perspective, we can think of no possible reasons that could justify the exclusion of deaf children and young people from this process.

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Appendix of the examples in Spanish

(1) "... Nuestra Constitución... dice que los ciudadanos somos iguales ante la ley, sin que pueda prevalecer discriminación alguna por cualquier condición o circunstancia personal o social... [P]recisamente estos mandatos constitucionales y esa realidad existente nos obligan a plantearnos esa necesidad de un reconocimiento específico del derecho de las personas sordas a que su lengua se vea reconocida por nuestro ordenamiento jurídico... ¿Por qué a lo largo de estos años **el conjunto del Estado** no ha avanzado en esta materia con la misma intensidad que otras sociedades? Seguramente porque **todos** somos conscientes de las **dificultades** prácticas y reales que supone la puesta en marcha de una iniciativa de estas características, que obligue al conjunto de las administraciones a romper con inercias y a romper con **dificultades** para su puesta en marcha. Además, y en esto nadie, ningún grupo político, tiene la autoridad moral para colgarse ninguna medalla, porque a todos nos ha faltado la sensibilidad suficiente para dar respuesta a esta problemática..." (Intervención del Sr. Campuzano i Cadanès, *CiU*, p. 10575).

(2) "Mi grupo parlamentario considera que **esta proposición** de ley que estamos debatiendo en el Pleno de la Cámara **no tiene un planteamiento novedoso** en

el ámbito del Congreso... **no consideramos que este sea el camino más idóneo**, el mejor camino, para garantizar lo que para nosotros es el objetivo primordial: eliminar las barreras de comunicación que hoy perjudican la integración social de los sordos... Desde hace muchos años... hemos sido muy activos, positivos y diría yo que machacones trabajando... para contribuir a aportar ideas que puedan hacer real la integración social de los discapacitados auditivos, a través de lo que creo que es el camino más directo para garantizar la plena integración, que es la educación, la formación y el empleo.

... El Grupo Parlamentario Popular... **no puede aceptar este planteamiento** porque... no es el planteamiento adecuado para **contribuir seriamente a la eliminación** de las barreras de comunicación... [E]l mundo del sordo, los discapacitados auditivos, los colectivos que les preocupa la situación de los sordos en nuestro país **no mantienen una posición única** en torno al reconocimiento de la lengua de signos... [S]i nosotros reconocemos a un sordo el **derecho a utilizar la lengua de signos**, puede ocurrir que, en lugar de facilitarle su incorporación al mercado de trabajo, se le dificulte, se encarezca su puesto de trabajo. Porque, a la hora de transmitir las instrucciones para desarrollar un determinado cometido, él podría invocar su derecho a que le fuera expresado en lengua de signos y eso podría ser un inconveniente muy serio que, sea cual sea el futuro próximo de la lengua de signos, habrá que evaluar y solventar.

... [M]i grupo parlamentario siempre estará dispuesto a **analizar cualquier aportación que se pueda hacer en positivo** y con solvencia para eliminar las barreras de comunicación... A lo que no estamos dispuestos es a generar falsas expectativas, que al final pueden perjudicar lo que para nosotros es el objetivo fundamental de todos estos planteamientos, que es garantizar la integración de los minusválidos físicos, psíquicos y sensoriales en nuestra sociedad...” (Intervención del Sr. de Luis Rodríguez, *PP*, pp. 10576-77).

(3) “En general, las personas sordas siguen teniendo gran **dificultad** para leer y comprender textos escritos... Las personas sordas poseen escasos o limitados recursos comunicativo-lingüísticos y, por tanto, encuentran barreras de comunicación en todos los aspectos de la vida... Las **dificultades** o **limitaciones** perceptivas o cognitivas que experimentan las personas sordas se deben más bien a la **ausencia** o **insuficiencia** de un **sistema lingüístico-comunicativo**, que se produce como consecuencia de la interacción entre las personas sordas y la escasa o suficiente respuesta educativa adecuada a las necesidades concretas de estas personas [...]

No hay que olvidar la **alta variabilidad** entre los **alumnos**, como resultado de la interacción entre variables internas y contextuales. Por ello, las conclusiones acerca del dominio discursivo y sintáctico en la expresión escrita no se pueden generalizar al conjunto de los alumnos sordos, sin tener en cuenta la situación

concreta de cada uno de ellos [...] En la actualidad, no se dispone de un método para mejorar la expresión de textos escritos que esté elaborado en función de las **necesidades concretas** de **cada alumno sordo**. Además, los métodos educativos que se desarrollan son adaptaciones de los mismos que se utilizan con alumnos oyentes" (Gutiérrez-Cáceres 2004: 10, 85, 90).

(4) "Las aportaciones de disciplinas como la Lingüística Textual o la Psicolingüística en el ámbito del funcionamiento textual y de los factores implicados en los procesos de lectura y de escritura proporcionan una ayuda inestimable al especialista en la medida que ayudan a localizar el origen de numerosos problemas de comprensión o de producción... Una de las causas que se apuntan como posibles responsables de la **dificultad** que tienen los alumnos sordos en mantener el hilo del discurso escrito es el **no reconocimiento de los procedimientos cohesivos** de los que dispone **la lengua** precisamente para esa función. Es decir, existen en **la lengua** una serie de mecanismos..." (Ramspott-Heitzmann 1999: 164-165).

(5) "El aprendizaje precoz del lenguaje de signos en las criaturas sordas nacidas en familias de sordos es una muestra clara también de la normalidad del desarrollo cognitivo en esta primera etapa, ya que indica que no es la capacidad de simbolizar la que en estos momentos se haya afectada, sino la adquisición de la forma verbal. [...] Ante estas informaciones algunos autores recomiendan la **utilización** del **lenguaje de signos**... Se trata, sin embargo, de **una opción que no es generalizable**, sino que debe tomarse analizando las características y posibilidades de cada caso... Evidentemente, el lenguaje de signos **no es el único mediador lingüístico posible** para la criatura sorda en la primera infancia, ya que incluso la afectada por sordera profunda... puede comunicarse oralmente con la ayuda de otros complementos visuales, y ello es muy recomendable cuando el lenguaje oral es el utilizado habitualmente en la familia... [E]n determinados casos** que presentan dificultades en su desarrollo y en la adquisición del lenguaje oral, el lenguaje de signos **puede ser** de gran ayuda" (Silvestre-Benach 1998: 24-25).

(6) "Entendemos la discapacidad desde un plano social y no solo individual como resultado de la interacción de cada persona con su contexto... Planteamos el valor y el papel que tiene la lengua de signos en la educación de los alumnos sordos tanto como instrumento para la interacción comunicativa como vehículo en el proceso de enseñanza-aprendizaje. [...]
Introducir, **si fuera necesario**, un "área curricular" de lengua de signos, con objetivos y contenidos pensados para asegurar la competencia comunicativa en esta lengua, así como la pertinente reflexión metalingüística sobre ella. [...]
El empleo de la lengua de signos en los modelos educativos bilingües está permitiendo impulsar la enseñanza-aprendizaje del lenguaje escrito como

segunda lengua. [...] La lengua de signos **parece que facilita** las experiencias previas con libros, historias, cuentos, etc... Por lo tanto, la lengua de signos **puede ser** muy útil en las actividades de *motivación y aprendizaje significativo de la lectura*" (Domínguez & Alonso 2004: 17, 33, 102-104).

Ideological signs in deaf education discourse

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The chapter deals with the ideological implications of discourse strategies for deaf education in Argentina. The emerging bilingual-bicultural discourse (BBD), introduced in educational discourse in 1985, has questioned existing values, and struggled to impose new ones based on the socio-anthropological perspective. However, the analysis shows that oralist education discourse – the dominant discourse (DD) in the field – refuses to accept the bilingual-bicultural model of deaf education, and that there is a greater reluctance to recognize its bicultural component, presenting even more difficulties than the linguistic one. In Bourdieu's terms, deaf education cannot change its *habitus*. I will thus argue that the discursive formations of deaf education are in fact quite similar across time, since the first law approved in 1895 to more recent laws and documents and even in teachers of the deaf representations. The neo-oralist discourse involves the naturalization of bilingual-bicultural discourse concepts that have been ambiguously appropriated by the DD in order to maintain the *status quo*, that is, oralism.

Keywords: discourse analysis, emerging discourse, ideology, deaf education, bilingual-bicultural perspective

1.   Introduction

Aristotle (1997) claims that humans are political beings. We linguists argue that humans are ideological beings, and that therefore all human activity is semiotic and thus ideological. There are no neutral or innocent signs and we understand discourse as a non-neutral socio-historically determined sign production (Voloshinov 1929/1992). Discourse is both the instrument of the social construction of reality and the instrument of power and control. In order to maintain the *status quo,* ideology must naturalize, reduce and obscure signs, thus imposing the dominant discourse and maintaining power relations in a given field of reality. This intelligent and perverse working of

ideology – to lie with the dressing of truth – in deaf education is the process that I intend to explore. As this process is historical, it becomes essential to analyze both the first laws regulating deaf education and the results of our previous studies on the subject in which I analyzed a series of documents and laws, to which I will add new data obtained through a questionnaire answered by teachers of the deaf.

Ideology is a representation of aspects of the world that contribute to establish, maintain and change social relations of power, domination and exploitation. Thus, ideology is a form of power. Moreover, if ideologies are representations, they can be "enacted" in ways of acting socially, and "inculcated" in the identities of social agents (Fairclough 2002: 9). A scientific approach to the idea of dominant ideology is possible through the identification of the concept of dominant discourse (henceforth DD) (Raiter 1999: 25). The study of DD is an important scientific tool for the analysis of one part of reality, those significant practices in specific social contexts. This concept will be useful for analyzing the social circulation of signs, sign values and sign meanings in a given society, as well as the establishment of value systems.

In fact, we know that for Habermas (1989) the concept of ideology is linked to the way in which power distorts communication systematically. Therefore, a discourse transforms itself in a form of domination that legitimates the restraining and command relations that are given in society. This relationship between ideology, distortion and communication does not deny the existence of ideology, but it hides it. This happens when the recurrence of communicative distortion is so frequent that ideology is naturalized, that is to say, is perceived as something natural and neutral. To summarize, we could say that when language is forced to generate communicative forms of power, we are in the presence of an ideology.

DD is a social system of semiotic references. Everything that is produced in a society – its different cultures – acquires a special meaning tied to those established references. Thus, the facts and statements produced in a community do not have meaning in and of themselves – they only have it functionally within the system. DD is part of the belief system of all the members of a community. It is made up of ideological signs with a certain value that are somehow surrounded by all the other potentially valid social meanings. The values that a given community gives to the signs used work together as a basis for thinking about and judging any new or different proposal. The value of an ideological sign consists in its own attributes, in what it says, and in what is understood by the society in which it circulates. These three elements are necessary for sign comprehension. Thus, the meaning of a given sign within a speech event is not enough: the context in which it appears is also extremely important. DD imposes new ideological signs and assigns them concrete values; any other sign will be seen as odd or strange, considered false or unbelievable. DD takes the discursive initiative on a social level – if other discourses appear, they will be understood through the references established by it.

Moreover, any new discourse that does not challenge the legitimacy of the imposed sign values will just become part of the DD. It will be an opposing discourse,

only credible in terms of the referentiality imposed by the DD (Raiter 1999: 27). The latter is not uniform but diverse, and the presence of the former will only enlarge and legitimate it. The DD is so strongly embedded in society that it has the power to give credibility to other discourses. Only if the new discourse compels the DD to respond – by calling it into question through a new reference system that cannot be ignored – may it constitute a new DD.

In the study presented in this chapter I will focus on deaf education discourse, which is part of the DD, since education is one of the important tools with which power is exerted. I will analyze administrators' as well as teachers' statements, as both are part of the deaf education system (Althusser 1970/1988) and are the agents that put deaf education discourse into practice. Discourse is a way of representing social practices, a form of knowledge (Foucault 1970: 78). In fact, as Fairclough states, "no real understanding of the social effects of discourse is possible without looking closely at what happens when people talk or write" (2002: 3). Moreover, as Foucault argues, discourses systematically form the objects. He defines discursive formations as regularly shaped bundles of elements, (i.e., statements, concepts, thematic choices), in which some regularity, order, correlations, transformations can be ascertained and which are linked to power relations. Further, it is important to note that, following Foucault, there is no knowledge without well-defined discursive practices and any discursive practice can be defined by a conception of knowledge (ibid.: 306). Thus, as Fairclough puts it (1993: 138), following Foucault, the order of discourse is the "totality of discursive practices of an institution, and the relationships between them".

In the 1960s, the social sciences, influenced by the new insights gained in the area of Cultural Studies, played an important role in explaining deaf language and culture in the United States. This scientific discourse viewed deaf people from a socio-anthropological perspective, that is, as members of a linguistic community with a visual-gestural language. The deaf were seen as diverse people with an intercultural identity. At the same time, revolutionary linguistic approaches, such as the Chomskyan paradigm, in which language is considered as independent from modality of expression, made it possible to include a new object of study in the area of linguistics: the sign languages of the deaf. The linguistic study of sign languages also had an impact on deaf educational discourse in that it led to a new discourse – bilingual-bicultural discourse (BBD) – that challenged the old paradigms, oralism, the pathological model and behaviorism. Twenty-five years after its emergence in the United States, this new approach to sign language started to be considered in Latin America. Brazil was the first country to study sign language; Uruguay and Argentina followed. In all these countries, both linguists and deaf people have struggled for the recognition of sign languages. Parallel to this scientific development, a new deaf education discourse has been introduced and developed in Latin America since 1985 by linguists who, in the case of our country, struggled alone for the establishment of bilingual-bicultural educational programs. Deaf people have not played an active part in this process; although

they continue nowadays to ask for the recognition of their language in public spheres, however, with no political representation whatsoever.

In this chapter, I will analyze the impact of the emerging BBD on DED – deaf educational discourse – in Argentina from a historical perspective. For this purpose, I will review the results of our previous research on DED, and discuss new data stemming from our analysis of other documents and teachers of the deaf answers to a questionnaire. My hypothesis is that little has changed in Argentina since the first Law on deaf education was passed in 1895 – with no mention whatsoever to sign or signed language. Today, the goal of deaf education continues to be deaf children's acquisition of speech, signed Spanish misleadingly referred to as sign language. Reference to previous studies aims at revealing new insights that might be relevant to the present historical analysis and the addition of new data is necessary in order to analyze the present consequences of past events. I argue that the discursive formations of deaf education are in fact quite similar across time: the 1895 law which gave rise ten years later to the first school for the deaf does not differ much in its conceptions with respect to deaf education as conceived from 1990 onwards. However, I am aware that there are qualitative differences between historical periods concerning the social functioning of discourse. With regard to DED, I will show in this chapter that unlike before current DED includes the bilingual component but not the bicultural one and reduces the use of sign language to a mere methodological tool – or, as I will explain, to a "curricular adaptation". Therefore, I assume that DED is nowadays neo-oralist, drawing on Barthes' (1980) notion of ideology as "naturalization" of the symbolic order, that is, as a perception that reifies the results of discursive procedures as properties of the "thing-in-itself". From this standpoint, I contend that neo-oralist discourse involves the naturalization of BBD concepts that have been ambiguously appropriated by the DD in order to maintain the *status quo*, that is, oralism.

The chapter is organized as follows: first, I briefly describe the situation of deaf education and of the deaf community in Argentina, and then introduce the study which includes the analysis of laws and of previous studies I conducted which analyze educational discourse in different documents and laws, and the results of a questionnaire given to teachers of the deaf. Through these studies, I intend to show the different discursive formations present in DED since 1895 to the present time, how BBD emerged and how it lost the battle in behalf of a neo-oralist discourse in which LSA is reduced to a methodological adaptation that teachers may alter as they wish.

2.   Deaf education in Argentina

Ever since the creation of the first public school for the deaf in 1905, Argentine deaf education has been oralist. The first teachers of deaf students came from Italy with the first wave of Italian immigrants at the end of the nineteenth century, few years after Milan's Congress where sign language was prohibited. An important Buenos Aires

private oral school – *Instituto Oral Modelo* – attended by most deaf children of deaf parents, has exerted its oralist influence all over Latin America since it was created in 1950. With respect to the official policy, it is worth noting that the Ministry of Education sent to deaf schools in 1999 a document – which will be analyzed later – proposing bilingual (albeit not bicultural) education, however, deaf schools are still oralist and most of them do not employ deaf teachers. Thus, from a sociocultural perspective, deaf schools are hearing sociocultural settings where Spanish is the target language. Although most teachers of the deaf take three-year Argentine Sign Language (LSA) courses and try to use this language later on when they are employed as teachers, their proficiency level is low and LSA interaction with deaf people is scant, which leads them to resort to signed Spanish. Few teachers of the deaf interact with deaf adults in non-academic situations or deaf associations in order to practice LSA. Teachers ignore the bicultural component of bilingual education, thinking that knowing some LSA enables them to practice bilingualism, and call their schools 'bilingual' without even considering deaf teachers or deaf culture.

Further, the lack of deaf teachers in schools with deaf students reinforces power relations in which the hearing dominate. Argentina has no programs to train deaf individuals as teachers. There is also great reluctance to accept deaf individuals as students in the available training programs for teachers of the deaf. Even if they were accepted in these programs, they would not have the slightest prospect of getting a job, since only oralist methodologies are used in schools. However, three deaf individuals, one of them a deaf community leader, are currently involved in teacher training programs in different parts of the country, facing great difficulties and much resistance from the authorities.

3. The role of the deaf community

Although the deaf community is now more organized than it used to be, it is still no more than a social group, with no political influence whatsoever. Their language – LSA – is important to them as a means of social interaction, and is also the object of renewed claims at the political level. The deaf community's fight for its official recognition has led to the passing of three provincial laws and a bill – Law No 8690 approved in 1998 in the city of Córdoba, Law No 11695 approved in 2001 in the capital city of Buenos Aires province, Law No 672 approved in 2001 in the city of Buenos Aires and a bill not yet approved presented in the city of Mendoza in the year 2004 – all of them stating that LSA is the "official language" of the deaf community. Although the legal texts were written in collaboration with some deaf members, none defines LSA as the *natural* language of the deaf community, in contrast with their commitment to the political recognition of LSA. None of these laws mentions regulations for deaf education. Deaf people do not struggle for bilingual-bicultural education in an organized

way and never have. Only few deaf leaders appreciate the importance of this educational model and have joined linguists in advocating it.

The reasons for the lack of involvement of the deaf community in education can be seen in the fact that the Argentine deaf are primarily monolingual and mostly illiterate, with a partial knowledge of written Spanish (Massone 1993; Massone et al. 2000). The deaf community is largely isolated from the rest of society and its members maintain a weak relationship with their hearing counterparts. The occasional interaction between both communities – during LSA courses, religious services in both LSA and Spanish, cultural events – only takes place when hearing people have some knowledge of LSA.

Economically and socially, the deaf community is part of Argentine mainstream society, though it is a marginalized segment. Massone (1993) has characterized it as an urban, nomad and illiterate group. Deaf schools are located in important cities and especially in Buenos Aires, which leads families to migrate in order to live near them. However, deaf people are in close contact throughout the country, joining in group activities. Social get-togethers and sports meetings are the most important events – only recently religious and cultural gatherings have been taking place. As schools are eminently oralist, these activities are carried out at deaf associations. Thus, most of their social interaction is with other deaf individuals and within their nuclear families (Massone & Johnson 1990). Interaction with hearing people is unusual, except in the case of hearing members of their nuclear families (op. cit.). This observation extends to marriage patterns: deaf people tend to marry each other.

Furthermore, both deaf education and the nature of the jobs offered to the deaf contribute to and, in a sense, guarantee their social and economic marginalization from mainstream society. Most of deaf individuals' jobs could be categorized as unskilled. Many deaf individuals are civil servants, though they perform tasks such as counting money, sorting mail and other items. As for the educational system it prepares deaf students for just the kinds of job that will keep them segregated.

In concluding, the Argentine deaf community is very similar in nature to other deaf communities of industrial countries around the world. It is a group that has and uses its own sign language, maintains its own social interaction patterns, and exists within, but is largely separated from the mainstream society of the hearing, Spanish-speaking Argentines.

4.   The study

In order to show that the discursive formations of deaf education are in fact quite similar across time I will start with the analysis of the 1895 Law (No 1662) that provided for the creation of the first school for the deaf and the 1956 decree (No 7528) that regulated deaf education in the country, amended in 1960. To offer a historical perspective of educational discourse analysis, the data of three previous papers in which many laws, constitutions, papers of teachers of the deaf – as will be explained below –

were studied (Behares, Massone & Curiel 1990; Massone & Simón 1997, 1998) will be reanalyzed by applying a Foucauldian framework (Foucault 1970).

Furthermore, I will examine *Learning in Students with Special Educational Needs – Guidelines for Curriculum Change*, a document drawn up by the National Ministry of Culture and Education in 1999. This was sent to every deaf school in the country, together with a dictionary of Argentine Sign Language which, as I will explain later on, was not based on linguistic principles – as each sign was analyzed from the standpoint of Spanish.

Since a historical study must, in order to understand present consequences, include recent data, a questionnaire was administered in 2004 to forty teachers of the deaf at different public and private oral schools. It consisted of five cloze questions to be answered in no more than three lines: "Deaf people are...", "Deaf teachers are...", "Argentine Sign Language is....", "Spoken Spanish for the deaf is...", "Written language is....".

The insights obtained through the participant observation conducted by the author since 1985 will be considered as well. This research has been carried out in public and private deaf schools throughout the country, in many of which I have been working as consultant. They are located in some of the most important cities: Buenos Aires, Quilmes, Haedo, La Plata, Rosario, Córdoba, Santa Fe, Mendoza, San Salvador de Jujuy, Carmen de Patagones, Posadas, Oberá, Gualeguaychú, Neuquén, Paraná, Formosa, Mar del Plata and San Juan. Participant observation events have been documented in the form of condensed and expanded field notes.

4.1   Results of previous studies

4.1.1   *The 1895 and 1956 laws*

I will first examine some extracts from Law No 1662, which was passed on September 19, 1895 and provided for the foundation of the first public deaf school in 1905.[1] The way in which deaf people are conceptualized can be seen throughout the text: the disability conceptualization of deaf people becomes apparent in statements such as "unfortunate beings"; "most deaf-mutes belong to the class of the poor"; "the ones benefiting from this law are the weak, the disinherited"; "it is necessary to train teachers that can reach out to other parts of the Argentine Republic, especially to those regions where the presence of evil is felt to a greater extent"; "the poor youth that have such misfortune". The deaf are thus opposed to those individuals that "have all the faculties and senses". With respect to education, the lawmakers argue, "if we can achieve the ideal of making them think, we can eradicate deaf-mutes from the Argentine Republic"; "deaf-mutes are to be taught to speak, to think and to use oral and written words". The 1895 law also aims at "fulfilling a duty towards humanity" by regulating the

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1.   It is important to remark that laws in our country are not immediately put into practice, they go through a process of regularization that may demand many years, that is why the first school was created under the spirit of the 1895 Law ten years after its approval.

education of the deaf; its "kindness" is stressed. The legal text also mentions that the 1880 Milan Congress encouraged the use of oral methodology for the education of *deaf-mutes*. In the spirit of this law, as mentioned, the first public school for the deaf – the *Ayrolo* Institute – was created in Buenos Aires in 1905.

In 1956, the second deaf school and the training college for teachers of the deaf were set up in Buenos Aires. New rules became necessary. Decree No 7528, passed on April 24 of that year, states: "those students who do not have the disposition to learn words will be educated in lip reading and the written language, to the exclusion of gestures". As for the teachers of deaf students it also prescribes, "in no case can deaf-and-dumb employees be appointed". On March 10, 1960, an amendment was included, requiring that a medical doctor take part in student teachers' final exam. The decree is still in force and has not been modified since. At the time, certificates were issued to "teachers for the deficient in voice, hearing and word". Recently, the wording has been changed to "voice, audition and language teachers", revealing the same underlying conception. The official training program for teachers of the deaf includes in its curricula a four-month Argentine Sign Language course, but no linguistics or bilingual-bicultural training.

Nowadays, many public colleges offer training for teachers of the deaf using oral methodologies. In some of them, Argentine Sign Language is taught for less than a year as a separate subject. The National University of Cuyo, in the northwestern Mendoza province, has implemented the only university course in which courses on both oralism and bilingualism are taught. In Argentina, sign linguistics is not, however, included in the curriculum for student teachers. Nor is it taught as a subject at social sciences schools or in linguistics courses. Nevertheless, three research projects on sign linguistics are being carried out, one at the National University of Comahue, another at the National University of San Juan, and the third one at the National Council for Scientific and Technological Research (CONICET), on which our team has been working since 1985.

As can be clearly seen in the texts discussed, Argentine deaf education was grounded, at the beginning, on the clinical model that pathologized deaf people. The aims of this model have been summed up by one of the former owners of the most famous oral private school: "To learn to speak is to learn to live. To teach to speak is to teach to live. To learn to speak is to learn to think" (Cáceres 1983: 65).

It is my hypothesis that oralism or the clinical model is still the DD of Argentine deaf education, currently manifesting itself as what I call neo-oralist discourse, in which sign language is the utmost fetish. I will explain this historical process by analyzing other data.

4.1.2   *The 1990 teacher interviews and the emergence of BBD*
In 1990, Behares, Massone and Curiel studied a corpus of interviews with teachers of the deaf, school authorities, parents and deaf people, as well as of written documents

and audio-tapes collected at deaf education workshops. The interviews were conducted in Argentina and Uruguay, although I will only refer to the former country.

The authors noticed two important conflicts, a "methodological conflict" and a "social conflict", in deaf education discourse (DED) as was reflected in their data (Behares et al. 1990). The "methodological conflict" became apparent in the frustration experienced by teachers as a result of the relative success of the oral methods they used, which prompted in our country, and first in Buenos Aires, a discussion about alternative educational models. Among their expressions of disappointment were: "this boy has no language"; "my students have forgotten everything I taught yesterday"; "I do not know how to teach deaf students"; "students do not learn to read and write"; "the oral method does not fail in private schools because students are just deaf, without other pathologies"; "when the deaf talk, only their teachers understand what they say". They also used words such as "failure", "weariness", "frustration", "difficulty and "fatigue".

Regarding the "social conflict", Behares et al. (ibid.) also showed that it originated in a new conceptualization of the deaf as well as in the new approach to deaf diversity advocated by social scientists: the socio-anthropological model. Therefore, the new knowledge formations and discursive practices attempted to change the established power relations or discursive formations (Foucault 1970). The ensuing "social conflict" helped, to a certain extent, to modify knowledge constructions; in other words, it gave rise to a new perspective of the deaf, deaf language and culture – a new order of discourse. To conclude their DED analysis, the authors examined three discursive constructions: (a) oralist discourse, (b) the discourse about alternatives to oralism, and (c) the discourse of bilingual-bicultural education.

BBD was introduced in 1985 in Argentine DED as an emerging discourse (Giménez Montiel 1983: 34), opposing oralism and intending to change the socio-semiotic references of the discursive formation in which it appeared – DED or DD. BBD operated within the existing network – otherwise it would have lost all legitimacy, using DD sign values and challenging them at the same time. It viewed the deaf not as sick people but as members of a linguistic community, sign language as a natural language and not as a pantomime or a set of iconic gestures, education as literacy and not as rehabilitation. A new socio-semiotic reference system was thus made possible. In other words, the new discourse summed up the existing signs, gave them a different value and from the new meanings it built a new parallel discursive reality. The strength of this challenge compelled the DD to respond, a new reference system being imposed in deaf education as a result. As Raiter (1999: 53) contends, a discourse becomes an emerging one when the DD, unable to classify it, has to respond, losing therefore the discursive initiative.

BBD appeared within the DED discursive network and assigned the signs "deaf", "special education of the deaf", "sign language" and "deaf school" a new value, and introduced the signs "deaf culture", "deaf identity", "linguistic community", "deaf teacher" and "diversity" (Massone & Johnson 1990), in order to call the DD – oralism – into question. Since 1985 BBD as an emerging discourse has been struggling for dominance, that is, for

the power of saying. It has been striving for the power to establish itself as a valid, well-known producer within the discursive network with the aim of constructing a new DD.

4.1.3   *The BBD and alternative discursive perspectives*

Seven years later, Massone and Simón (1997, 1998) analyzed documents sent to 59 deaf schools by the Buenos Aires Directorate of Special Education and General Directorate of Schools. These documents contain information for teachers of the deaf and school administrators as well as mandatory rules. Other documents examined include deaf schools' mission statements, the 1993 Federal Education Act (No 24.195), the 1871 Civil Code still in force today, which is concerned with individuals' private rights, and papers read by teachers at deaf education workshops during those years.

Massone and Simón's analysis showed three discursive perspectives:

a. The traditional oralist discourse, which is grounded in the following assumptions:
    – The oral-auditory method plays an essential role in cognitive and linguistic development.
    – Sign language is not a linguistic system; its use imposes limitations on deaf students' abstraction and generalization capabilities.
    – Sign language knowledge hinders spoken language learning.
    – Spoken language knowledge provides the best chance for deaf children to be mainstreamed into the hearing world of their equals.
    – Sign language and bilingual education are just methods or educational strategies.

The following example summarizes some of the aforementioned results:

(1)   As oralists, it is our duty to defend oralism as well as to respect other well-founded educational methods and to know their scope and limitations. With respect to sign language or the bilingual system, we acknowledge its usefulness in making communication possible, but it will not permit mainstreaming as it is a language not known by society... If they (deaf children) are our goal, let us leave aside the dualism and rivalries that take us back to the past century. Let us choose a method, learn it fully and be responsible as to how and to whom we must apply it (Teacher of the deaf from a private oral school at a Buenos Aires workshop, 1995).

b. The discourse of alternatives to oralism, which claims to be non-oralist, but contains contradictions and confusions. It contends that:
    – Sign language is necessary only for children that cannot learn oral language or suffer from other diseases.
    – Sign language and bilingual education are considered as synonymous.
    – The ultimate goal of deaf education is speech rehabilitation.
    – Sign language and sign methodologies are just educational strategies.

Neither the anthropological perspective nor deaf teachers are mentioned in this discourse. Moreover, deaf individuals are considered as people that need help. The terms "language" and "speech" are used as synonyms, except in quotations from references. Terms that belong to the oralist discourse like "bimodal education", "signed Spanish", "Cued Speech" and "Total Communication" appear in the discussion of alternative proposals. The term "bilingual" refers to sign language instruction delivered by hearing teachers.

A conversation between a member of the research team (R) and the head of a deaf school (H) in 1995 illustrates this discursive formation:

(2)   R: There are no bilingual-bicultural schools in our country.
H: I have a bilingual school.
R: How many deaf teachers are working at your school?
H: We have one deaf teacher who looks after the children during breaks.
R: [Treating] the deaf as slaves is not bilingual – bicultural education.

c.   The mainstreaming discourse, which seeks to neutralize or cancel out the differences between the deaf and the hearing.

In it the terms mainstreaming and normalization appear together, the former being the strategy suggested by DED to achieve the latter, that is, to make deaf children conform to the hearing standard. In this sense, The Federal Education Act passed in 1993 proposes to mainstream students with disabilities, including deaf ones. Article 28 states that special education aims "to provide individualized, normalizing and mainstreaming education", and Article 29 reads:

> The situation of the students attended to in special centers or schools will be periodically re-evaluated by professionals in order to facilitate, whenever possible and with the agreement of both parents, their integration into mainstream schools.

The results of the studies discussed can be summed up by saying that BBD, which started as an emerging discourse, has failed to give new meanings to DED values. Thus, it has lost the discursive initiative, that is, the right to put itself forward as a new DD. The bicultural component of bilingual-bicultural education has been particularly contested, as the following excerpts from deaf education workshops conducted in 1996 show:

(3)   I do not agree – it is hard for me to think about the existence of a deaf culture.

(4)   You are talking about the idea of a ghetto.

(5)   Having a language is almost acceptable, but having a culture?

(6)   Deaf culture is a deficient organization that will lose its characteristics to share the ideals of the hearing culture (Papers read by deaf education professionals).

(7)   What do you mean by deaf culture? (Question usually asked by teachers of the deaf and by parents).

The three discursive formations considered show how the DD has been reproduced as an authoritarian discourse with different discursive modalities. Moreover, we conclude that it is naïve to think that deaf education can be transformed by knowledge constructions alone, that is, by the new socio-semiotic references of BBD. New power relations must be established, which means that the hearing sociolinguistic context of deaf schools must be changed. No system can be conceived as independent from power relations, the education one being no exception. In fact, even the hearing teachers that support bilingual education oppose the hiring of deaf teachers, for fear they might lose their current status.

4.2   Results of current studies: Bilingual-bicultural discourse has lost the battle

Since the beginning of our research we have advocated the socio-anthropological model (Massone 1985) and, consequently, bilingual-bicultural education – or intercultural-multilingual education as Massone prefers to call it (Massone, Simón & Druetta, 2003). Therefore we have analyzed DED in order to explain the ideological formations and discursive practices that have prevented this model from being implemented. I will focus now on certain ideological issues that may account for the exclusion of the Argentine deaf community and the impossibility of employing deaf teachers.

To verify whether my hypothesis that little has changed in Argentine deaf education since 1895 is true, I submitted a questionnaire to forty teachers from different public and private oral schools for the deaf in 2004. Their answers were analyzed and categorized after reading all the responses. The analysis revealed that only 1.2% of the answers about "the qualities of a good teacher of the deaf" referred to sign language competence. Only 0.3% of the respondents thought that deaf adults could act as teachers, although they all considered that LSA is the natural language of the deaf and 90% believed that deaf people make up a linguistic community. They viewed the deaf as "sick", as "having a disease", and therefore as incapable of becoming teachers themselves. By means of this conceptualization the deaf are held captive, while hearing teachers keep their jobs and power relations, that is, hearing sociolinguistic school contexts, remain unchanged. Accordingly, all the teachers surveyed saw the teaching of spoken Spanish as essential for mainstreaming the deaf into the hearing society.

I have not been able to categorize the participants' answers about written language; teachers cannot define nor conceptualize it, as its teaching has never been the aim of Argentine deaf schools, which have rather focused on speech rehabilitation. In fact, article 54 of the 1871 Civil Code states: "Deaf-mutes shall be considered in the same way as minors or the insane if they cannot make themselves understood through written language". Article 154 adds: "In order that a guardian may be appointed for deaf-mutes, the procedure established for [the guardianship of] the insane shall be followed". Therefore, the "deaf and dumb" are considered legally incompetent because they lack the skills necessary to express their will unequivocally through writing.

However, deaf schools disregard the teaching of written language, the system thus appears consistent within itself.

The questionnaire has revealed a contradiction: although sign language is viewed as the natural language of the deaf, teachers are unable to see deaf people as capable of teaching. This shows that the discursive formations of the DD – oralism – still underlie their beliefs.

I have also analyzed *Learning in Students with Special Educational Needs – Guidelines for Curriculum Change*, an official document drawn up by the National Ministry of Culture and Education in 1999. It is legally binding and has been sent to every public deaf school in the country. According to it, deafness is "one of the most severe deficiencies that a child must confront" (ibid.: 23). The inclusion of certain bibliographical references not quoted in the text – e.g. Chomsky's and Luria's works – points to a major theoretical contradiction. This confusion leads to statements such as "the deaf have alterations in their innate communication capacities" (ibid.: 24). Even though sign language is alluded to as "the natural language of the deaf" (ibid.: 38)*,* the authors claim that "it is not paradise or a saving miracle … sign language is simply a language that can be easily accessed by deaf children; thus, it is the most successful aid to communication, education and cognitive development" (ibid.: 36). Such a contradiction leads the reader to ambiguous interpretations.

Sign language is then defined in the above mentioned document as "a curricular adaptation" (ibid.: 45) and never more as the natural language of the deaf community. Curricular adaptations are in turn defined as "the strategies and additional educational resources that are used in schools to enable students with special educational needs to access the curriculum and make progress" (ibid.: VI). They "must be the result of educational planning by institutional actors for each student with special educational needs" (ibid.: VI). These adaptations must be implemented by teachers and go beyond adapting Argentine Sign Language to each deaf individual. The bicultural component of deaf education is not mentioned at all, nor is the hiring of deaf teachers – only hearing ones would be able to teach the adapted LSA. There is no reference whatsoever to the deaf community or to deaf culture.

In an analysis done by Simón and Massone (2000), through the observation and recording of LSA courses, results showed that Argentine Sign Language is never taught in sign courses with hearing students in the way in which deaf people use it in their everyday interaction – not even by the few deaf instructors. Instead, a manualized form of signed Spanish is presented, with, for example, fewer agreement verbs, spatial-locative verbs and non-manual features than are used by any two deaf people signing to each other. Therefore, the hearing students attending these courses learn a variety of signed Spanish. The authors considered that LSA acts as an ethnic boundary enabling members of the deaf community to recognize outsiders. Besides, deaf sign language instructors have no pedagogical training at all. This is compounded by the fact that hearing teacher-students take only three-year courses, after which they have little or virtually no interaction with the deaf community and receive no further training.

From the general introduction to this document it can be inferred that educational transformation in this field consists in catering for diversity. This would mean making schools inclusive in order to guarantee equal quality learning for all students – or, as schools are the places where ideology is taught, "dominant ideology in a pure state" (Althusser 1970/1988: 36). Does the mere inclusion of diversity guarantee educational quality? Or even worse, was the educational system not aware of diversity before 1999?

The analysis of this document reveals the presence of DED as authoritarian discourse. This discourse is monological – as opposed to dialogical, without explicit intertextuality markers or quotations. What the addresser states, using the third person, is the undisputed truth. No polyphonic voices – marked by expressions such as by "no… on the contrary" or "not...but" – can be heard. Rhetorical questions, explicit assertions – e.g. "yes, it is true that...", "it is true that", adversative and consecutive conjunctions are also absent (Bachtin 1982; Lavandera 1986; Ducrot 2001). It is important to note in this context that DED is part of educational discourse (ED), from which it draws the view that teaching is not just providing information and that learning entails acceptance. As authoritarian discourse ED – and therefore DED – is a strong control mechanism that involves the exercise of power.

Other explicit intertextuality markers might have been used to indicate the presence of other speakers, such as reported discourse, irony, parody or quotation marks. In this document, however, these speakers are mentioned only to supply evidence of sign language research – Stokoe, Bellugi and Brown – or of deaf children's poor reading skills – Conrad. However, no statements by such writers are quoted or reported.

Authoritarian discourse is characterized by the use of the third person and the lack of first or second person markers. Authors typically present certain facts as the unquestionable truth, and their interpretation as the only valid one, which is reflected in the exclusive use of third-person pronoun and verb forms (Lavandera 1986). In the text analyzed, this can be seen in the following expressions: "Special education is...", "Special education has...", "Educational services for people with special educational needs deal with...", "The transformation of the system must...", "Curricular adaptations must be the result of...", "Deaf children are...".

The twenty-four-page general introduction is followed by a thirty-three-page chapter specifically concerned with "Learning in deaf children", which shares these authoritarian and monological features. It starts by discussing the problems that deaf children encounter because of their hearing impairment. In the following excerpt, the writers assume they are in possession of the truth, remaining indifferent to the limits of their own narration. They send an objective message through the linguistic devices of authoritarian discourse:

(8) The aspects of deaf people's reality considered here help to understand certain behaviors, behavior disturbances and widespread learning difficulties. It must be pointed out that not all deaf children experience this bundle of problems at

> the same time. Deaf children may be happy children if they benefit from certain favorable communication conditions, either because they feel loved, accepted or helped by their families or because their families rely on professionals that accept them and help their parents to do likewise. But such conditions do not always exist. Some deaf children develop a complex personality, adapt themselves with difficulty to their environment, do not find their place in a world where it is normal to hear and to speak, and perceive that the world causes much more frustration to them than to hearing children (ibid.: 26).

Therefore, the Ministry of Culture and Education thinks that some deaf children are not happy because they have a "bundle of problems". In fact, as this view of deaf children is presented in a rhematic position – Spanish is a rhematic language (Pardo 1986, 1992) – readers are led to interpret that all deaf children have problems. As analysts we must disentangle that what the text means beyond what it says. For this purpose the analysis of the hierarchy of emissions in a text, the distribution of information, not only contributes to its meaning, but also as Wodak and Matouschek (1993) write:

> The analysis of the establishment of topics is important because it reflects the abstract thematic organization in which prejudices about foreigners are clustered. It is essential in this connection to reiterate the significance and influence of the choice of topics on the formation of prejudice by social elites such as politicians, journalists, etc. (ibid.: 236).

I argue that this document calls into question the sign values introduced by BBD. It both responds and objects to BBD, reducing it to its bilingual component. The document acknowledges sign language as a curricular adaptation but not as the natural language of the deaf community, which entails a new reduction. As an instrument of State power, it deprives BBD of its emerging character, hushing it up. Through its institutions, DED becomes established as the DD by means of discursive transformations and practices that enable it to keep imposing its ideological formations. It draws on the reference world of oralist discourse to give new meanings to BBD sign values. The new BBD has become part of the DD: the reference world of the latter is used to understand the former. The DD is so deeply embedded in society that it can afford to have opponents that legitimate it.

I consider this document as the most important manifesto against BBD yet published in Argentina. As I have contended before, its context cannot be disregarded, that is, the fact that it was sent to every public deaf school in the country together with an "LSA dictionary", in which lexical entries are explained according to Spanish meanings. This work is not grounded in any linguistic or lexical principles, which again shows the influence of the DD. Furthermore, the paper under analysis is the last legally binding document sent by the Ministry of Culture and Education to every deaf school.

5. The working of ideology

As a constitutive dimension of the social system, ideology shapes every socially significant matter. According to Althusser (1970/1988: 52 – 63), it is the means through which the State is realized in its institutions, involving mechanisms through which people are "interpellated" as subjects. In his view, the school is the place where human beings are "interpellated" as State subjects, constituting the most important ideological State apparatus because of the compulsory nature of formal education. The concept of subject is central to any ideology. The most important mechanism of ideology is language acquisition. Human beings become "subjects" through language, reproducing power relations at both the social and the subjective level, by thinking about the world and about themselves in different ways. Language is the most important instrument of the realization of ideology as a representation of the relationship between human beings and their existing conditions. In any ideological State apparatus, ideology both puts into practice and restores the DD.

In this context, dissident – non-official – languages jeopardize the most basic reproduction structure of State power relations, as they struggle to appropriate linguistic capital (Bourdieu 1991). As an ideological State apparatus, the school, in Argentina, enforces the use of Spanish as the official language, and this official language, in turn, reproduces symbolic power relations. The State as a site of appropriation of symbolic capital resists the forces that attack its integrity. The suggestion of other meaning possibilities would disorganize it, and therefore the State legitimates some meanings and disallows others through DED. Thus, dissident languages – sign languages, in this case – and the languages of ethnic groups are subjected to ideology.

Althusser (1970/1988: 58–63) illustrates his notion of ideology with the example of God, who, as Absolute Subject, "interpellates" the human being as his equal. God must, according to Althusser, become human in Jesus' body in order to return, with an inclusive movement, to the human being as God's image. This is the way in which ideology "interpellates" individuals as subjects, "subjecting them", that is, their identity, to the ideal of the Absolute Subject. Similarly, Spanish embraces sign language, dialectically producing signed Spanish, a manualized form used by hearing teachers in the so-called bilingual schools, which are in fact oral schools where LSA is marginally present. DED does not acknowledge LSA as the natural language of deaf people transmitted by deaf adults at school – it only accepts it as a form of signed Spanish, which is in turn a variety of the Spanish language. Thus, the DD appropriates LSA and transforms it by assigning it a new meaning.

Since signs play both a persuasive and a referential role, there are no ideologically neutral signs, as was already pointed out at the beginning of this chapter. Ideological forces tend to naturalize them, that is, to make dominant cultural and historical values, attitudes and beliefs appear plain and natural. These signifying practices present the ideological reference world as transparent, which prevents the unfolding of the infinite meaning possibilities of signs, downgrades and masks knowledge and generates

ambiguity. Because of this seemingly direct, simple and lineal relation between DED and reality, the former is put forward as an absolute discourse, that is, as the only possible one about its subject.

The capacity for deceit that Marx (1975) called fetishism involves quality loss as well as commodification, that is, conversion into something countable. As a result of this process knowledge withdraws, vanishes, disguises itself and becomes dark, alienated, impoverished, simplified and ambiguous. A certain sign value prevails against the inexpressibility and polyphony of meaning, whose affirmation would be seen as an "interpellation" of ideology. In the deaf education field, LSA is both a fetish and a myth (Barthes 1980: 199–257). As such, it becomes useful to ideology – it is the perfect trick with which ideology persuades people that it accepts diversity.

Through fetishism, ideology simplifies the complex and introduces false analogies. It reduces the richness and variety of the world to stereotypes. The analysis of the research data shows the significance of some trivialized or naturalized conceptions. It is often stated, for instance, that Argentine Sign Language "is an SOV [subject-object-verb] language", ignoring the pragmatic and semantic aspects that may change this canonical sign order (Massone & Curiel 2004). Rather than provide real linguistic knowledge, this statement simplifies the complex structure of the language. Other educational and linguistic simplifications present in deaf education discourse are:

(9)   The deaf have not been trained to teach LSA.

(10)   The deaf are not qualified for school teaching.

(11)   LSA is useful to deaf individuals that cannot be oralized.

(12)   If deaf people sign they will never speak.

(13)   Our method is bilingual: oral method plus sign language.

(14)   Deaf people must be integrated with hearing people.

(15)   Using sign language at school means being bilingual.

By rejecting both the bilingual-bicultural model and its intercultural component, DED defends itself from a potential revolution that would subvert its domination. In Bourdieu's terms, deaf education cannot change its *habitus*; it cannot negotiate epistemological obstacles. In fact as Bourdieu (1999) argues, symbolic violence consists in imposing meanings as language has the power of making things or exerting actions with words, so as to prevent a change of *habitus* in a specific field. Such violence is invisible as it cannot be put into practice without the complicity of those that do not want to know that they suffer it or that they really do it. In this context, upholding orthodoxy becomes a self-preservation strategy. Therefore, accepting the reference world of BBD would be heretical. It would mean acknowledging it as an emerging discourse whose discursive formations originate from social scientists and the deaf themselves and not from teachers of the deaf.

6. Concluding remarks

DED points to the *fixed*, *conservative* and *authoritarian* linguistic policy followed since the creation of the first deaf school in 1895. Argentine policy-makers have repeatedly refused even to consider the bilingual-bicultural model of deaf education. They have stuck to the view that the deaf are sick people that must be healed or normalized by speech and hearing therapists in order to resemble their hearing counterparts. Most of all, they have developed an authoritarian model that reproduces current power relations, in which the hearing dominate because "they give the deaf a language and structure it" – as current teachers of the deaf commonly put it. At the same time, this policy reinforces the powerful ideology that expects deaf schools to train students to speak.

BBD started a discursive fight for power, putting itself forward within the discursive network as an interlocutor. It appeared in the deaf education field as an emerging discourse, questioning DED references and struggling to impose new ones based on a new conceptualization of the deaf originating in the socio-anthropological perspective. However, it has lost the discursive initiative, failing to become established as a dominant discourse. DED has embraced it, producing LSA as its utmost fetish. Sign language and the voices of diversity have been drowned out once more.

Acknowledgements

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Sign language and oral/written language in deaf education in China

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This chapter deals with Chinese Sign Language (CSL)/Chinese bilingual experiences of deaf children and adults in Mainland China, investigated on the basis of interviews, a questionnaire survey, school observations and teachers' publications. The historical review of deaf education in China provides important insights into the use of sign language and oral/written Chinese in the educational context since the establishment of the first deaf school in China, and reveals that different periods in deaf education can be distinguished regarding the status assigned to sign language at a given time. The various paths to sign bilingualism in China become apparent in deaf individuals' testimonies about their schooling and language acquisition. Furthermore, the analysis of the outcome of language contact between CSL and Chinese (in spoken, written and signed forms) provides further insights into the interaction of the different languages and communication systems that can be usefully exploited in the educational context. The chapter concludes with a discussion of current bilingual-bicultural pilot programs for profoundly deaf children in schools for the deaf in China.

Keywords: bilingual education, China, sign bilingualism, Chinese Sign Language, deaf, language contact

1.   Introduction

Bimodal bilingualism in deaf individuals involving the sign language used in the deaf community and the spoken/written language of the surrounding linguistic majority has only recently become an issue in deaf education in China. Over the last decade, several pilot bilingual education programs have been implemented, based on an additive model of bilingualism (Stewart 1992; Hamers 1998) whereby sign language is promoted as the first language to ensure children's full communicative and conceptual development, whilst the majority spoken/written language is taught as a second language. Before these programs were established, sign language was not recognized as

the first or natural language of deaf individuals, but it can be considered to have been a hidden part of the curriculum for many years.

In China, the educational objective has traditionally been for deaf children to formally and systematically learn spoken/written Chinese and acquire curricular knowledge through this language. While instruction in Chinese Sign Language (CSL) and sign language interpretation have not been available in mainstreamed settings, CSL has been used as the language of instruction or as an additional means of communication, and in peer interaction in special schools for the deaf since the beginning of the 20th century. Because many deaf and hard of hearing children whose (hearing) parents do not sign can only acquire natural sign language if they are exposed to CSL at school and join the deaf community, it is clear that these special schools have played a crucial role in shaping the deaf community. To date, signing CSL, making gestures, speaking and speechreading, fingerspelling and reading and writing Chinese in these institutions have been taught to deaf students and also used as part of the classroom communication strategy. Since the 1930s, teachers in schools for the deaf have believed that CSL has a positive impact on the acquisition of literacy (Dai & Song 1999; Chen 2005), and have often used CSL in order to explain concepts, interpret Chinese texts and assist students in writing Chinese. However, research into the bilingual lives of Chinese deaf individuals and the need for and significance of CSL/Chinese bilingual teaching in schools for the deaf is scarce. To fill this gap, between 2000 and 2005, I conducted a research project based on a series of interviews with Chinese deaf adults (including deaf teachers) about how they acquired CSL/Chinese and used the two languages, and carried out a participant observation study of current CSL/Chinese bilingual experimental programs for prelingually profoundly deaf children in several cities in Mainland China.

This chapter is organized as follows: I will first review the development of CSL, and then describe the characteristics of spoken/written Chinese that are relevant to the understanding of the various languages and communication approaches used in deaf education that I discuss subsequently. I will then present the results of my investigation of CSL/Chinese bilingual experiences of deaf adults and examine cross-modal language contact phenomena produced by deaf people, before discussing the practical outcomes of CSL/Chinese teaching in the bilingual-bicultural experimental programs. Finally, I will discuss the arguments in favor of the bilingual approach in deaf education.

2. A brief history of Chinese Sign Language

Today, CSL is used by deaf children and adults with marked regional variations and is recognized as the primary language of deaf people (particularly in the case of illiterate deaf people) by the Deaf community and the general public (Pu & Mei 1986; Mu 1991; Zhao 1999). As I will explain in the following sections, the status of sign language in China has changed over time. This review of the historical roots of natural sign language

in China focuses on four topics: (1) early records of CSL, (2) CSL standardization, (3) research on CSL grammar, and (4) CSL and Deaf culture.

2.1   Early records of CSL

The first historical record of the use of *signs* for communication dates back to the Tang Dynasty (A. D. 618–959) in which the Chinese word 手语 *shou-yu* for 'sign language' appears in classical literature and where the sign for 'mirror' was documented. At that time, *shou-yu* was used to refer to manual communication involving the use of meaningful iconic signs (Mu 1991). The existence of a *signing community* is first mentioned during the Northern Song Dynasty (960–1127) by Su Dongpo, in the document *Guaishi Ji* (quoted in Mu 1991), in which he describes a group of people in an "overseas" village who communicate through hand gestures, facial and body expressions, observing that their communication speed in signs is comparable to that of speech. However, the author does not provide any information on the hearing status of the signing individuals.

Another piece of evidence dating from the period of the Ming Dynasty (1368–1644) can be found in a scene of the theatre play written by Xu Wei, *Yushan Shi Cuixiang Yimeng* ('A dream of Master Jade in Green Village'), in which one of the characters signs *TOU TAI* ('It is the reincarnation'), which is translated into spoken Chinese afterwards by another figure. According to the description in the script, the signed expression consisted of the following elements: an old sign *TOU* ('head') conveying a new meaning, 'reincarnation', in context; a gestural sign (drawing a circle with the meaning of 'moon') combined with a character sign (imitating the shape of the Chinese character *tai* 'platform'*)*. The latter element of the sign is illustrative of the type of borrowing from written Chinese that is characteristic of CSL, as will be explained in more detail in section 7.2.

Finally, we find further historical evidence of the use of signs during the Qing period (1644–1911) in Xuan Ding's biography of a deaf man (Mu 1991). Xuan describes how this deaf individual communicated with his hearing mother through a system of home-signs that expressed the concepts for 'bread', 'fish', 'meat', and 'mother', and that he would use facial expressions and gestures to inform neighbors about how well his mother was or was not eating. Xuan also remarks that many deaf people would use each of the five fingers to represent five different concepts: the thumb-up represented 'sky', the extended index finger 'land', the middle finger 'father', the ring finger 'mother', and the extended little finger 'wife' (quoted in op. cit.: 8). Interestingly, some of the signs mentioned (such as the ones used to express 'bread' and 'fish') are still in use today.

In short, a review of classical written Chinese documents reveals that the early history of CSL can be traced back at least one thousand years and that some of the 'old' signs described in the historical documents continue to be used today, whilst others have changed. Many new signs have evolved as the result of improved communication, education, and employment and other societal changes in the course of the last century (Ji 1988; Zhao 1999).

2.2   CSL standardization

Another aspect that deserves to be considered in the study of the evolution of CSL pertains to the efforts undertaken by educational professionals and official committees to unify the sign language used in China. It is important to note in this respect that some local deaf communities such as those in Shanghai, Nanjing, Beijing, and Tianjin use their own special dialects of CSL (Yau 1977; Dai & Wen 2002). However, some varieties have spread to other regions, a process that can be linked to the influence of teachers of the deaf who have moved from one region to another in order to teach at other institutions (Luo 1999). The standardization of CSL has been the target of sign language planning measures in China since the 1950s. The process towards the establishment of a standard variety officially began with the foundation of the Deaf Sign Language Reform Committee in 1957 by the China Deaf and Blind People's Welfare Association, following the National Language Reform Committee's decision (in 1955) to standardize spoken and written Chinese. The sign language committee strove to unify the several thousand signs used by deaf people in various regions into a vocabulary to be used nationwide, a measure aimed at facilitating cross-regional communication (Wen 1992). Many deaf and hearing teachers of deaf students, including professionals occupied in rural areas, documented the CSL signs used in schools and outside; some of them were even invited to participate in the committee (Zhao 1999), thus becoming the primary contributors in putting together the CSL lexicon and CSL learning materials.

In 1959, the committee published the first manual phonetic alphabet of Modern Chinese, consisting of a total of 30 hand charts including graphic representations of the one-handed signs used for the representation of the 26 alphabet letters, plus four one-handed signs used for the representation of the four consonant combinations zh, ch, sh, and ng. With the aim of establishing a unified CSL lexicon, the committee compiled a four-volume lexicon set entitled *Longyaren Tongyong Shouyu Tu* ('Standard signs for the deaf') in 1961. It was officially published in 1963, and contained not only many regional lexical items but also signs borrowed from the International Sign System (Wen 1992: 10), as well as some artificial signs created by combining gestures and elements of the manual phonetic alphabet to express the meanings of specific Chinese words. It is worth noting in this context that the standardization efforts targeted the CSL lexicon and did not deal with the grammar of CSL.

In May 1987, the participants in the Third All-China Sign Language Working Meeting in Taian, Shandong Province, agreed to use the title *Zhongguo Shouyu* ('Chinese Sign Language') for the new edition of *Longyaren Tongyong Shouyu Tu* which was to be published in 1990. Thus, the use of "Chinese Sign Language" as the official name of the sign language used by the deaf community in China was established. At the same time, CSL was officially recognized by the 1990 Act of the People's Republic of China for the Protection of Disabled Persons.

Today, the CSL lexicon is used as a standard textbook in training programs for special education teachers, sign language interpreters and officers in disability service agencies (Wen 1992). CSL interpreters of television news (who are also often teachers of the deaf) are also expected to use the standard CSL signs in their broadcasts, and many schools with deaf students encourage new teachers and students to use the lexicon as a reference. However, although the lexicon (re-revised in 2003) contains approximately 5,000 lexical items, the expectations of the China Association of the Deaf (CAD) in establishing a unified sign system on a par with the successful establishment of spoken Mandarin and the simplified Chinese characters now used in Mainland China have not been met (ibid.; Gu et al. 2005). Instead, in their everyday lives, many deaf signers prefer to use the regional signs they grew up with rather than the artificial signs included in the book.

2.3   Research on CSL grammar and lexicon

Various studies have been dedicated to the properties of CSL grammar and lexicon. CSL phonology was first studied by Yau (1988), who had also translated the CSL lexicon *Longyaren Tongyong Shouyu Tu* into English in 1977. In his analysis of the linguistic features of CSL lexical items, Yau identified 41 handshapes, 12 locations and 10 movements; he described individual signs by distinguishing five components, namely, "the hand configuration, the place of articulation, the movements and their orientations, the facial expression, and finally the intensity of the gesture (force and speed)" (ibid.: 3).

Regarding the grammatical properties of CSL at the syntactic level, Yau (ibid.) indicated that the CSL word order was different from that of spoken Chinese. Other studies have also analysed the differences between CSL and Chinese syntax; Ye (1990), for example, analyzed word order and the role of non-manual elements, and Yang and Fischer (2002) looked at morphological and syntactic features of negation.

Other studies have focused on the CSL lexicon. Following his linguistic fieldwork and observations of some native deaf signers in Mainland China, Yau (1977, 1988) pointed out that the invented signs included in the *Longyaren Tongyong Shouyu Tu* lexicon found little acceptance in the deaf community, such as the new initialized signs made up to code Chinese words, or compound signs created to match Chinese characters. Further insights into the nature of CSL lexical items, in particular their similarity to Chinese logographic characters, have been provided by Pu and Mei (1986).

In this context, it is worth mentioning that research into the contrasting properties between CSL and Chinese also has an important educational dimension. Ji (1988), a well-known hearing teacher of deaf students in Shanghai, drew attention to the use of CSL among deaf people, as well as to the differences between CSL and Chinese with respect to word formation, syntax, and patterns of language contact. Based on his findings about the use of CSL in the deaf community, he criticized the teachers' use of a signed form of Chinese (signed Chinese), which would create additional communication and learning problems for deaf students. He also remarked on the trend towards restructuring

CSL in a way that brings it closer in line with the word formation and syntax of spoken Chinese by adding extra manual letters to represent Chinese functional words. In sum, the author warns of the use of CSL as a substitute for the Chinese Language.

2.4   CSL and deaf culture

The strong link between Deaf culture and CSL in China is similar to the situation of native sign languages elsewhere (Padden and Humphries 1988). Following Dai and Song (1999), the early deaf community in China flourished in the 1930s and 1940s in Shanghai, Nanjing, Beijing and Chongqing, where several schools for the deaf were established at the time and graduates maintained close connections. Today, at provincial and local level, there are many deaf associations and special interest organizations for deaf artists, stamp collectors, and photographers. Some of these organizations publish newsletters and exchange information on websites or online forums.

While the concept of 'Deaf culture' is not properly understood by the majority of hearing Chinese individuals, cultural awareness and the appreciation of sign language within the Chinese Deaf community have increased over time, as shown in the studies of Huang (2002) and Sun (2003). According to Huang's (2002) survey, 86.6% of the 120 deaf individuals surveyed in four cities in Northern China stated that they had learned CSL in elementary schools for the deaf, that CSL played an important part in their cultural lives, and was essential as a medium of communication among deaf people. Furthermore, whilst 42.5% of all respondents agreed that deaf children should learn CSL as their first language, 28.3% were concerned about the potential interference of sign language in deaf children's acquisition of spoken and written language (we will discuss language contact in more detail in section 7 below). Based on the evidence gathered in a questionnaire survey of 131 deaf adults in Beijing, Sun (2003) observed that younger deaf respondents, as well as deaf individuals with higher educational levels and steady employment, are more positive about their deafness than older or less financially or educationally established deaf adults.

In short, our brief overview of the history of CSL and Deaf culture reveals how over the last century, deaf and hearing professionals in the educational domain have been engaged in research into the lexicon and grammar of CSL, as well as in its standardization and use in deaf education. We will now turn our attention to deaf education with a view to clarifying the status assigned to CSL and the oral/written language in this domain, before proceeding to discuss sign bilingual education in China.

3.   Spoken/written Chinese and deaf learners

In this section we will briefly explain some characteristics of modern Chinese which are relevant for an appropriate understanding of the teaching and acquisition of this

language (section 3.1) before discussing deaf children's problems in the acquisition of literacy (section 3.2). Like deaf children in other countries, many Chinese deaf learners perform poorly and experience difficulty in reading and writing. Among the potential causes for deaf students' low levels of achievement, limitations on the acquisition of the oral language that the written language relates to and lack of phonological awareness have been assigned a central role by many scholars. However, as most studies are dedicated to the investigation of deaf students' acquisition of alphabetic writing systems, the question arises as to whether or not phonological awareness plays an equally prominent role in learning a non-alphabetical logographic system (e.g. the Chinese writing system).

3.1   Modern Chinese

As a result of the Unifying Chinese Language movement in 1958, Mandarin Chinese has become the standard variety and simplified Chinese the standard written form used in schools and national media, with between 3,000 and 5,000 characters in common use (Ho 1997). Chinese children begin exploring characters during their preschool years and are expected to memorize a minimum of two thousand characters during elementary school. Additionally, most students in primary education acquire another writing system, *pinyin* ('spell sounds'), that is, the Romanized form of Chinese adopted by the Government in 1958, used as a means of teaching and standardizing Mandarin Chinese pronunciation. This alphabetic script also serves as an important tool for the teaching of Chinese to deaf students. Ye (1990), for example, highlights the use of *pinyin* and the manual Chinese phonetic alphabet (which visually conveys the sounds of Chinese words) for teaching deaf students how to pronounce and identify words (note that word boundaries are not marked in written Chinese). According to this author, the acquisition of a script based on a spoken language involves attention to its phonological, orthographic, and semantic dimensions regardless of the linguistic level on which the script is based (cf. also Henderson 1984). Another advantage of *pinyin* is that it can be used to remember the linguistic order of Chinese characters/words (syllable by syllable) because a syllable often corresponds to an individual character (Chen 2005). Note that Chinese is mono-morphemic and has a relatively simple grammar, but the order of Chinese words/characters is very constrained.

With respect to the processes involved in the reading and writing of written Chinese, the studies available suggest that native readers of Chinese process information differently than readers of alphabetical languages. In particular, orthographic awareness seems to be more important for the former than phonological awareness (Tan et al. 2005), a fact which is probably related to the nature of Chinese characters. As for the phonological information encoded, it is important to note that it is insufficient to access the semantics of a printed character. Consider, for example, a semantic-phonetic character like 语, which means 'language': the left part of the character is semantic ('say') and the upper right gives the pronunciation clue. Note, additionally, that the

phonetically based component of a character only gives partial information about the whole character's pronunciation. However, it is interesting to note that phonetic information is assumed to play an important role in deaf students' recognition of characters and their ability to learn to read quickly (Piao 1998: 108).

Finally, another type of visual information needs to be mentioned in relation to the processing of written Chinese, namely, stroke order: each character is composed of one or more individual strokes, written in a particular order (top to bottom, left to right). Learning the correct stroke order through the writing of Chinese characters is assumed to involve motor activity that eventually facilitates the long term memory of Chinese characters (Tan et al. 2005: 8782). Furthermore, knowledge of stroke order is also used in spoken language interactions, as interlocutors use the tracing of the strokes of a character in the air or on their palm, using the index finger, to clarify which character has been referred to (even native speakers of Chinese sometimes lose track of the conversational context) or to disambiguate homophonic words.

In concluding, in *skilled* readers of Chinese, two mechanisms can be assumed to operate in parallel: orthographic awareness (engaged by the analysis of the internal structures of printed characters) and motor programming (serving the formation of long-term motor memory of Chinese characters) (op. cit.: 8785).

In contrast, hearing children in the first grade often use phonological awareness to recall the sound and meaning of characters (Zhou et al. 1998), which raises questions about the strategies used by deaf learners discussed in the next section.

3.2   Deaf students' reading and writing

According to Piao (1992: 113), deaf students who graduate from schools for the deaf in China tend to have lower levels of achievement in reading and writing Chinese than their hearing counterparts, which corresponds to the findings obtained in studies on deaf children's acquisition of other spoken/written languages in other countries. With respect to the potential reasons for these results, there is a controversial debate about the role phonological awareness might play in the successful acquisition of literacy. The evidence obtained in studies on deaf learners' acquisition of written Chinese provides a complex picture.

Chinese deaf students reading Chinese characters have been found to use a non-phonological route based on visual memory and sign language as a means of deriving meaning from printed matter (Fok et al. 1991: 142; Piao 1998: 106). Gaines and Piao (1985) investigated the short-term memory internal language coding and reading comprehension of 181 deaf children in a school for the deaf in Beijing, and found that the majority of deaf children and skilled adult deaf readers use a visual dominant encoding strategy to read Chinese, and that the mixing of phonological and other encoding mechanisms in some learners is significantly related to poor reading comprehension.

The comparison of deaf and hearing students reveals that they use different strategies (Feng 2000). In a study carried out in Xi'an, Yuan (2000) examined short-term

memory in the visual word recognition processes of two different groups of Chinese readers: a group of 14 prelingually deaf students (average age 15) and another of 14 hearing students (average age 12). He found that the young hearing subjects often used phonological coding to encode high frequency characters, and orthographic coding to encode low frequency characters; while the deaf subjects would often use orthographic coding to encode both high and low frequency characters. He also observed that the hearing subjects outperformed the deaf students with respect to short-term memory of complex and low frequency characters. While the deaf subjects stated that sometimes they remembered a character's shape and sound together, on the whole, Yuan's study shows that their orthographic awareness was far stronger than their phonological awareness.

Wang's (2000) investigation of the linguistic comprehension and production of 12 prelingually profoundly deaf students and 12 hearing students at middle school age level in Xi'an revealed that the deaf students' results varied depending on the language of the input material used in the experimental sessions. The deaf subjects watched a videotape of a local news report in sign language, the hearing subjects listened to the same news report recorded on an audiotape, and all subjects read a printed short story. The analysis of the subjects' performance in the comprehension of the input material in sign or speech revealed that the level of the deaf subjects' comprehension of signed information and production in sign language was not markedly different from the hearing subjects' levels of comprehension of spoken information and production in spoken Chinese. The printed information input, however, prompted different linguistic outputs in the deaf and hearing subjects, with the hearing students outperforming the deaf ones. It also became apparent that the deaf subjects had higher scores when the input material was in sign language than when it was in printed text.

To summarize, the acquisition of written Chinese by deaf individuals is a complex process. The studies mentioned above raise the question of the type of support deaf children would need in order to improve their literacy skills, an issue that is taken up in the following sections dedicated to the teaching of languages in deaf education and the role assigned to sign language.

4. Teaching languages in schools for the deaf in China

As mentioned previously, sign language and bimodal communication modes have been used to teach the curriculum throughout the history of deaf education in China (Callaway 1999: 42). In chronological order, the different educational methods combining sign language and Chinese are as follows:

– The oral approach adopted during the first period (1887–1929) involved the teaching of Chinese on the basis of written texts and Lyon's signs used to represent Chinese phonetics.

– The second period (1930–1955) was characterized by the predominant use of sign language. Written Chinese words were often taught together with the corresponding signs by deaf teachers.
– During the third period (1956–1985), spoken Chinese was first taught to first and second graders by using fingerspelling as a support for communication, and then via sign supported speech in the following years.
– In the fourth period (1986–1995), deaf schools applied different methods, ranging from the oral approach to the oral-manual combination approach, depending on the students' hearing profiles.
– In more recent times (1996–2005), the bilingual-bicultural approach has been experimentally adopted by nurseries and primary schools in ten cities; most schools for the deaf continue to use the three-modal monolingual approach (i.e., spoken, written and signed Chinese) and most hearing and speech rehabilitation centers with students aged 3 to 6 maintain the aural-oral approach.

The following sections briefly summarize the main characteristics of these periods (see Lytle, Johnson & Yang 2006 for further discussion).

4.1   The first period (1887–1929)

The founder of the first school for the deaf in China, Annetta Mills, was a former teacher at the Rochester School for the Deaf in Rochester, New York, who had learned spoken Chinese. In the 1889 annual report of the deaf school founded in Shandong Province, she stated that spoken Chinese was easy for foreign learners to learn and that it was possible to teach deaf children how to speak. Mills taught Chinese deaf children speech using visual and tactile techniques; she also designed a series of Chinese language textbooks for the teaching of written Chinese to deaf pupils in primary education, which appeared in 1907 under the title *First-step Text for the Deaf*. These textbooks contained 359 lessons on written Chinese including Chinese characters, phonetics, Lyon's signs, illustrations of words, and many examples of Chinese sentences.

Mills also offered a teacher-training program for hearing adults who wanted to become teachers of deaf children. Some hearing and deaf students who graduated from her school went back to their hometowns and established new schools for the deaf (Dai & Song 1999; Callaway 2000). These included, for example, Zhou Tianfu, the first deaf Chinese teacher of the deaf, and Du Wenchang, the founder of the first school for the deaf in Beijing in 1919, who used speech and sign simultaneously in his communication with deaf students (Zhang 1999).

4.2   The second period (1930–1955)

In the 1930s and 1940s, about 30 schools for the deaf were established and operated by deaf people. Many deaf teachers taught deaf pupils sign language first and other

subjects later. New signs created to suit specific teaching needs in schools would spread to the local deaf community through everyday communication. To assist deaf students in the process of learning to read and write Chinese, Deaf teachers would promote the creation of bridges between signs and written words, and help students to identify Chinese characters by using picture supplements. In general, the curriculum adopted in schools for the deaf followed the regular curriculum, and included English, which was taught on the basis of the American Manual Alphabet. Music lessons were replaced with Dialog Writing classes (Song 1999).

4.3   The third period (1956–1985)

The oral teaching curriculum drafted in 1956 marks another change of direction towards the oral-dominant method that can be attributed to the Russian influence on the Chinese political, social, and educational reforms in the 1950s. In the domain of deaf education, several Chinese scholars introduced the oral approach they had come across in Russia (Dai & Song 1999) in response to the complaints of some hearing teachers who blamed the traditional manual approach for the deficiencies in deaf students' writing skills. Oral experimental programs were again established in schools for the deaf in Beijing, Shanghai and Harbin (Yin 1994; Piao 1992). However, as communication between teachers and deaf students deteriorated following the implementation of these oral programs, just two years later fingerspelling and signed Chinese were reintroduced to classroom communication methods.

In order to facilitate oral teaching and deaf children's Chinese word recognition, a teacher of the deaf, Shen Jiaying, and a Chinese linguist, Zhou Youguang, invented the Chinese Finger Syllabary in 1959; a system that fully conveys modern Chinese phonetics in the visual realm (Zhou 1982; Shen 1991; Ye 1990). In this system, the two hands (each representing a phoneme) can be combined simultaneously to represent a syllable or a monosyllabic word. This Syllabary has been found to be useful and effective in teaching deaf children both *pinyin* and spoken Chinese, improving their competence in spoken Chinese (Piao 1992; Shen 1991). However, as an artificial manual code, the Chinese Finger Syllabary is not a favored communication mode for social interaction.

4.4   The fourth period (1986–1995)

The number of deaf and hard of hearing children in schools increased following the 9-year compulsory education act passed in 1986 and the 1988 legal document requiring the placement of students with disabilities in regular schools. At that time, pure aural-oral preschool programs in hearing and speech rehabilitation centers were established to teach spoken Chinese to deaf children with hearing aids or cochlear implants and to prepare them for enrollment in regular schools (Zhang et al. 1995; Callaway 2000).

In contrast with the integration model adopted in regular schools, special schools for the deaf did not adopt the pure oral method but continued to use signed Chinese and fingerspelling. In larger schools for the deaf, students were distributed into either oral or sign-dominant classes depending on the degree of their hearing loss and speech ability. Orally educated deaf students would also acquire sign language after school activities through peer interaction. From the fourth grade onwards, all students used signing more than before, and their teachers switched to the sign supported speech approach for reading and writing instruction. It is important to note, however, that irrespective of the communication mode used, Chinese was the target language for academic achievement; signs would be used as a supportive means of communication also by hearing teachers, with CSL rarely being used as a teaching language (Zhang & Huang 2000; Callaway 1999).

4.5   The fifth period (1996–2005)

The last period discussed here is marked by the emergence of bilingual-bicultural pilot projects in preschool and primary schools for the deaf. The first sign-bilingual teaching experimental class was established in Nanjing in 1996 (and later replicated in nine other cities); in the bilingual class, deaf teachers would not only teach CSL as a first language (Wu 1998; Callaway 2000), but would also use it in the teaching of reading, mathematics, art, health studies, and CSL storytelling classes (Yang 2002; Hu 2004). According to Wu (1998) and Zheng et al. (2004), this program improved the linguistic, academic, and social skills of profoundly deaf children.

In short, this discussion of the different periods in the education of deaf students in China shows that teachers began using signs in teaching deaf students Chinese literacy and subject matter early on, but did not use natural CSL as early and sufficiently as possible until the creation of the first CSL/Chinese bilingual experimental preschool program. Today, the bilingual-bicultural approach to educating deaf children is accepted by the Deaf community and some deaf-friendly educators (Johnson 2003; Chen 2005). However, the majority of hearing teachers of deaf students question its effectiveness and success; they continue to doubt whether the use of CSL benefits deaf students' learning of spoken/written Chinese and their general academic knowledge, despite the evidence gathered in recent research on these issues, including my own study which I will present in the next section.

5.   Study data and informants

The first part of the investigation presented in this chapter consists of a participant observation pilot study of the bilingual education programs for the deaf established in Nanjing and Jiujiang in November 2000. Further data was collected through my

observation work in bilingual schools in the summers of 2001, 2002 and 2004, interviews with 30 bilingual deaf adults in 2005 (some of which were video-taped), and a mailed survey of 73 deaf teachers' linguistic and educational backgrounds. Additionally, the study included the analysis of printed materials and other publications concerning the bilingual programs in schools for the deaf in China such as books, conference handouts, journals and web forums published between 2000 and 2005 (e.g., Chen 2005; Wu et al. 2005) as well as the autobiographic essays of 38 Chinese deaf teachers published in Chen (2005).

All informants participating in this study were deaf or hard of hearing adults who used CSL, signed Chinese and spoken/written Chinese daily; they worked as teachers, artists or web masters or had other occupations. The data collected revealed that the majority of the participants had studied in schools for the deaf, and had obtained college degrees at special colleges for the deaf attached to regular universities since 1987 (most of them majoring in art or computer applications). Some informants had attended continuing education courses for teachers offered at universities (no sign interpreting was provided, but they often read colleagues' notes and books), or had taken self-study examinations at college level. Very few of them had deaf parents or siblings. Their communication preferences were almost evenly split between signing and a combination of speaking and signing, a distribution that mirrors that observed by Huang (2002) in her survey of Chinese Deaf culture awareness.

In the following sections, I will first discuss the results of the interviews with deaf Chinese adults, before analyzing the use of CSL/Chinese in language contact situations, and my participant observations in bilingual pilot classes.

6. CSL/Chinese bilingual experiences of deaf individuals

When asked about their pathways to bilingualism, the informants narrated how they had acquired Chinese, sign language and literacy skills. Crucially, all of them stated that their parents had played an important role in their language development; they also remarked on how they had been intensively engaged in reading and in extensive written conversations with hearing people using Chinese.

6.1 First language

More than half of the informants were postlingually deaf; they reported that they had acquired spoken Chinese as their first language and had maintained their speaking skills after becoming deaf. Some of them continued to learn speech with the assistance of hearing aids, speech-reading training, and unwavering parental support. According to their testimonies, their parents did not sign and generally believed that their deaf children could learn sign language by themselves as they grew up. Below are some

examples of the participants' statements taken from my interview notes (the translation is mine):

(1)   I became profoundly deaf at the age of 3. My mother wanted me to continue speaking. She spoke to me aloud, and combined her words with a lot of gesticulation and motion. If she did not use the visual gesture and facial expressions, I would not speak and read her lips. I attended a regular school and my mother taught me speech at home (Female, Hefei City, March 2003).

(2)   I learned to speak at 4. My father pointed to a tree, wrote the character for 'tree' on the ground, and showed me how to pronounce it. He also showed me every word he spoke to me in Chinese characters by writing on paper or his palm. I learned spoken Chinese and reading characters at the same time (Female, Nanjing, June 2002).

(3)   I became deaf at 4. My mother did not want me to sign. She bought me Chinese flash cards and taught me reading and writing. Soon after, I could communicate with her through writing. I wrote phrases such as: "I want to eat." "I want to go out." Once, I made a mistake, writing two characters in the wrong word order, it should have been *niu-nai* ('milk') in the sentence "I want to drink milk" but I wrote *nai-niu* ('milk cow') instead. My mother asked if I wanted to eat a cow. I was embarrassed and remembered after that that word order is very important (Female, Canton, August 2004).

A third of the informants indicated they acquired sign language and Chinese as their first languages between the ages of 5 and 9. They would have used some natural gestures and home-signs to communicate with their parents at home before attending schools at 7 or 9 years of age. They also reported that their parents introduced them to printed words using picture books and flash cards that combined pictures, characters and *pinyin*. These participants also pointed out that when they attended schools for the deaf, they found it easy to pick up sign language quickly, and that they gradually learned Chinese in both spoken and written forms. The following examples are illustrative of the interviewees' descriptions of their simultaneous acquisition of both languages:

(4)   I became completely deaf at the age of 3 and never wore a hearing aid. My mother did not know how to teach me speech. She and I created some home-signs to communicate with. For example, showing short hair for 'mother', gesturing wearing eyeglasses to represent 'father', and imitating round face for 'grandma'. I learned the formal signs MOTHER and FATHER in the school for the deaf, but my mother still uses the home-signs when she signs with me (Female, Beijing, August 2001).

(5)   I have been deaf since the age of 2. I remember I used gestures and miming to express 'eat', 'drink', or 'sleep'. I invented simple signs my parents learned to communicate with me at an early age. When I was 5, my parents, who were

university lecturers, taught me to read Chinese words with flash cards. They showed me pictures, and pointed to the respective character and equivalent form in *pinyin*. I learned to identify the shape of characters and the *pinyin* forms, hand-copied characters and imitated their mouth-shape to say the word (Male, Beijing, June 2004).

Finally, several informants stated that they had acquired sign language as their first language through interacting with their deaf parents or older deaf siblings before learning to read Chinese words. For them signing was natural language, allowing them to communicate fully with their parents from an early age and to learn about their world. These participants reported that when they arrived at school, they would have had a better understanding of what teachers signed than most of their peers, and were able to tell their teachers detailed stories. Below is the testimony of one interviewee:

(6)   My parents are deaf and my older sister and brother who are hearing grew up with my hearing grandparents. When my grandparents learned that I was born deaf, they did not want to take care of me, and left me with my deaf parents in a small apartment… My father took me to the zoo. I saw monkeys. My father showed me the sign for 'monkey'. I quickly understood this sign and talked a lot about monkeys with my father. When we arrived home, my father showed me a picture of a monkey on a flash card, pointed to the picture, signed monkey and asked me if I remembered (pointing far upward) 'those monkeys we saw in the zoo today'. I understood that the picture was a monkey, pointed to it, and signed 'monkey'; then my father taught me the character for 'monkey' appearing under the picture. The sign for 'monkey' made linking the monkey in the zoo to a monkey in the picture, and to the single character for monkey, easy. I finally understood that each character has a meaning and represents something. I became fascinated by characters and recognized many of them in picture books before starting school (Male, Beijing, July 2001).

In conclusion, the data obtained provide important insights into the various acquisition situations that determine the deaf individual's first language; whether this is sign language or spoken language depends on the time of their hearing loss, the environment they live in and who they interact with on a daily basis. The data also suggest that in China, parents play a prominent role in their children's acquisition of literacy. In a similar vein, Sun (2005) also remarks that most hearing parents of children who become deaf at an early age want them to learn spoken Chinese as their first language. However, Sun also points out that if education in Chinese does not work out well, or works only for a short time, the parents relent and allow their children to switch to sign language in schools for the deaf, helping them with written Chinese at home.

6.2   Different paths to bilingualism

The informants' reports show that the paths towards bilingualism are diverse and depend on the degree and time of hearing loss and the communication mode used between the parents and their children as well as the school placement chosen. For some interviewees, spoken Chinese was their first language; they learned written Chinese in regular primary schools. Several years later, when their hearing loss became profound, they were transferred to schools for the deaf where they learned CSL signs from their peers and teachers. According to their testimonies, they had a good grounding in Chinese, which they claim helped them to master written Chinese; furthermore, they reported that they acquired conversational skills in CSL in one semester, and easily understood their teachers' signed classes. Some of them indicated that they would use CSL at school and spoken Chinese with their parents at home.

Other interviewees explained that they first attended schools for the deaf where their sign language proficiency increased quickly, whilst gradually learning spoken Chinese and fingerspelling from their teachers, as well as the writing of simple sentences. These participants also reported that the first two years of speaking drills in schools for the deaf bored and frustrated them, and that they would have preferred to read picture books at home.

Some informants explained how their parents were involved in their acquisition of literacy; one deaf informant said that his father used two colored pens: a blue one for written dialogs, and a red one for correcting written words and sentences after dialoging. Others mentioned that their mothers often used signed communication at home, but that their fathers did not, instead continuing written dialogs with them and helping them to correct their sentences. Most informants described an unbalanced bilingual approach adopted at home, where speaking or signing was used for simple conversations, and written dialogs for more complex discourses.

Regarding their attitudes towards sign language, it is important to note that several informants did not consider the sign language they used as a language; instead, they viewed it simply as another mode of communication, or as a signed form of Chinese. Following Grosjean (1998), this kind of thinking occurs because deaf people in many countries may not know or may not have been taught that sign language is indeed a bona fide language and is distinctly different from the country's major spoken language(s). In China, especially in Northern China, CSL is considered to be equivalent to signed Chinese (Ji 1988; Chen 2005). Awareness of their own bilingualism can therefore be considered quite rare among Chinese deaf individuals. In fact, about 40 informants said that they were not aware that they were CSL/Chinese bilinguals until they attended workshops on sign language linguistics, the protection of children's language rights, and bilingualism.

We will now turn our attention to language use and see whether Chinese bilingual signers, like other bilinguals, use language mixing as an additional resource (see Plaza-Pust, this volume); we will also try to determine the pragmatic functions code-mixing

and code-switching might fulfill in interactions among CSL/Chinese bilinguals and in the classroom, between deaf students and their hearing teachers.

7.   Language contact between CSL and Chinese

The analysis of the data collected in the interviews with adult deaf Chinese individuals also provided further insights into the outcome of language contact between CSL and Chinese in spoken, written or signed forms, as explained in the following sections.

7.1   Language contact between CSL and spoken Chinese

During the interviews, many of my deaf interlocutors often signed CSL combined with lip movements (mouthing) representing the corresponding vocalizations of Chinese words. In this type of bimodal language mixing, the mouth expresses the syllabic information of a Chinese word supplemental to the respective sign producing the semantic information. By assumption, the information conveyed through this type of signing with simultaneous mouthing is parallel to the phonetic-semantic components of a written Chinese character (see section 3.1 above). In addition, the analysis of the data reveals that the signed element is used to ensure the understanding of the mouthed element, and the mouthed element is used to clarify the sign. Consequently, this type of mixing serves a pragmatic function: signers want to make sure their interlocutors understand the meaning of their message.

Moreover, I noticed that deaf adults who had been exposed to Mandarin-based speech training and an oralist education tended to use this type of mixing more than other deaf adults who had not; other determining factors were fluency in sign and the hearing status of the interlocutor. Indeed, I observed that when a deaf person signed quickly and naturally, he mouthed fewer words; as a result, he expressed meanings in a shorter period of time and the receiver(s) obtained the contextual information from fluent signing. In contrast, when a deaf signer used more mouthing, he would often produce fewer signs in a short period of time, because the mouthing of words (mirroring his mental Chinese word search) slowed down his signing speed. Note that for hearing signers the impression is the other way round: they usually say that signing slows down their speech.

Other CSL and spoken Chinese contact phenomena I observed involve simultaneously speaking and signing in Chinese word order, and code switching between signs and the use of the Chinese phonetic alphabet (e.g., using initials or abbreviations of Chinese functional words and fingerspelling the syllables of Chinese words).

7.2   Language contact between CSL and written Chinese

Sometimes, Chinese signers interacting in CSL switch to 'written Chinese' to refer to specific concepts or objects they previously described in CSL: they 'write' Chinese words by tracing the strokes of the characters in the air or on the palm of the hand, as hearing individuals do, as described in section 2.1. For example, a deaf signer I interviewed talked about an orphan (cf. (7)), beginning with a brief description in CSL switching then to written Chinese: he straightened his index finger and traced the two-character word orthography for 'orphan' on the palm of his other hand; after doing so, he made eye contact with the receiver to check for understanding, and continued his narrative in CSL.

(7)   CHILD FATHER-MOTHER NOT-HAVE AROUND //   孤 儿
       (CSL)   (Written Chinese)
       'A child who does not have his parents in life', 'orphan'

This type of code-switching frequently occurred when Chinese signers wanted to show the exact Chinese names they were referring to, or to express concepts of written words; in particular, abstract or scientific concepts, the terminology used in discussions about Chinese literature, or Chinese idioms, which, by assumption, parallels the functions assigned to the use of fingerspelling in ASL (Kuntze 2000).

Another example of contact between CSL and written Chinese involves using finger configurations to imitate the shape of characters and represent their meanings manually. The character signs are produced by lexical processes whereby 'foreign vocabulary' (i.e., Chinese) is integrated into CSL. The integration of loan vocabulary also occurs via modifications of existing signs. For example, modifying a character sign's location or movement can produce new signs with new meanings (Yau 1988; Ann 1998).

Language contact between CSL and written Chinese can also be observed in the written productions of many deaf non-native Chinese writers, as pointed out by Ye (1990: 141–147) and Piao (1992: 114), who discuss evidence of a transfer from sign language to written language at the morphosyntactic and lexical levels. However, not all errors in written language learners' productions can be traced to cross-linguistic influences (see Plaza-Pust, this volume, for a detailed discussion) as some are related to learning processes and therefore are expected to be developmentally constrained (i.e., they are more frequent during certain developmental periods).

It must also be noted that cross-linguistic influence is not a random process, affecting specific linguistic properties as reflected in the errors related to transfer, which include the omission of functional words, the selection of incorrect words, or the arrangement of words in the wrong word order. On a more general level, this phenomenon reflects the difficulties deaf students face in translating CSL discourses into appropriate Chinese texts, especially those who have low levels of Chinese literacy or those who have not received sufficient instruction in translation between CSL and written Chinese. Teachers of deaf students therefore need to be informed about the contrastive properties between both languages and trained in teaching methods that

promote the students' metalinguistic awareness (see Morales-López, this volume; Plaza-Pust, this volume and Fang's 2005b discussion of the assessment of a CSL to Chinese translation session).

7.3   Language contact between CSL and signed Chinese

As with other sign languages, CSL is characterized by a simultaneous rather than a sequential organization and is thus distinct from signed Chinese. In CSL discourses, there are many simultaneous two-handed signs that express more than one meaning. Some signs are compounded, and some signs incorporate information with respect to location, number, person, and negation, thus conveying a concentrated amount of information which would be expressed sequentially in Chinese (Yau 1977). In our interviews, we observed that signers sometimes break down simultaneous or compound signs producing the individual morphemes separately, thus code-switching to signed Chinese. Indeed, I had the opportunity to observe code-switching between CSL and signed Chinese in both directions in the interactions of a mixed group of deaf and hearing individuals. For example, a CSL signer signed the negative hand-waving sign and the sign for 'know' in the Chinese word order, and then quickly switched to CSL and produced the compound sign KNOW-NOT for 'do not know something'. In the following sentence, she first used the simultaneous sign NOT-KNOW-each-other for 'do not know somebody,' and then broke it down by separately producing a negative hand-waving sign and a sign for 'know-each-other' (LOOK-at-each-other). The examples are illustrated in (8)-(9):

(8)   NOT KNOW //   KNOW-NOT
      (Signed Chinese) (CSL)
      'I do not know'

(9)   NOT-KNOW-each-other // NOT LOOK-at-each-other KNOW
      (CSL)   (Signed Chinese)
      'We do not know each other'

It can be assumed that this type of code-switching, in which the same meaning is expressed successively in CSL and in signed Chinese or the other way round, has two functions: to repair, and to make signs or concepts specific and clear for the target audience.

In conclusion, the productions of bilingual deaf individuals provide evidence of various language contact phenomena, involving the combination of the diverse languages and communication systems they attain. It is interesting to note in this context that, following the curriculum of schools for the deaf in mainland China, young Chinese deaf students attending schools for the deaf are expected to develop a diversity of receptive and productive skills in the different linguistic modalities they are exposed to through instruction, which I have summarized in Table 1.

Table 1. Language skills of CSL/Chinese bilingual students attending schools for the deaf

Modality	Receptive skills	Productive skills
Signed	1. Understanding CSL	2. Signing CSL
Spoken	3. Listening or lip-reading	4. Speaking or mouthing words
Written	5. Reading text 7. Reading printed *pinyin*	6. Writing text 8. Writing or typing *pinyin***
Language contact	9. Understanding Signed Chinese 11. Identifying fingerspelled *pinyin* 13. Identifying finger-traced characters in the air or on the palm 15. Identifying character signs	10. Producing Signed Chinese 12. Fingerspelling *pinyin* 14. Finger tracing characters in the air or on the palm 16. Producing character signs

*   Pinyin can be used as an input for the retrieval of Chinese characters in computers.

It also becomes clear that language contact plays a prominent role in achieving communicative skills in signed, spoken and written Chinese. Language contact between CSL and signed Chinese frequently appears in code switching and cross-modal mixes consisting of a Chinese word and a CSL sign, depending on different purposes, topics or audiences. Students are frequently confronted with language contact phenomena in the classroom which are used to make links between the languages more explicit; the different types of contact phenomena in the input help them to create the necessary bridges between the different languages and communication modes in order to develop a metalinguistic awareness of the commonalities and differences between both languages (see also section 8.5 for a discussion of how this metalinguistic ability is promoted in the context of bilingual/bicultural programs with deaf students). The remainder of this chapter is dedicated to the bilingual programs implemented in China since 1996.

8.   Bilingual experimental programs in schools for the deaf

In this section, I will present the results of my study into current bilingual experimental programs with deaf students in China. In particular, I will address the following topics: (1) target student groups, (2) the establishment of the first bilingual pilot class in Nanjing, (3) cooperation between NGOs, schools and others, (4) deaf teachers, (5) CSL/Chinese instruction, (6) language contact in the instructional setting, and (7) the case report of a private bilingual school in a rural area.

8.1   Target student groups

Bilingual-bicultural pilot programs with deaf students in China exclusively target prelingually and profoundly deaf children aged 3 to 8 (at enrollment), and the students who attend these programs do so on their parents' initiative (Gu 2005; Shao 2005; Sun 2005). In this context it is necessary to state that although prelingually profoundly deaf children are the largest group in the schools for the deaf, they have received little attention and, in general, their achievement levels in the oral-dominant education programs and in the hearing and speech rehabilitation centers are low. However, Yin (1994) indicated that those deaf children who had no language exposure before attending schools for the deaf quickly acquired sign language through peer interaction on the school campus without any formal instruction, and that they often acquired signing skills that were superior to those of their hearing teachers. Therefore, a sign-based bilingual-bicultural approach as an option for preschool-age profoundly deaf children should be made more accessible in the preschool program and primary schools for the deaf, and also in order to protect their linguistic rights to acquire and use natural sign language in education (Grosjean 2001: 112). Profoundly deaf children have to be exposed to sign language as early as possible in order to avoid the delay that would occur due to their restricted access to spoken language (Baker 2001: 289).

However, many financially or socially advantaged hearing parents, or those who have no information about sign language, initially tend to prefer the oral-only approach to their children's education and the use of hearing aids (including cochlear implants). Additionally, many hearing parents have some misconceptions or prejudices about deafness and sign language as a first language (Callaway 2000; Biggs 2004; Sun 2005).

With respect to the bilingual method applied, the following sections will show that it is not a 'one size fits all' approach.

8.2   First bilingual pilot class

The first sign bilingual experimental class at the Amity Preschool Rehabilitation Center (located on the premises of the Nanjing School for the Deaf) started in March 1996 with nine profoundly deaf children (6 boys and 3 girls, with an average age of 6). Callaway (1999: 45) described the class as having a deaf teacher who provided storytelling and instruction in sign to a small group of profoundly deaf children; the children also had speech training lessons with a hearing teacher. They enjoyed their lessons with their deaf teacher and clearly benefited from their contact with her.

With respect to the teaching of written Chinese on the basis of CSL, Callaway reports (2000: 259) how the deaf teacher introduced new signs with the corresponding written Chinese words; Chinese characters written on the blackboard were often referred to during story-telling in CSL, with the purpose of promoting word recognition and bilingual literacy.

Two more preschool bilingual experimental classes in the same program were established, one in September 1997 and the other in September 2000. The profoundly deaf children in the bilingual classes with a good grounding in CSL and Chinese and high motivation to learn, found it easy to integrate into the primary school for the deaf (Zheng et al. 2004; Wu et al. 2005). In a case study of a bilingual experimental program, Sun (2005: 36) reported that teachers grew stronger and understood more about deaf children's language development as a result of their bilingual teaching; he also remarked that these teachers developed their own bilingual curriculum materials. School administrators and parents also changed their attitudes towards the programs, becoming more supportive.

8.3   Cooperation among NGOs, schools, and others

Bilingual-bicultural education experimental programs have been implemented in China under the leadership of NGOs, schools for the deaf, and rehabilitation centers for children with early onset hearing loss. Other stakeholders are (1) deaf and hearing teachers, (2) consultants in China and foreign experts, (3) parents and grandparents, (4) school support staff, (5) deaf community members, and (6) profoundly deaf children in the programs. Deaf people have been involved in all related activities, including the bilingual project leadership (one deaf officer in Save the Children, and two deaf administrators in the schools), the preparatory training of the teachers, team-teaching in class, curriculum development, production of instructional materials, organization of teacher-parent conferences, and public presentations (Hu 2004; Wu et al. 2005).

The CSL/Chinese bilingual preschool programs have grown in ten cities, five of them in the Jiangsu Province. Table 2 shows the numbers of bilingual classes and deaf teachers involved in each city between 1996 and 2005. The newest mode of bilingual education for deaf students from preschool through the fourth (primary) grade (or longer if it is possible) is the 5 year "SignAm" project, in which five model schools have worked together since 2004 with support from the Amity Foundation in Nanjing, and the Signo Foundation in Norway (Wu et al. 2005).

Sponsored by different NGOs, partnerships have been developed among several schools for the deaf; these often exchange information, share resources and teacher training measures, and observe the progress of each other's projects. The school principals and teachers have received training from national and international experts in socio-cultural perspectives on deafness, CSL linguistics, Deaf culture, theories of first language acquisition and second language learning, and bilingual teaching methodology in workshops and summer seminars (ibid.). English classes were provided for Chinese/English interpreters and Chinese classes for CSL/Chinese interpreters during the workshops, and some seminars were specific to deaf teachers only (Chen 2005). As a consequence of these training actions, both deaf and hearing teachers have changed their attitude towards sign language and Deaf culture, and have increased the use of sign language in their schools. In addition, they have shared their knowledge with

Table 2. CSL/Chinese bilingual experimental programs in China (March 1996—July 2005)

NGO sponsor	City	Province	Start	Total Number of Classes	Number of Deaf teachers
Amity	Nanjing	Jiangsu	1997	5*	4–6
Amity	Suzhou	Jiangsu	2004	2	2–5
Amity	Changzhou	Jiangsu	2004	2	2
Amity	Yangzhou	Jiangsu	2004	2	2
Amity	Zhenjiang	Jiangsu	2004	2	2
SaveChildren	Hefei	Anhui	2002	5**	5–7
SaveChildren	Kunming	Yunnan	1999	1	1
SaveChildren	Dali	Yunnan	2002	1	1
UNICEF	Tianjin	Tianjin	2001	3	3–5
UNICEF	Shangqiu	He'nan	2004	1	1
Various	Jiujiang	Jiangxi	2000	5	5

*   The previous 2 classes are included.

**   The total number of classes at two locations in Hefei.

parents of deaf children through teacher-parent conferences and open school days, informing them of the advantages of bilingual education. Some parents opted for a bilingual program or, if their children attended an oral-only program, transferred them to the bilingual program after learning more about their deaf children's communication and language needs (Sun 2005). The parents of those children who attend the bilingual program also receive sign language instruction every day when they pick their children up from school, or in the weekly parent sign class (Gu 2005; Shao 2005).

8.4   Deaf teachers

The hiring of deaf teachers is a key issue in the success of bilingual programs; in addition, it is important for these teachers to occupy teaching positions that are central to the bilingual approach, such as the position of the CSL/Chinese bilingual language teacher (Wu et al. 1999; Shao 2005; Sun 2005). Zhang and Huang (2000: 58) pointed out that deaf teachers not only have the best understanding of deaf children's inner world but also serve as role models and CSL models for deaf students, through storytelling, interactive dialogs and varied teaching and learning activities in preschool programs (see also Callaway 1999; Chen 2005).

About thirty deaf teachers fluent in CSL and Chinese language have been teaching in the bilingual classes set up since 1996 (see Table 2). Some of them had taught art or vocational courses for many years before being assigned to these bilingual programs; others were newly hired because the schools or the rehabilitation centers had not employed deaf teachers previously. Many of these deaf teachers have played an important

role in curriculum development. They have been engaged in classroom teaching on a par with hearing teachers (Fang 2004; Gu 2005; Hu 2004). In fact, in the bilingual programs, pairs of deaf and hearing teachers in charge of a class often work together in planning lessons, teaching, analyzing students' assignments, and jointly attend parent teacher conferences and staff workshops. They support each other, providing their students with an example of how deaf and hearing people can successfully communicate and work together. There are, however, also exceptions. For example, Sun (2005: 43) reported on the case of a hearing teacher who had successfully worked with an experienced deaf teacher in the past, but often clashed with a novice deaf teacher in the new team-teaching assignment because of their unequal authority in deciding about lesson plans. Observations like this suggest that professional training measures for teachers are needed to reduce the incidence of such conflicts. Moreover, our deaf informants pointed out that school administrative support is very important for them in dealing with conflicts with hearing teachers; indeed, the role of these deaf teachers has developed over time. In fact, some leaders of the bilingual project teams have drawn attention to the CSL expertise of deaf teachers, from which hearing teachers should benefit rather than making up signs themselves (Fang 2005a). It has in fact been found that many deaf teachers assist hearing teachers in improving their sign language skills and their understanding of deaf children's language productions or general viewpoints; hearing teachers, in turn, have often interpreted for deaf teachers when a professional interpreter was not available in school (Hu 2004). Schools in the cities of Suzhou, Tianjing and Jiujiang, which have strong deaf leadership and communities, have improved the visual learning environments on their premises by requesting that all teachers and staff sign when in school, and especially in the presence of deaf people. They also provide sign language tuition for parents (each session lasts 15–30 minutes) each time they come to pick up their children, and display CSL/Chinese bilingual labels and posters prominently (Gu 2005; Shao 2005). These schools have become deaf friendly "bilingual campuses" and provide deaf children with a language-rich environment.

8.5   CSL/Chinese bilingual instruction

The main differences between the traditional manual approach portrayed in section 4 and the bilingual-bicultural approach to the education of deaf children in China can be summarized in the following way (Zhang 2004): in the bilingual-bicultural approach, CSL is recognized as a fully-fledged and independent language on a par with Chinese, and, crucially, as the first language of deaf children; moreover, Deaf culture is included in the curriculum as a separate subject. In contrast, following the traditional manual approach (as explained in section 4), teachers would use sign language only as an additional communication means, assisting students in learning Chinese as their first language; in classroom interactions, CSL would be mixed with a signed form of Chinese.

Another difference corresponds to deaf teachers' level of involvement: as explained previously, in the CSL/Chinese bilingual programs deaf teachers teach or co-teach

young children (at preschool, in particular, they are concerned with the signing of narratives in CSL), CSL and Chinese being equally weighted as subject matter in preschool. In general terms, teachers are expected to respect students' needs and their right to grow up bilingually. At this level of language teaching, they should aim to clarify the linguistic boundaries between a natural sign language (CSL) and a signed system (signed Chinese), using them appropriately. In student-teacher interactions in the context of Chinese classes, natural CSL comes first and signing in Chinese word order comes next in terms of the didactic strategy. It should be noted that signing with voice or speech training are not forbidden in bilingual programs, and some students are allowed to learn speaking and lip-reading in natural interactions.

Recently, the bilingual experimental programs have been expanded from preschool to elementary school level, with class sizes of between 4 to 9 students at preschool level, and 11 to 15 at elementary school level. In preschool classes for 3 to 6 year olds, deaf children are exposed to natural CSL in a vivid and highly visual context. They pick up CSL signs related to real subjects and pictures, watch deaf teachers' storytelling, and express themselves in CSL naturally. Each classroom is decorated with colorful pictures, sign posters and word lists, and has a book corner, game zone, role-play area and computer site (Hu 2004). These language-rich environments provide students with multiple opportunities to learn language by using it, as illustrated in the following examples (cf. also Ardito et al., this volume, for a detailed discussion of the relevance of these educational settings for literacy development), and their teachers have the chance to creatively integrate this context, for example, into the teaching of Chinese characters, formally introduced between in the ages of 5 and 6 in preschool classes, as reported in Hu (op. cit.). By way of illustration, this author explained how children learned to classify Chinese characters on a 'Word Wall': the children had to group the characters sharing the semantic part for 'wood' or 'hand'; the characters were distributed on two trees after the children made their choices. Another teacher (Wu 2005) reported that the young deaf children in her class would often look at sign pictures on the wall and correct each other's signing. She also described how a highly visual context may not only prompt the learning of individual signs but also the children's story-telling, as was the case of a boy, who, after seeing a photo of an ambulance and learning the sign for that vehicle from the deaf teacher, told the class a story in CSL about how his grandfather had been involved in a car accident and taken to the hospital by ambulance. The deaf teacher who followed the child's sign discourse complemented it at his request.

As mentioned previously, teachers in the bilingual programs have also developed their own materials. At the school for the deaf in Tianjin, for example, teachers designed a series of four textbooks, *Longer Xue Shuangyu* ('Deaf Children Learning Two Languages'), together with signed video CDs which were also presented to parents at their children's schools. In Hefei and Nanjing, the programs produced several series of CSL storytelling videos; they also recorded examples of co-teaching in sign language

classes and various role-play activities. Deaf community members were also invited to tell stories in CSL in the classroom, on field trips, and in the video studio (Hu 2004).

According to the observations of various teachers, Deaf children acquiring CSL naturally in a bilingual preschool class become increasingly aware of the differences between CSL and signed Chinese, which is reflected in modifications to their acquired signed Chinese phrases in accordance with CSL grammar when using them in natural interactions. Fang (2005a), for example, describes how a group of four and five year olds who were taught the signs for three different sizes of pears following Chinese word order, i.e. *LI BABA* ('pear father'), *LI MAMA* ('pear mother'), and *LI BAOBAO* ('pear baby'), modified those signs to the more natural (CSL) forms, *DA LI* ('big pear'), *ZHONG LI* ('middle pear'), and *XIAO LI* ('small pear'), in their spontaneous CSL conversations. Their teachers accepted these modifications after consulting native signers, respecting the children's right to use their language naturally.

In conclusion, teacher testimonies show that the acquisition of CSL by deaf students is rapid provided that proper instruction is given. The effectiveness of CSL instruction and supporting materials is obvious to them. Literary emergence activities and basic oral/written language instruction will be discussed in the next section.

8.6   Language contact in the instructional setting

As explained previously, one of the goals of deaf education in China, irrespective of communication philosophy, is for deaf children to achieve a high level of Chinese literacy and academic performance (Wu et al. 1999). According to Marschark (1997: 15): "The best deaf readers appear to be those who receive early exposure to sign language and exposure to the language in which they will eventually learn to read". Importantly, meaningful dialog and book-sharing activities in both languages will facilitate conceptual connections between the two languages and the development of cognitive academic language proficiency. The combinations of languages and systems used in the classroom will vary as children progress with their bilingual development. Several teachers (e.g., Wang 2004; Han 2004; Hu 2004) explained that in teaching children Chinese words and sentences, natural CSL would be used to explain and discuss them. Later, when deaf children begin reading the Chinese text attached to pictures, signed Chinese or fingerspelled Chinese syllables are used to link CSL signs and the Chinese characters written on the blackboard, to emphasize Chinese word order.

Table 3 provides a summary of my class observations in which deaf and hearing teachers used CSL as the first language and Chinese (in printed and signed forms) as the second language. In these lessons, the two languages were separated by person, task, picture, or text material. For example, Deaf teachers instructed students in CSL story-telling or told a story in CSL, and hearing teachers followed up by teaching Chinese words and sentences in signed Chinese. Language choice in teacher-student interactions varied: the deaf teachers and students mostly used natural CSL, the language they would also use in their interactions with their hearing teachers who addressed

them in signed Chinese. Furthermore, the teachers and the students would also use additional systems such as fingerspelling phonetics or finger-tracing characters for specific purposes such as reading.

The continuous exposure and activities in various languages and communication systems seem to promote the students' metalinguistic awareness. This assumption is corroborated by the following observation in one of the bilingual classes in Nanjing.

Table 3. Examples of CSL/Chinese bilingual teaching strategies

Preview	View	Review
Snowman Story in CSL: DT* asked students to observe 6 pictures, and arranged them in order from 1 to 6.	DT told the story in CSL, and pointed to the pictures at times for reference.	Students retold the story in CSL one by one, glancing at the pictures only once.
Snowman Story in Chinese: HT** asks student to observe the 6 pictures again, and think of words in Chinese, and sign combined with speech.	HT and students read Chinese words and sentences on labels, and matched them with the details on the pictures. Q: 'Why did the snowman disappear?' A: SUN SHINE-to-ground.	HT gave each student an ice cube, and asked them to observe how the ice melted on their warm hands… HT led students in reading aloud the labeled sentences again in signed Chinese.
Goat and Wolf in CSL: DT tells the story in CSL.	Three students retold the story and expanded the story by adding their creative and detailed descriptions.	DT led students in reviewing the story text on the poster, and then, asked them questions in signed Chinese and finger-spelled functional words.
Fruit snack in CSL/Chinese Contact: HT and DT prepared and distributed fruit dishes.	Students ate chopped fruit and dialoged in CSL. DT and HT asked students the names of the fruit. Students signed, some signed with speech.	HT used one hand to sign with open mouth and the other hand held a sentence label "what fruit do you like to eat?" under her chin.
A Jump Rope Poem in CSL/Chinese Contact: DT showed a rope and dialoged with students how to use this rope in CSL. Students played with the rope.	Students sat at desks, read text on the blackboard about the jump rope poem, DT used CSL to interpret the meaning of each line, and used signed Chinese to support reading aloud.	HT led students in a repeated reading aloud in signed Chinese and helped them to memorize the poem word by word.

*   DT=deaf teacher, **HT= hearing teacher

The six-year-old boys and girls in the bilingual sign class in Nanjing signed *FEI* ('fly') and *FEI-JI* ('airplane') with the same handshape in different movements that denote different meanings. In addition, one boy signed *JIASHI FEIJI* ('drive an airplane') to an observer, and then, 'wrote' three Chinese characters, *FEI-XING-YUAN* ('pilot') using his index finger on the desk. He told the observer that he wanted to become a pilot in the future. This case shows that early exposure to CSL and written Chinese characters satisfy deaf children's communication needs and stretch their imagination.

In general, assessment of the bilingual programs stresses the positive effects on children's linguistic development. For example, Wang (2004), a deaf teacher in Tianjin, points out that in the CSL/Chinese bilingual programs children have access to full communication, sign many words and stories and perform better than she herself did as a deaf child at the same age. She continues to argue that natural CSL interactions and deaf role models benefit the children's intellectual development and their social growth, and provide them with emotional and behavior management support. The comprehensive assessment by Zheng et al. (2004) of deaf children in one of the Amity bilingual programs shows that the bilingual teaching approach improved the children's communication skills, that their language development level and cognition were closer to those of hearing children's and that deaf children of deaf parents outperformed the deaf children of hearing parents in the examination.

As explained above, the children enrolled in the bilingual programs mentioned are prelingually and profoundly deaf; in the majority of cases, their families would generally be unable to afford a cochlear implant. Most of them would do poorly in the traditional oral-centered programs (Wu et al. 2005; Sun 2005), an assumption that is corroborated by the results of the evaluation of the deaf children attending the bilingual program in Tianjin and Hefei prior to enrollment for the first grade: these children outperformed other profoundly deaf children who had been in the oral-only class in the academic tests, as well as in self-confidence, creative expression, and social skills (Bao 2004; Biggs 2004). In addition, Bao (ibid.: 4) reported that in the Hefei bilingual class, children's sign productions were close to hearing children's oral productions regarding storytelling and vocabulary levels although he also pointed out that their oral skills were weak and they generally needed more training in word pronunciation.

In conclusion, the evidence indicates that deaf children who attended bilingual programs were generally better prepared for their nine-year compulsory education than other profoundly deaf children who did not attend any type of education or attended oral-only preschool programs (Wu 1998; Zheng et al. 2004). This, as we have pointed out before, is the result of these children's early and full access to communication in a natural sign language.

8.7   The case of a private bilingual school in a rural area

Finally, I will briefly describe the case of a bilingual school in a rural area, which shows that bilingual programs can also be successfully implemented in these areas. In Jiujiang,

Jiangxi Province, in the central region of China, a private bilingual school for the deaf was established by a deaf principal, He Shenghua. In September 2000, three of the teachers employed attended several bilingual teacher training seminars and conferences hosted by the Amity Foundation and other NGOs. These staff members brought their knowledge and experiences back to their school, sharing them with other teachers, and implemented bilingual teaching methods in their classrooms.

The first group of students attending the bilingual class at the *Jiujiang Boai* School (aged 9–11) in 2000 studied hard and learned effectively from bilingual teachers who were deaf or hearing. The teachers did not spend much time on oral drills and used their scant funds to purchase computers instead of audio-speech training equipment. The teachers taught the children sign and written Chinese words at first. The children observed what and how a teacher signed and wrote, and then acquired and produced the meaning of the words through diverse activities, such as getting to know objects outside the classroom (see Ardito et al., this volume, for a description of similar activities carried out in a bilingual preschool in Italy). School administrators and local authorities were surprised by the students' unexpectedly fast linguistic and social progress (Lu, personal communication, November 2000).

In July 2005, the first group of deaf students completed the standard elementary school curriculum, doing so within five years (compared to the six years it would take hearing students in regular schools, or the eight years it would take deaf students in public schools for the deaf). The average scores of the class in the Chinese and mathematics elementary school exit exams were similar to the scores of regular rural hearing students. This case shows that the CSL/Chinese bilingual approach, when coupled with well-trained teachers and support from the deaf community, may even be applied in teaching deaf students in rural areas.

9.   Conclusions

In the history of deaf education in China, CSL has long been a hidden part of the curriculum (acquired through contact with deaf peers and used outside the classroom) in many schools for the deaf, but has recently emerged as a real part of the curriculum and is now used in sign-bilingual instruction in pre-school and primary school programs in 10 cities in China.

One of the major characteristics of bilingual education for deaf children in China is that it respects the nature of deaf children and adults who are bilingual. More educators are now aware of and more sensitive to deaf children's language and communication needs, and more Chinese people recognize the value of CSL, deaf teachers, and deaf communities than ever before. A key part of this growing awareness can be attributed to the contributions of capable deaf teachers acting as language, cultural and moral role models for their students (Yang 2006). Their impact on the thinking of young deaf people has been considerable: it is now common for deaf children to discuss

themselves and their abilities in a more positive light. They no longer see themselves as defective members of society in need of coddling, but as being linguistically and culturally different and as capable as their peers. The success stories of deaf students and deaf teachers in the bilingual experimental programs have been disseminated through mainstream media and the deaf education network in China. Local educational agencies and administrators from other schools for the deaf have observed the bilingual classes, witnessed the achievement of deaf children in the bilingual programs, and have recognized that the bilingual education programs in the schools greatly benefit profoundly deaf children (Biggs 2004; Wu et al. 2005). NGOs have helped many schools in rural areas to set up bilingual education programs for young deaf children and have improved the schools' language and cultural environment.

The recruitment for early childhood CSL/Chinese bilingual programs is ultimately dependent on parents' choice and involvement. Many parents of young deaf children in China need more information about the benefits of CSL/Chinese bilingual education in order to shed their misconceptions about sign language and the language development of deaf children (Sun 2005). They also need support in accepting their children's deafness and raising their expectations for their children. They need to learn how to view their children in more positive ways, how to communicate with them and how to assist them in language learning and in expanding their knowledge of the world. The partnership between parents, schools for the deaf, hearing and speech rehabilitation centers and deaf communities can help in providing these parents with resources and inspiration.

Both signed and written languages are indispensable in deaf children's lives. Spoken language skills are of equal importance in contemporary China because CSL interpreting services are unavailable and there are comparatively few hearing people who can sign well. Many parents and teachers feel that if a deaf child is able to master speech early, that skill will assist him/her to remember words, arrange them in the correct word order, and develop acceptable writing competence (Bao 2004; Sun 2005; Chen 2005). Other people want to see deaf children perform well in reading and writing Chinese, regardless of their chosen mode of communication or program.

The greatest current concern regarding the development of bilingual education in China is the lack of teachers competent in CSL and Chinese. Although the teachers in the bilingual programs clearly articulate the principles of natural CSL as the first language, very few hearing teachers can use natural CSL and Chinese (in signed, written and spoken forms) effectively in an educational setting. Many teachers of the deaf are in the process of on-the-job learning about CSL linguistics, sign language acquisition of deaf children, and bilingual teaching methodology. Among the proposals that have been put forward, it has been suggested that sign language and bilingual teaching courses be added to the special teacher preparation programs at universities. Zhang and Huang (2000: 58) suggested training more deaf teachers to work effectively with hearing teachers.

In the long history of the use of sign language in deaf education, sign language has undergone many changes in its linguistic capability, variances, and societal status. In the realm of language contact, it should be noted that for a long time CSL was used in the deaf education setting as a signed form of representing oral/written Chinese; thus, contact signing served as a means of learning written Chinese. Unfortunately, many deaf students in schools were only exposed to and instructed in contact signing instead of natural CSL. They discovered real CSL in peer interactions after class, or later in the deaf community after they graduated, and their signing skills and self-esteem often greatly improved after exposure to natural CSL (Chen 2005).

Some NGOs have introduced a new socio-cultural perspective of deafness and the bilingual-bicultural approach to the deaf education field in China. The bilingual education approach in the early experimental period has helped bring about CSL linguistic status equal to that of oral/written language in the deaf school curriculum, especially in early education programs for profoundly deaf children. It is now considered as one of two first languages. Most teachers of the deaf are better trained and are teaching Chinese as a first language (such as the aural/oral approach), but are unfamiliar with or have doubts about teaching Chinese as a second language to deaf students (Sun 2005). Thus, more research into the characteristics of deaf students who learn Chinese as a second language and related instructional strategies is necessary to support Chinese literacy development in bilingual education programs.

Acknowledgements

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Sign bilingualism

Language development, interaction, and maintenance in sign language contact situations

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In this chapter, we adopt a cross-disciplinary perspective on sign bilingualism and explore the dynamics of its development and maintenance in the light of the insights provided in the contributions to this volume and current assumptions in the field of contact linguistics. We offer a critical appraisal of the research-policy-practice axis that determines sign bilingualism in diverse social contexts and argue in favour of a realistic ecolinguistic model of language planning. Following an integrated view of sign bilingualism, we discuss the complex inter-relation of external ecological and internal psycholinguistic factors that determine language acquisition and use in bilingual signers. As the sophisticated interaction of two languages of different modality not only shows that sign bilinguals skilfully exploit their linguistic resources much like other bilinguals, but also that cross-modal language mixing represents an essential part of adult and child bilingual signers' repertoires, we raise the question of whether the didactic conceptions that are put into practice in deaf education are doing justice to the dynamics of sign bilingualism. In our discussion of the dimensions of variation in sign bilingual education, we suggest that the diverse and often conflicting objectives in the education of deaf students relate to the system of values in a given society. We also draw attention to continuing shortcomings of the bilingual programmes implemented that strike us in their potential negative effects concerning the eventual outcomes. While emphasising the progress that has been made in the field, we conclude by drawing attention to those issues that deserve further examination in future follow-up studies.

1. Introduction

The present volume concerns the dynamics of a particular type of bilingualism, namely, the bilingualism involving a signed and a spoken/written language by taking into

consideration the different internal and external factors that determine its development and maintenance at both the individual and societal levels. By opening a window into diverse social contexts of sign bilingualism and distinct cross-modal language contact phenomena, each of the chapters in this volume adds a piece to the complex puzzle of a comprehensive and adequate understanding of sign bilingualism. As we will explain in what follows, the integration of the knowledge gleaned from these studies brings us a step further in this endeavour.

1.1   Toward an integrated view of bilingualism

Bilingualism in general is not a static phenomenon. The norms that determine language use in the different linguistic groups can change over time and affect the vitality of the languages in a given social space as well as the degree of bilingualism at the individual level. The dynamics that underlie situations of language contact, including the types of *bimodal* language contact that involve a signed and a spoken or written language, have to be taken into consideration in the face of the complexity of the continua of contact phenomena that result from these situations (Grosjean 2001; Romaine 1996; Siguán 2001; Winford 2003). The combination of elements of two distinct linguistic systems in bilinguals' productions have often been interpreted as an indicator of linguistic confusion without taking into consideration that bilinguals are more than two monolinguals in one person. Sociolinguistic and psycholinguistic studies coincide in the observation that the origins and functions of language mixing can change over time, i.e. reflect a sophisticated pooling of linguistic resources in the course of the bilingual development or serve a diversity of social functions in adult bilinguals' interactions.

Bilingualism is not a monolithic phenomenon. The reasons for the vitality of two or more languages in a given social space are diverse. Speakers of different languages have been related to each other for economical or political reasons throughout the centuries (Siguán 2001: 16ff.). In the face of the myths that continue to abound around bilingualism and its alleged exceptional status it is important to notice that most of the world's speech communities are multilingual with varying types and degrees of bilingualism (Ann 2001; Baker 2001; Grosjean 1982; Romaine 1996; Tracy & Gawlitzek-Maiwald 2000). If bilingualism is not an exception, but rather the norm for the greater part of the world population, the question arises as to whether and to what extent socio-political and educational measures are doing justice to the linguistic practices and skills of bilingual individuals, including bilingual signers.

In various countries, different measures have been taken to promote the acquisition of two or more languages in the educational area. In Europe, the Council of Europe (2001: 4–5) has even gone so far as to propose, as a part of the goal-framework of European students' education, the replacement of the notion of multilingualism by plurilingualism, highlighting in this way the dynamic dimension of an individual's communicative competence over time: the development of diverse linguistic repertoires is not restricted to the educational period but a lifelong endeavour in accord

with the individuals' changing communicative needs. However, despite the cultural and economical benefits attributed to multilingualism or plurilingualism at a broad programmatic level, the concrete political and educational institutions (in Europe and other parts of the world) have not treated all language contact situations alike. Differences concerning language planning measures toward multilingualism reflect the symbolic value of the languages affected and the unequal distribution of power in a given society. As pointed out by García et al. (2006: 35), multilingualism is determined by the languages involved. For the 'elite nomad' multilingualism is the key for her socio-economical mobility; however, the situation is entirely different for people with little formal education and mobility (ibid.). While "using a second language is a commonplace activity" (Cook 2002: 2) for the majority of the world's population, the linguistic practices and language planning measures that determine multilingualism differ markedly and are ultimately reflected in the advantages or disadvantages attributed to the development and use of two languages at the individual and societal levels. The apparent contradictions outlined underline the need of unmasking the interdependence of research, policy and practice that seem to make "unity and coherence elusive objects [in bilingualism research]" (Hornberger 2003: 5).

Social functions modelling language use and formal constraints on the linguistic outcomes of language contact situations have been studied separately in the different linguistic subdisciplines as if both dimensions were independent of each other. In this respect, the progressive convergence of the different lines of research is contributing to a better understanding of bilingualism and situations of language contact and opening new perspectives in the aim of resolving the old controversy "over the role of external linguistic influence as distinct from internal motivations and mechanisms in language development" (Winford 2003: 9).

The integration of linguistic and social aspects in the research on language contact and bilingualism is not new; it can be traced to the influential work of Weinreich (1974), Haugen (1950), Thomason and Kaufman (1988), as some of the 'pioneers' in the field of contact linguistics (Winford 2003: 9). It is important to realise, as pointed out by Winford (ibid: 8), that "most of the current topics in the field were already object of a serious enquiry as early as the nineteenth century". At that time, much attention was put on the potential role of language contact in the change of languages across time, later to the emergence of 'new' mixed languages (pidgins and creoles) and the social aspects determining language maintenance in ethnic minorities (Fishman 1968, 1999, 2001) or the sociopsychological factors affecting language choice (as investigated by different scholars following the Speech Accommodation theory; see Giles et al. 1991 for an overview of early findings and later directions). The insights gathered in sociolinguistic studies have elucidated the factors that determine positive and negative attitudes toward bilingualism and language contact. While there is a general consensus that code-switching is used by bilinguals as a communicative resource that serves specific functions in specific situations, the juxtaposition of elements of two distinct languages in the productions of bilinguals continues to represent a challenge at the

descriptive level with respect to the grammatical constraints that might determine the combination of two languages at the intra-sentential level (Tracy 2000). Today, from a psycholinguistic perspective, the interaction of distinct linguistic systems is not regarded as an indication of linguistic confusion, but is rather deemed to reflect different degrees of co-activation and co-production of the two languages on the monolingual-bilingual continuum of linguistic modes in which bilinguals operate (Grosjean 1997; De Groot 2002). Finally, developmental linguistics is providing important insights on how children become bilingual communicators and pool their linguistic resources in their development of a multilingual competence (Gawlitzek-Maiwald & Tracy 1996; Döpke 2000; Müller et al. 2002).

1.2   Sign bilingualism

Narrowing the focus to the research into bilingualism and language contact involving a signed and a spoken/written language reveals that the number of studies dedicated to this type of cross-modal language contact from a sociolinguistic perspective has substantially increased in the course of the last two decades. More recently, these studies have been complemented by psycholinguistic research on language development and interaction in this type of bilingualism. The evidence gathered in these studies shows that cross-modal bilingualism is equally diverse and dynamic as other types of *inter-modal* bilingualism involving two languages of the same modality of expression (i.e., signed or spoken, whereby the greater bulk of the research has been dedicated to the latter).

At the level of an individual speaker, bilingualism can take many forms beyond the idealised notion of a balanced competence in and use of more than one language (Grosjean 1992; Romaine 1996). In view of the variety of acquisition types and competence levels achieved, some authors have proposed to define bilingualism as the regular use of more than one language in everyday life (Grosjean 1982, 1992, 1998a; Romaine 1996). Following this broad definition of bilingualism, most deaf individuals are bilingual even though they differ regarding their competence in and use of a signed language and a spoken/written language. The continuum of linguistic profiles encountered among deaf bilinguals ranges from mother tongue acquisition of one or both languages, the acquisition of one of the two languages as a second language, a partial acquisition of one or both languages to only a rudimentary acquisition of one or both languages (cf. Plaza-Pust 2005). The reasons for this variation relate to such diverse factors as the age at which the hearing loss took place, the degree of deafness, the age of exposure to the respective languages, the hearing status of the parents, and, certainly most significantly, schooling (Emmorey 2002; Fischer 1998; van den Bogaerde & Baker 2002). Additionally, we may consider factors concerning the socialisation of adult deaf individuals and the *situational continuum* that induces the different modes of communication (Grosjean 1998a: 23) ranging from a monolingual mode in interaction with interlocutors who are not competent in both languages to the bilingual mode in interactions with other bimodal bilinguals. As pointed out by Romaine (2004: 386),

bilinguals "interact in many kinds of networks within communities, not all of which may function bilingually". This holds equally true for bilingual signers.

Education, as historical records demonstrate (Plann 1997) and becomes apparent in the different contributions to this volume, plays a crucial role regarding the degree of bilingualism attained by deaf individuals, in particular for those who are born to non-signing hearing or deaf parents for whom the path toward bilingualism often begins within the school bounds in which they experience their first contact with a signed language (provided there are other deaf peers, and sign language is used as a language of instruction). In her contribution on the use of signed language in China, Junhui Yang reports on the multiple routes to bilingualism of Chinese deaf individuals. Similar personal experiences have been reported in the literature on deaf individuals in diverse countries (Lane et al. 1996). While each of these statements reflects a unique personal history, they all mirror the intricate interplay of internal and external factors that determine this particular type of bilingualism. Given the specific patterns of transmission of the *natural* language of deaf individuals (sign language as a mother tongue is available to less than 10% of deaf children born to deaf parents, cf. Johnston 2004: 361) and the limited access to auditory input, deaf children depend on supportive measures regarding their bilingual development. The availability of these, as is explained in the next sections, is related to the broader socio-political context that determines both the vitality of signed language (at the level of the community of signers or *deaf community*) and its provision at the institutional level (*language planning*).

While many myths prevail with respect to the bilingualism of deaf individuals, research into the acquisition and use of a signed and a spoken or a *written* language (note that in the latter case, too, deaf individuals are *bilingual*) is contributing to a more precise evaluation of how bilingual signers acquire and use two languages of different modality. Whilst some scholars question the validity of the notion of 'bilingualism' given the limited access to the spoken language by deaf learners, others have emphasised the intricate diversity of languages and codes deaf individuals use in their everyday life (see Baker & Van den Bogaerde, this volume). Concerning the development of sign bilingualism, Padden (1998b: 103) therefore emphasises the relevance of viewing "language acquisition as the development of interacting systems, each of which has specific social uses". This view not only implies that sign bilinguals marshal their linguistic resources in their everyday lives (ibid.: 100), but also that sign bilingual learners will skilfully exploit their linguistic competencies in the course of their bilingual development (see section 3). Similarly, Hoiting and Slobin (2000: xvi) remark on the need of "models that include several types of interacting factors". Following this view, a comprehensive understanding of sign bilingualism can only be achieved if sociolinguistic theory and analysis is integrated with the linguistic and psycholinguistic analysis of the continuum of signed/spoken/written language contact phenomena.

Given the aforementioned interdependence of research, policy and practice, it is clear that the insights gathered are not only of scientific interest, but also bear important implications concerning the perception and understanding of bilingual deaf

individuals whose bilingualism has been ignored for a long time at the socio-political and scientific levels. Sign language-spoken/written language contact situations offer a rich field of research into the complex inter-relation of external ecological and internal psycholinguistic factors that shape the outcomes of language contact. The investigation in this field thus needs to be firmly embedded in the broader field of bilingualism, by being informed about the latest insights gained regarding other types of bilingualism, and, in turn, informing the broader field about the results obtained regarding bimodal bilingualism. Following this line of reasoning, we will now turn our attention to the major insights that can be gleaned from the contributions to this volume about the dynamics of sign bilingualism.

2.   Language maintenance: The dynamics of sign bilingualism at the society level

The linguistic and anthropological studies of signed languages and their users that were undertaken as of the 1960s have served as a stepping stone toward the political empowerment of deaf communities as linguistic minority groups and the recognition that users of a signed and a spoken/written language are *bilingual*. Following these important developments in the 70s and 80s of the 20th century, we are faced with the question of what has changed in recent years in the research-policy-practice axis in relation to sign bilingualism. At the level of *research*, the interest in sign bilingualism as an object of scientific enquiry is reflected in the increasing number of empirical studies dedicated to this type of bilingualism. More than a decade ago, Ahlgren and Hyltenstam (1994) edited one of the first books devoted to sign bilingualism. The collection of essays dealt with sign bilingualism and the status of sign language in the education of deaf students in diverse countries, such as Kenya, France, Sweden, and Denmark. The role of internal and external factors in sign bilingualism was addressed, but the discussion was largely exploratory given the limited empirical evidence available at that time. Today, one of the major conclusions that can be drawn on the basis of the contributions to this volume is that bimodal bilingualism continues to be an undeveloped concept at the level of *policy* which is reflected in the circumstance that its dynamics at the society level is determined by a *bottom-up model of change* in the diverse social contexts explored by Krausneker, Morales-López, Gras, Massone and Yang.

2.1   Deaf communities

As Morales-López explains in her contribution, following the ethnographic tradition, the notions of 'community' and 'identity' are not stable notions but represent semiotic constructions that reveal various layers of meaning. Additionally, it is important to realise that the multiple dimensions of 'identity' are negotiated in different contexts

(García et al. 2006: 35 pace Pavlenko & Blackledge 2004; Lucas & Valli 1992). While social groupings are not only determined by the language(s) they use, "language becomes intertwined in complex ways with these various other indicators of group membership" (Romaine 2004: 386).

Deaf community membership is commonly understood as linguistic membership which involves the choice of sign language as the preferred language (Woll & Ladd 2003: 153). Moreover, solidarity, based on the concept of attitudinal deafness ties a deaf community in a given country with the international or interregional deaf community (solidarity across national or regional boundaries, see op. cit.; Aarons & Akach 2002; Marschark et al. 2002; Morales-López et al. 2002; Morales-López 2005; Padden 1998a). The deaf community thus constitutes a case of a "community of practice" (Romaine 2004: 387, pace Wenger 1998) rather than a group of individuals that happen to use the same language. Until recently, educational institutions (deaf residential schools) and social meeting points (deaf clubs) have formed the two cornerstones of the deaf community in Western societies (Woll & Ladd 2003: 154; Ladd 2003; Padden 1998a) and also, in other social contexts as, for example, in China as the contribution of Yang reveals. Sign language, deaf culture and historical traditions were passed on from one generation to another in schools and later maintained through social interactions, in particular, in deaf clubs (Padden & Humphries 2001; Lane et al. 1996). While schooling and the vitality of the community are equally important for the maintenance of other minority languages (Fishman 2004: 427), educational institutions and deaf clubs have been vital for the historical maintenance of signed language and the deaf community because of the aforementioned circumstance that the "parent-to-offspring model" (Mufwene 2001: 12) does not apply to the majority of deaf signers given that they do not learn signed language from their parents.

The development of the deaf communities in the last years in diverse social contexts (see, for example, the contributions of Morales-López and Gras for Spain, and Krausneker for Austria) is characterised by two seemingly 'contradictory' processes. On the one hand, the traditional 'cornerstones' mentioned have become vulnerable to the socio-political and economical developments in the last decades (Woll & Ladd 2003; Padden 1998a), which, to a certain extent patterns with the urban segregation of other linguistic minority groups (Romaine 2004). On the other hand, the activism of deaf associations and related interest groups has led to an increased perception of the deaf community and signed language at the society level. Grass-roots pressure, as in the case of other linguistic minorities groups (García et al. 2006: 38) has led to political concessions regarding the official status of signed languages, and their inclusion in the education and service areas. While this process is similar in many Western countries, Yang's (this volume) review of the history of the use of Chinese Sign language (CSL) reveals a different chronology of the official recognition of this language and its users. and a greater involvement of deaf educators at different points in time.

Despite the specific or more local variables tied to the individual social contexts portrayed, Morales-López, Gras, Krausneker, and Yang coincide in their conclusion

that both bottom-up and top-down activities are necessary for the maintenance of sign bilingualism and its recognition on a par with the bilingualism of other linguistic groups, in particular, the bilingualism that is bound to geographically distinct areas (territorial bilingualism). As Morales-López explains, the discrepancy in the language planning measures adopted toward distinct linguistic groups is particularly striking in Spain: while territorial bilingualism is promoted at the educational and other society levels, sign bilingualism continues to be largely ignored (see also Gras, this volume).

2.2   Language planning

The objectives and outcomes of language planning have to be studied in relation to the linguistic complexities of the broad social context in which the respective measures are undertaken. In her contribution on bilingual education in Spain, Morales-López discusses the potential for conflict in the process of change in relation to the ensuing redistribution of the *linguistic ecosystem*. The ecological metaphor has been widely used by sociolinguists and language planners in the endeavour of providing a framework for the explanation of the conflict potential inherent to situations of language contact, concerning different languages, varieties or even idiolects of individual speakers (Mufwene 2001: 146). To the extent that the coexistence of linguistic varieties also involves a competition among them, the linguistic diversity and cultural richness of human populations is at risk. In this sense, the ecological metaphor is also used with the aim of identifying the measures necessary for the maintenance of this diversity, an objective that parallels the increasing concern about the maintenance of the biodiversity in modern times, as was explained by Einar Haugen, one of the first scholars who used the ecological metaphor in sociolinguistics:

> I have suggested … that sociolinguists should adapt the concepts of *ecology* to [language] situations. Like animal or human species, the forms of given languages are shaped to the needs of their environment. When a society no longer needs a particular language, it dies and another takes its place. Against this concept one can consider movements for language maintenance and reform as ecological efforts to control the linguistic environment (1987: 50).

In the last years, several scholars (see Mühlhäusler 2000; Mufwene 2001; Calvet 1999; Heller 2002; Blommaert 2001; among others) have used this metaphor though with slightly different meanings. For Mühlhäusler (ibid.: 306, 308), ecolinguistics shares with the ecological view of biodiversity a wider environmental perspective, an awareness of the dangers of monoculturalism and the need of *holistic* approaches to preserve the diversity of natural and human ecologies. Hence, the general goals of ecological language planning would be to promote co-existence and cooperation among the diverse linguistic communities (as opposed to other forms of language planning that would promote the competition and ultimately the suppression of the minority languages). Furthermore, because linguistic inequality and discrimination reflects an

unequal distribution of power not only in the case of diverse languages but also in the case of geographical and social varieties, ethnographic studies that would uncover these subtle relationships are an essential requisite for any language planning proposal (see Heller 2002; Blommaert 2001, for a detailed discussion). Some authors (see, for example, Calvet 1999) therefore argue in favour of a *realistic* ecolinguistic planning which would take into consideration the socio-economic and socio-political factors determining the relations among the groups involved, as well as the actual needs of the groups' members. This conception of language planning is in line with current proposals put forward in the broader field social sciences according to which the social changes envisaged would be oriented toward a more balanced relationship between actual experiences and feasible expectations. Thus, the alternatives proposed are simultaneously Utopian and realistic (Sousa de Santos 2005: 167–169).

The approach to sign language planning which is proposed here, and is adopted by various authors contributing to this volume, supports the right of deaf users to claim the use of signed language in the public space while taking into consideration the aforementioned realistic understanding of linguistic rights proposed in the domain of ethnographic sociolinguistics. Following this line of reasoning, the specific characteristics of the respective socio-political context and the power of the political forces opposed to the public inclusion of signed language (i.e., the true power of the oralist tradition) need to be taken into consideration in the analysis of signed language planning measures. On the basis of an analysis along these lines, both the proposals and the expectations have to be progressive and in agreement with the socio-political reality.

The comparison of language planning targeting sign bilingualism *viz.* sign bilingual education in the different social contexts explored in this volume reveals important similarities but also marked differences between sociolinguistic situations which emphasises the need to carefully examine the language planning measures that should be adopted in each of these contexts.

The Argentinean situation described by Massone stands out as unfavourable to bilingual discourse in deaf education given the power of oralism as the dominant discourse model. Massone concludes that this dominant discourse makes appropriate language planning nearly impossible in this country. This author also remarks on a discrepancy within the Argentinean deaf community itself, as its members do not struggle for bilingual-bicultural education in an organised way and only a few deaf leaders appreciate the importance of this educational model. Hence, a realistic language planning in the Argentinean case would have to start by articulating again the bilingual discourse through which the deaf community would be able to counter-argue the traditional oralist discourse.

The situation is different in other countries where bilingual education programmes have been implemented, as is the case of Austria, China, Germany, Italy and Spain. In these social contexts, the ensuing planning process will have to target the effective consolidation of this model in order to establish bilingual education as a true alternative to oralism, as has been the case in the Nordic countries.

In more general terms, Gras (this volume; also 2006: 200) explains that sign language planning should work toward the maintenance of the native speakers ("the community's stability") – in danger because of mainstream education – and the deaf community's access to information and autonomy ("the users' literacy"). For these purposes, Gras argues in favour of a sign language planning process that is holistic in that it "analyses the needs of all the parties and promotes the connection among all the planning agents". Her analysis of the sign language planning process in Spain reveals a contradictory development which differs markedly from the holistic process envisaged. Bottom-up activities concerning the recognition of signed language and its inclusion in deaf education have not converged with the top-down activities that have been focused only on the training and provision of signed language interpretation. The standardisation process of signed language that has run parallel to the professionalisation of interpretation has largely ignored the community of signed language users.

Morales-López, in turn, emphasises the need of a revision of the bilingual model implemented in the institutions investigated, in particular, with respect to the teaching-learning of signed language as an L1, in a comparable way to the methods used for the teaching-learning of the respective spoken L1 languages. As this author remarks, there is an urgent need of investigation into sign bilingualism as well as of training in bilingual education methods of the professionals involved.

Other contributions to this volume highlight similar discrepancies concerning language planning measures targeting signed language, in particular, standardisation and curriculum development. With respect to the former, Yang explains in her contribution that sign language users were involved in the creation of a unified sign language dictionary in China. However, the expectations of the standardisation process have not been met (in contrast to the relatively successful implementation of standard Chinese) which calls for a precise analysis of the causes that rendered this process unsuccessful.

With respect to the situation in Austria, Krausneker mentions the exclusion of deaf individuals from the committee involved in the revision of the curriculum for special education. Moreover, this author draws attention to the exclusion of deaf individuals from the teaching profession. According to her, whether or not the situation will change after the official recognition of Austrian Sign Language (ÖGS) in 2005 cannot be foreseen at the moment. However, the different interest groups that have worked toward this change should plan the future action strategies so that the legal recognition is translated into realistic proposals of change in the educational area.

Notice that Krausneker, Morales-López Yang, together with Ardito et al., coincide in the observation of the predominance of bottom-up processes working toward the implementation of bilingual education programmes with deaf students which patterns with the processes that have led to the inclusion of native languages in the education of other linguistic minorities around the world (García et al. 2006: 35; Hornberger 1997, 2003; Romaine 1995). It is important to note that in these cases of bottom-up language planning, the stakeholders usually include non-governmental organisations, parents' associations, teachers, and other related interest groups (i.e., deaf associations in the

case of signed language). This situation contrasts markedly with the top-down model of language planning that resulted in the institutionalisation of bilingual education of deaf students in some Scandinavian countries (mainly, Denmark and Sweden) (Ahlgren 1994; Bergman 1994; Svartholm 1993; Mahshie 1997).

Finally, Dubuisson et al. and Plaza-Pust explain how the bilingual education programmes in Quebec and Germany have been determined by both bottom-up and top-down processes. While the former were decisive for the consideration of a bilingual concept as an option in bilingual education at the political level, the latter processes have modelled the educational requirements these programmes have to fulfil. These programmes can profit from the political mandate to undertake concomitant research and contribute to a more balanced information flow in the research-policy-practice axis that would work toward the eventual consolidation of the bilingual education option and its improvement in these countries.

As can be gleaned from the preceding discussion, the demands, measures and expectations of the different parties involved in language planning concerning signed languages and sign bilingualism vary substantially. Because of the diverse circumstances that have shaped the implementation of bilingual education programmes in several countries around the world, variation in the didactic conceptions adopted comes as no surprise. The following sections are dedicated to a critical appraisal of the practices and policies that determine current bilingual education programmes as portrayed in the contributions to this volume.

2.3   Bilingual education of deaf students

Bilingual education can take many different shapes and serve different purposes (Baker 2001; García et al. 2006). In their critical evaluation of educational discourse and bilingual education practice, both Massone and Morales-López draw attention to the important part ideology and power relations play in the language planning process that targets the educational area, and emphasise the need to study bilingual models of deaf education on the backdrop of the more global social context they are embedded in.

From the perspective of language planning, we may roughly distinguish two modes of bilingual education targeting linguistic minorities, namely, the transitional and the maintenance models (see Morales-López, this volume; Baker 2001). The former is goal oriented in that it basically aims at the improvement of literacy in the majority language. The latter, in contrast, takes the rights of minority groups (linguistic rights, maintenance of cultural identity) into consideration including the promotion of a 'multicultural awareness' in the multilingual users. The continuing political debates on the implementation of the latter type of model in many countries around the world, including the US and several European countries, reflects the prevalence of monolingual and monocultural ideologies inherent to the concepts of nationhood and state cohesiveness. As remarked by García et al. (2006: 12, their emphasis):

> regardless of more or less flexibility, all state schools participate in functioning as agents of imagined nationhood […]. This often promotes semblance of, or the idealised image of, *one* identity, *one* culture and *one* standard language and literacy (even though these realities are much more complex).

In the face of the continuing predominance of the one-nation, one-language ideology embraced by many modern states (particularly in Western societies), it is important to realise, as mentioned in the initial sections of this chapter, that the types of multilingual education targeting linguistic minorities differ from education models which involve instruction in languages that are generally not native to the students and do not form part of the environment but are considered economically and culturally valuable. The type of 'elite bilingualism' fostered in such educational settings differs markedly from the multilingual education of linguistic minority members which is often "equated with poverty and loyalties to non-mainstream culture which threaten the cohesiveness of the state" (Romaine 2004: 397).

As an instance of the realistic language planning envisaged (see section 2.2), Morales-López argues that because signed languages do not represent either territorial languages or elite languages, sign bilingual education is faced with the task of fulfilling "practical social functions". Thus, beyond the "politically correct discourse" (Calvet & Varela 2000: 52ff.) which would include the argument of the equality of the world's languages, a more practical line of argument is used in favour of the bilingual education of deaf students, namely, that the inclusion of signed language serves as an educational measure to improve the academic achievements of deaf students. This goal oriented argumentation has proven to be fruitful to the extent that many bilingual programmes have been implemented in the last years in various countries around the world despite the increasing predominance of mainstreaming in the education of deaf students. However, as we believe, beyond the overarching aim of academic achievement and literacy in the majority language, the practice of bilingual education needs to be based on a well-defined conception of sign bilingualism that would necessarily include a bi-cultural component and promote the development of deaf students as *bilingual* communicators (Mugnier 2006; Padden 1998b). In other words, sign bilingual education cannot be footed on a temporary concept of bilingualism which is often inherent to the conception of bilingualism as an 'educational tool' because it would deprive it from the meaningful dimensions that are necessary for an appropriate unfolding of the two languages. In this respect, research needs to inform both policy and practice. We will come back to this issue later on, when we discuss language development in bilingually educated deaf children. The next sections are dedicated to the discussion of how bilingual education of deaf students has been put into practice.

2.3.1   *Continuum of bilingual education modes*

The inclusion of signed language in the education of deaf students is commonly referred to as bilingual education. An evaluation of bilingual programmes, however,

needs to take into consideration that they differ with respect to when, where and how deaf children are exposed to signed language, spoken language and written language, which reflects different conceptions of bilingualism in the education of deaf students. The differentiation derives a continuum of bilingual education modes (cf. Figure 1), including those that cannot be considered as bilingual if the *cultivation* of the children's languages, that is, their use as vehicular or teaching languages (García et al. 2006: 14) and the promotion of a multicultural awareness are used as a defining criterion.

In the following, the different variables are discussed in relation to potential effects on the dynamics of sign bilingualism at the individual level.

1.   *Age of exposure.* Given the role assigned to signed language as an L1 or base language in bilingual education programmes, the promotion of signed language acquisition is theoretically scheduled to begin as early as possible. From a psycholinguistic point of view, this is consistent with the circumstance that many children do not acquire any language before they are enrolled at preschool programmes. Thus, one of the fundamental aims of these programmes is to prepare the children so that they reach primary school with an age adequate language that would allow them to tackle the task of learning content matter rather than language (Kuntze 1998: 3; see also the contributions of Krausneker and Yang in this volume). Ardito et al.'s contribution is further elucidating concerning the relevance of an early alphabetisation programme that would help to compensate for the lack the children have with regard to the access to spoken language. While many bilingual programmes (for instance, in Germany and Quebec) are conceived of this way, they are faced with the teaching of students who have not taken part in these preschool programmes and thus lack the language knowledge required. Ardito et al., Niederberger, Dubuisson et al. and Plaza-Pust coincide in their remark on the heterogeneity of the student population with respect to their exposure to the two languages in their early lives, an important aspect that needs to be taken into consideration in the assessment of the students' development.

2.   *Languages of instruction.* Commonly, the use of the two languages in subjects other than the languages themselves is used as a defining criterion of bilingual education (García et al. 2006: 13). Following this criterion, the programmes can be allocated on a continuum of bilingual teaching modes as portrayed in Figure 1 below. In her contribution on sign bilingual education in Spain, Morales-López remarks on the discrepancy between sign bilingual education programmes and bilingual education of hearing students offered in the same social space. Variation regarding the use of the two languages in the teaching of subject matter is an important dimension to be taken into consideration with regard to the assumptions that have been put forward about the interdependence of linguistic and cognitive skills that play a part in academic achievements (see section 3.6 below).

| monolingual <--> bilingual | | | | | |
education					education
spoken / written language = L1	spoken / written language = L1	spoken / written language = L1	spoken / written language = L1	spoken / written language = vehicular language	spoken / written language = L2
(exclusion of signed language)	manual codes	signed language = supporting means of communi- cation	signed language = L2	signed language = vehicular language	signed language = vehicular language

Figure 1. Continuum of contact with respect to the status assigned to signed language and spoken/written language in institutions with deaf students

Moreover, bilingual programmes differ not only with respect to the use of the two languages in the teaching of subject content matter but also regarding the extent to which additional communication systems are utilised, in particular, signed systems. In some programmes, the use of a signed system is restricted to the teaching of the spoken/written language. This is the case of the bilingual programme portrayed in Krausneker's contribution. In other educational contexts, however, there is a discrepancy between the didactic function assigned to the signed system and its actual use which often spreads into the teaching of subject matter as Morales-López (this volume) remarks with respect to some of the bilingual programmes she investigated in Spain. As this author points out, the extended use of the artificial mixed mode clashes with the original idea of bilingual education. Moreover, it is important to notice, as Massone (this volume) indicates, that oralism, where it is still the dominant discourse, has even gone so far as to include the use of signed systems in deaf students' education as a strategy to preserve its hegemony.

Ardito et al. (this volume) mention some of the aspects that work toward the use of signed systems in the bilingual education of deaf children. In the Italian bilingual programme portrayed, both hearing and deaf children were taught in one classroom. The hearing teachers' communication would include Signed Italian so that all children would "participate". So for the hearing teacher, mode-mixing was deemed more "natural" in addressing deaf students, in view of the presence of the hearing children, than code-switching (in the form of a sequential alternation of codes according to the interlocutor). While this point highlights an important functional dimension of language use, the question of whether deaf children are aware of the pragmatic constraints that underlie the choice between languages and communication modes is unclear. Another factor they mention concerns the use of bimodal communication at home, given that the children

had hearing parents and these would use a mixture of spoken Italian and Italian Sign Language (LIS) because of their limited knowledge of the latter. The latter argument is questionable to the extent that it implies a reduction instead of a necessary compensation in the amount of signed language input provided to these children at school.

3. *Spoken language and/or written language.* Bilingual education programmes also differ as to whether they focus on the promotion of speech or on the promotion of literacy development. The emphasis on the latter in some programmes (e.g. the Quebec, Italian and the German programmes, see the contributions of Dubuisson et al.; Ardito et al.; Plaza-Pust, this volume) is certainly most in line with the accessibility of the visual modality to deaf individuals and contrasts markedly with the traditional neglect of the written language in oralist education (see Schäfke 2005, for a detailed discussion). However, as mentioned in the contributions of Ardito et al., Niederberger, Plaza-Pust, and Yang, the oral tradition in some countries continues to be strong, and the learning of speech is expected by institutions and parents as it is considered to be a key to social integration.

One of the main tenets of some bilingual programmes is that reading and writing should be "pleasing" for deaf students, as it is for hearing children, and have a meaning (Ardito et al., this volume). This aim is particularly important given that many children do not experience literacy related activities at home because of the limitations in the communication between parents and their children. The reading activities described by Ardito et al. highlight the different components that need to be taken into consideration in the path toward literacy, including the learning of narrative structure.

It is important to note that the conception of the development of written language in terms of *second* language acquisition changes the perspective on the learning tasks bilingual signers face (as opposed to the traditional view that the written language is a secondary mode to the L1 spoken language). The critical question is whether the didactic conceptions that are put into practice are doing justice to this particular learning situation. In her contribution, Krausneker remarks on the status of written German as a second language (speech training was not included under this heading) but mentions that the didactic conception was not clearly defined beforehand. The deaf teacher used the same materials that would be used with hearing students. The contrastive teaching was done by her own decision. This parallels with the situation in many other bilingual programmes in which teachers are left with the choice of making up their own material and teaching techniques, using teaching material designed for mother tongue speakers, or, alternatively, second language learners of that language. While the latter at least conceive of the target language as a 'foreign' language, they are focused on communicative components of the L2 that nearly exclusively take the spoken language as the target to be learned "using written language in a way seldom encountered outside a classroom" (Cook 2001). It is important to realise that these materials have been found to be wanting also for hearing students in that "written language is often a device for explaining, giving instructions etc, i.e. a kind of meta-language of teaching, rather than a way-in to writing itself" (ibid.). In other words,

students are not exposed to 'natural' written language input, but to a restricted register that is clearly of limited use in the endeavour of attaining a creative competence in the target language. In his discussion of the implications concerning literacy in hearing L2 learners, this author also remarks that the "written language involves not just the conversion of sounds into writing and vice versa but also direct connections to meaning", and criticises course books that "assume that written language simply provides a transcription of speech".

4.   *Metalinguistic skills.* Bilingual programmes vary regarding whether and how they aim at enhancing the metalinguistic skills of deaf children by means of the contrastive study of both languages. In general, it is expected that the promotion of these skills has a positive effect on the acquisition of the written language (cf. Poppendieker 1992; see also section 3.6 below). However, in many cases, little is known about the didactic conceptions applied in the classroom.

Against this backdrop, Ardito et al.' s (this volume) portrayal of the bilingual experience in Italy is a valuable contribution in that it provides a detailed account of the educational activities that aimed to introduce deaf preschoolers to early literacy. Following the tenet that "the path toward bilingualism seems like the most natural way for deaf children to approach language education, as it takes into consideration *both their actual and their potential skills*" (op. cit., our emphasis), the authors emphasise the relevance of a stimulating context which allows children to move from curiosity for written language in their environment to the reflection over written language functions. Bilingual activities making reference to this context also foster the detection of the differences between form and meaning. Apart from language separation by interlocutor, Ardito et al. also remark upon the importance of interaction with several adults and children, the experience of similar contexts in both languages, and, in more general terms, that the children be motivated to use both languages. The two dimensions highlight the functional aspects of language and the meaning each code can gain. As we believe, both an adequate input in terms of the linguistic forms and registers used and the explicit teaching of the contrastive properties of both languages, are requisites for the promotion of the metalinguistic skills assumed to be related according to the Interdependence Hypothesis which we will discuss in more detail in section 3.6.1.

5.   *Teachers.* One the of the fundamental tenets of many bilingual education programmes is that deaf students should have both deaf and hearing role models (Günther et al. 1999; Günther et al. 2004; and the contributions of Ardito et al.; Krausneker; Morales-López; and Yang in this volume). Due to the circumstance that many children only experience their bilingualism in the classroom, the team-teaching approach adopted in several bilingual programmes (e.g., in Berlin) whereby both deaf and hearing teachers or, in some situations, deaf advisors teach together in the classroom, is of particular importance. It is important to note that deaf children in interpreted education settings only seldom have this opportunity, although they may profit from interaction with other deaf peers in the classroom.

Depending on the institutional framework, however, hearing and deaf teachers, sign language interpreters and speech therapists may have different functions. There is also a substantial variation concerning the qualifications of the personnel involved (including sign language competence). Moreover, in her analysis of the role of interpreters in Spanish educational settings, Gras (this volume) remarks upon the deaf students' difficulties in coping with the changes ensuing the introduction of new actors in their classrooms (e.g., interpreters instead of co-tutors), changes that were undertaken without a previous evaluation of the pros and cons that would favour such measures in specific teaching situations.

6.   *Curriculum*. On a broader level, there is the issue of the curriculum adopted in the different bilingual programmes which may be the regular one or an adapted one depending on the institution and/or the student profile. Another issue concerns the status of signed language in the curriculum and the role attributed to critical language awareness (also García et al. 2006: 37).

Both Krausneker and Morales-López provide further insights into how deaf children cope with the standard curriculum in regular schools. Following her participant observation of co-enrolled deaf students (i.e., deaf students enrolled at a classroom with hearing students in which the curriculum was taught in Austrian sign language, *ÖGS*, and German), Krausneker concludes that deaf students can be educated according to the standard curriculum. It is important to realise, however, that the students that participated in the Vienna bilingual programme were native speakers of ÖGS. For obvious reasons, this bilingual model is unsuitable for students who are not competent in the respective signed language as they would have to learn subject matter via a language they do not (yet) master. In the ideal case, preschool programmes would provide deaf students who have not been exposed to signed language at home with a solid foundation in that language so that they reach school with an age adequate language level.

Morales-López' description of the bilingual model implemented in Spain shows that the curriculum is often adapted in the teaching of deaf students, even though many of them are enrolled at regular schools where curricular adaptation should be minimal (or, rather, not an option at all). With respect to the academic achievements of these students, this author adds a note of caution in the interpretation of their evaluation: in the assessment of deaf students' attainments through the comparison with those of their hearing peers potential mismatches between both groups are often interpreted in relation to the students' deafness or else to the failure of the bilingual teaching without, however, taking into consideration that the source of the unequal achievements might relate to the deficits of the educational model implemented. This caveat is particularly important given the liberal use of the notion of 'bilingual' in labelling the different types of signed language use in educational settings.

7.   *Institutional framework*. The bilingual programmes portrayed differ with respect to whether they are implemented in special schools or in regular schools. What needs to be considered additionally is that in many countries, the educational system involves a change of institution from primary to secondary education which often

involves a change in the bilingual conception in that team teaching is used throughout primary education while interpreted education is adopted in secondary education (this is the case for some deaf students in Spain, for example).

Ardito et al. highlight two aspects they consider to be relevant for successful bilingual education of deaf students: first, that deaf and hearing children are integrated in a class, second that deaf children are integrated as a group (not one child in a class of hearing children). Additionally, the bilingual experience in Italy portrayed by these authors differs from other programmes of inclusion in mainstream settings regarding its long term conception within a broad "alphabetisation project" of deaf students. In contrast to this Italian project, the bilingual experience in Vienna only included deaf children of deaf parents who had attained signed language as a mother tongue. As pointed out by Krausneker, the teaching of deaf children without competence in signed language would have been impossible in this type of setting given that the teaching and learning of signed language was not part of the experience.

2.4   Bilingual education revisited: Problems and perspectives

In our opinion, the preceding portrayal of the dimensions of variation in sign bilingual education, reflects diverse and often conflicting objectives in the education of deaf students which relate to the above mentioned goals of language planning and the system of values in a given society. As we will explain, the continuing shortcomings of the bilingual programmes implemented in relation to the status assigned to the different languages and communication systems, teacher training, the materials used and the assessment methods available strike us in their potential negative effects concerning the eventual outcomes. We will discuss each of these issues in turn.

1.   *Status of sign language.* The inclusion of sign language, by itself, does not qualify education as 'bilingual', at least not on a par with the bilingual education that is planned and conceived of in terms of a maintenance of bilingualism. Given the complexity of the skills that are assumed to make up a competent bilingual user on the one hand, and the complexity of the competences subsumed under the notion of literacy on the other hand, the use of a language as a vehicular language without the promotion of a critical awareness of its nature and domains of use is insufficient for an appropriate development of deaf students as bilingual communicators (Akamatsu, Stewart & Mayer 2002). As outlined previously, for a successful bilingual development, the intercultural dimension needs to be taken into consideration (Massone et al. 2003; Morales-López, this volume). All in all, the controversy over the use of and the functions assigned to signed language *vs.* spoken/written language (and related signed systems) in educational settings needs to be embedded in the broader *dynamic* concept of bilingualism outlined at the beginning of this chapter and further expanded in section 3 (see also Mugnier 2006: 12–20), that is, a dynamic conception which would take the psycholinguistic and the sociolinguistic dimensions of language competencies in deaf individuals *qua* bilingual

communicators into consideration. Following this view, the goal of any bilingual programme for deaf children, at the level of linguistic competencies and skills to be acquired, would consist of promoting the attainment of linguistic competence in signed language and spoken/written language, the knowledge about their associated cultures and the communicative skills necessary to use the different codes (and, where needed, their mixed varieties) in accord with the students' changing educational needs.

2.   *Status of signed systems.* The evidence gathered in the contributions to this volume suggests that one of the main misconceptions about the use of artificial signed systems continues to be widespread, namely, the belief that a spoken language based signed system would be equivalent to that spoken language (Singleton et al. 1998), and, by extension, that its use as a language of instruction would result in a smooth acquisition of literacy. Given the inconsistency regarding the faithful representation of the spoken language morphosyntax in the production of exact signed-spoken utterances and the varying amount of signed language elements in these communication modes, the interesting question to ask (Hoffmeister 2000) is whether these systems are really serving the purpose of learning the spoken language which is, after all, the reason why they were created (cf. also Kuntze 1998, for a detailed discussion of the evidence gathered).

We will not tackle here the advantages or disadvantages of these systems in relation to the necessary 'code breaking' that learners of alphabetic writing systems must achieve to master the written *code*. From the perspective of a conception of bilingual education, as Morales-López explains in her contribution, the extensive use of signed systems in the teaching of content matter deserves further scrutiny in relation to the functional dimensions assigned to the languages used, in particular, regarding teacher-student communication (i.e., are the students expected to use this code in their interaction with the teacher?), and the values associated with each language (i.e., is the signed system given preference over signed language because of a different status assigned to the minority *viz.* the majority language?).

Following this line of reasoning, the reasons for the use of mixed codes at home and at school need to be clearly distinguished. As Wilbur (2000: 100) puts it

> the critical factor is that the child must be placed in an appropriate language learning environment. If the parents never become fluent in ASL and can only manage in signed English, so be it. The focus should not be on what parents can do or cannot do. Rather, the focus should be on the child's education, which requires communication in a natural language, on which advanced learning is built (cf. also Kuntze 1998; Singleton et al. 1998).

3.   *Teacher training.* In many cases, the teaching personnel involved in bilingual education have no adequate training in bilingualism in general, and sign bilingualism in particular. Written language is taught as an L2, but teachers have not been informed about the theoretical underpinnings of this type of acquisition. Contrastive teaching is assigned an important role, but there is a general lack of knowledge about the latest insights in sign language linguistics and the impact of a critical language awareness on

the developmental process, an issue that is at the focus in education of other linguistic minority students (Siebert-Ott 2001).

Whatever the role assigned to the different professionals involved in the teaching of deaf students, they should have a (near-) native level in signed language and an up-to-date formation in bilingualism and second language teaching methods. Several contributions to this volume provide evidence of persistent serious gaps in this respect which is in part due to the circumstance that the greater part of the professionals involved come from the area of language pathology and have almost exclusively been trained to regard deafness as a deficit.

4.   *Teaching material.* The persistent shortcomings regarding appropriate teaching material in both signed language and spoken/written language are particularly critical both with respect to the learning of the two languages (and their contrastive properties) and the learning of subject matter in either language. For the teaching of content subject matter in sign language, teachers and students need material to consult the necessary terminology and registers. With respect to the teaching of the written language as an L2, many teachers resort to teaching material conceived of for foreign language learners. But, as explained previously, these books build upon the oral and literary traditions of students that have a spoken language as their L1 and do not constitute an appropriate basis for the promotion of the awareness about the contrastive properties of signed and spoken/written languages. Furthermore, due to the demographic changes pertaining to the growth of the student population from diverse linguistic backgrounds (Haug & Mann 2005; Mann 2006; Steinberg et al. 2002), material that would take 'multilingualism' into consideration seems equally important.

5.   *Assessment.* The development of assessment methods and the appropriate evaluation of the outcomes of bilingual education programmes are important issues that are often overlooked in the language planning process (Morales-López, this volume, pace Reagan 2001). In this respect, bilingual programmes that have the official status of pilot projects commonly have a political mandate to undertake concomitant research and assessment. As mentioned previously, this is the case of the Quebec and Berlin programmes discussed in Dubuisson et al. and Plaza-Pust in this volume.

Whether or not bilingual education proves to bear advantages to the cognitive, linguistic and social growth of the students is an issue that needs to be objectively and appropriately assessed. For this purpose, not only the outcomes but also the methods adopted have to be evaluated. As pointed out by Günther et al. (2004: 10, our translation)

> […] the documentation of classroom practice is important […] because it would be a reduction to aim at an explanation of the results of the bilingual teaching only with reference to the inclusion of sign language. While the latter is certainly a *conditio sine qua non*, the embedding of specific bilingual ideas in a pedagogical concept is decisive.

With respect to the development of sign bilingualism, researchers and educational professionals face the problem of a continuing lack of appropriate assessment methods,

in particular of tools that would help evaluate the children's development of signed language. In their contribution, Dubuisson et al. focus on the development of assessment methods for the acquisition of Quebec Sign Language (LSQ) which were not available at the beginning of the bilingual programme implemented in Montréal. These authors also highlight a common situation concerning the linguistic analysis of signed languages which in many cases is still ongoing. Further, the assessment or evaluation methods applied would ideally be based on the available knowledge about the monolingual or native developments in the languages involved. In many countries, however, this information is not or only partially available as research on the *natural* acquisition of the respective signed language is still ongoing.

Beyond the issue of developing appropriate tools for the assessment of the individual languages involved, it is necessary to consider that the assessment appropriately takes the bilingual acquisition situation into consideration, an issue that is often disregarded. At the methodological level, as pointed out by Grosjean (1997, 2004), some of the results obtained in experimental sessions may provide an incorrect picture given that variables like the language mode participants are in (monolingual *vs*. bilingual) are not controlled for.

On another level of evaluation, practice may also inform research. Krausneker, Ardito et al., Morales-López and Yang provide further insights into the evaluation of the bilingual programmes by the teachers involved. Krausneker's observations reveal how teachers positively evaluate the bilinguality of the students and their coping with the different languages used in the classroom. Morales-López' reports on the teachers' assessment of the cognitive, emotional and linguistic competences of their students. Importantly, teachers observe an enhanced self-esteem of the students who they judge to be better cognitively prepared than orally educated deaf students. With regard to the linguistic competences they remark on a discrepancy between the sign language and written language levels attained.

The voices of the subjects themselves are equally important, an issue that has been largely ignored thus far. Krausneker reports on the students' evaluations of their linguistic skills and bilingual teaching situation. The results of her attitude survey show that the bilingually educated deaf students were aware of their bilingualism and were able to make judgements about their linguistic skills in both languages. The children had positive attitudes toward their two languages. The same holds of the hearing children's attitudes toward Austrian sign language. The study also provides some important insights into the multilingual and multicultural reality of the classroom the bilingual teaching was done. Of equal relevance is the description of the strategies used to tackle communication barriers in everyday school life and the sensitivity toward otherness' which was associated with linguistic difference in the case of hearing children toward deaf children. The observations made by Krausneker differ from the results obtained in other types of 'integrative education' of deaf students, in which interaction among the students and the strategies developed to deal with communication barriers were less positive. In line with Stinson and Kluwin (2003), Krausneker

concludes that co-enrolment might prove to provide better results than other types of inclusive education because multiple strategies of interaction are promoted in this type of educational setting. The social meaning of the two languages becomes more apparent, in particular, for the deaf students for whom the spoken/written language often reduces to a learning subject.

Finally, with regard to the appreciation of the roles of the different professionals involved, Krausneker discusses the role of the interpreter as perceived by the hearing children which, on the one hand, may serve to make the hearing children aware of the status of sign language and their uses (see Bouvet 1990 for a similar conclusion), and, on the other hand, as a source for clarification where language gaps need to be overcome. With respect to the teaching-learning situation, the students' opinions discussed in Morales-López reveal a clear preference for the co-tutor over the interpreter as exchanges on the teaching content were deemed to be possible only with the former.

In summary, what is common to all the proposals put forward is the full acceptance of what Massone et al. (2003) refer to as the "socio-anthropological" model of deafness. Notice that the implementation of this model not only implies a change of the linguistic model adopted (from the oralist to the bilingual one) but also a different conception of deaf education, namely, one in which deaf individuals would be able to fully develop their linguistic, cultural and cognitive potentials. On a critical note, however, we are well aware that the coexistence of bilingual education programmes with alternative models of education in many countries imposes constraints on the improvements that can be expected in the near future in these social contexts. As pointed by Morales-López, the solutions envisaged should be "realistic" in this sense.

On the research-policy-practice axis that determines the sign bilingual education discourse, both research and practice are often under pressure to inform policy about the benefits of sign bilingual education, a dimension that is reflected more or less directly in all the contributions included in this volume that concern the education of deaf students. It is important to realise that the situation is not much unlike that encountered with respect to other types of bilingual education, in particular, the one targeting linguistic minorities. While authors like Bialystok (1991: 1) state that with the departure from the bias of prejudices against bilingualism in the 1970s bilingualism became an object of scientific interest in its own right "and not simply as an educational complication", many other authors (Tracy 1996; Siebert-Ott 2001: 151; among others) call into question whether the insights gathered in the domain of bilingualism research have really reached the political and educational domains.

The following sections are dedicated to the dynamics of cross-modal language contact at the level of individual users, that is, their acquisition and use of a signed and a spoken/written language and the question of how the distinct languages might interact.

3.   Bilingual users: continua of cross-modal language contact

Whether bilinguals choose to use one language or another or a combination of both is related to a number of factors such as their knowledge of the two languages, the interlocutors involved, the situation, the topic, and the function of the interaction (Fontana 1999; Grosjean 1982, 1992, 1998a; 1998b; Romaine 1996; Winford 2003). This holds equally of bilingual signers although limitations on the perception and production of the spoken language in deaf individuals condition its choice as a base language.

The alternation of codes in bilinguals' interactions (*code-switching*) may serve the function of bypassing individual communicative barriers among people speaking different languages "by seeking compromise between their forms of speech" (Winford 2003: 2). Code-switching may also reflect patterns of language use in a given speech community, in which it represents the norm rather than the exception (Grosjean 1982: 149; cf. also Myers-Scotton 2002; Winford 2003). In some cases, mixed patterns might serve as an indicator of bilingual identities (as is the case of the Puerto Rican community in New York, for example). In other situations, language mixing might reflect the emergence of new communicative codes or languages (consider the case of pidgins and creoles, cf. Mufwene 2001, 2004).

The application of the monolingual-bilingual mode continuum to language use in deaf communities was conceived of as a "deaf diglossic continuum" in the early sociolinguistics of signed languages (cf. Woodward 1973; Bochner & Albertini 1988; Reilly & McIntire 1980) because of its apparent similarity to other situations of diglossia in oral communities. However, later sociolinguistic research into deaf-deaf and deaf-hearing individuals' interactions conducted by Lucas and Valli (1989; see also Lucas 1994) showed that the hearing status of the interlocutors is not the sole criterion determining language choice (including the choice of mixed varieties commonly referred to as "contact signing", cf. Lucas 1994; Lucas & Valli 1989) in situations of sign language and spoken language contact (cf. Fontana 1999; Lucas & Valli 1989) but is rather intertwined with other sociolinguistic factors determining specific interaction situations and the language competencies of the interlocutors which is corroborated by Yang (this volume) in relation to cross-modal language mixing in Chinese signers. The bilingual's skilful use of linguistic resources in different sociolinguistic situations parallels current psycholinguistic assumptions about the degrees of activation of both languages on a continuum between a monolingual and a bilingual mode whereby neither language is ever fully deactivated (Grosjean 2001). As pointed out by Grosjean (1998a: 23), "bilinguals find themselves at various points along a situational continuum which induce different language modes". This holds equally of bilingual signers as is reflected in the reports of Chinese deaf individuals discussed in Yang's contribution.

While the internal and the external factors of language mixing have often been studied separately, there is a consensus today that the two aspects interact (Lanza 1997: 7; Winford 2003) and that bilingual users are sensitive to both functional and formal

aspects of language use (Poplack 1980; Grosjean 1982; Milroy & Muysken 1995; Myers-Scotton 2002; Muysken 2004).

3.1   Cross-modal language contact phenomena

The linguistic phenomena that result from language contact situations are commonly described in terms of a contact continuum (Grosjean 1982; Romaine 1996). Contact phenomena range from the shift or switch to another language, the integration of loan vocabulary, to language change on the diachronic level. Different structural and functional criteria are applied in the differentiation of these phenomena (type of elements mixed, switch points, language competence levels, pragmatic and sociolinguistic factors) (Grosjean 1982; Meisel 1994; Myers-Scotton 2002; Romaine 1996; Tracy & Gawlitzek-Maiwald 2000). The blending of two codes in the productions of bilingual signers leads us to consider a further differentiation in relation to the modality of the languages in a situation of contact (visual-gestural for sign language, aural-oral for spoken language, and visual-written for written language). The notion of *bimodal* or *cross-modal language contact* refers to contact situations involving a sign language, a spoken and/or a written language.

In the research on language contact involving two spoken languages, language mixing at the sentential or discourse level is traditionally conceived of as a sequential phenomenon.[1] This is related to the circumstance that spoken languages have a predominantly sequential organisation. In a situation of contact involving a signed language and spoken language, in contrast, the possibility of a *simultaneous* production of elements of both languages is primarily related to their difference in modality: there is, in principle, no *articulatory* constraint that would impede the use of the two languages at the same time (Emmorey et al. 2005). Given the diversity of codes involved in bimodal bilingualism, bilingual signers can resort to different types of simultaneous and sequential mixings, as is explained by Yang in relation to the Chinese/Chinese Sign language (CSL) contact situation: signers may combine CSL elements and mouthings or else code-switch to written Chinese by tracing the strokes of the characters in the air or on the palm of the hand.

Interestingly, simultaneous cross-modal language mixing or *code-blending* is significantly restricted by grammatical and processing requirements (Hohenberger & Happ 2001). In the simultaneous production of sign language and spoken language elements (*mouthing*), different degrees of synchronisation have been distinguished in the co-ordination of spoken and manual elements. For example, the overall tendency towards equivalence in language mixing is reflected in the semantic redundancy of most simultaneously mixed mouthings (Boyes Braem 2001; Hohenberger & Happ

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1.   Language mixing is used as a neutral cover term for all types of combinations of features or elements of two languages (cf. Meisel 1994). Further terminological differentiations of language contact phenomena will be explained in the course of the discussion.

2001),[2] an observation that does not only hold of adult signers but also of bilingual hearing children acquiring a signed and a spoken language (Petitto et al. 2001) and bilingual deaf children as is explained in the contribution of Baker and Van den Bogaerde (this volume). These authors analysed the mixed productions in the interaction of deaf mothers and their children on the basis of a semantic criterion of congruency: mixings were distinguished according to the language in which the proposition is expressed which allows for a distinction of utterances in which there is a base language (i.e., Dutch or Sign Language of the Netherlands, NGT) from those in which the proposition is expressed through a combination of both (i.e., elements of Dutch and NGT make up the full proposition) or simultaneously in both (i.e., the full proposition is expressed in both modalities). However, as Baker and Van den Bogaerde point out, many questions remain unexplored regarding the grammatical description of the bimodal utterances produced (e.g., which elements are combined, which is the base language).

Certainly, the bimodal code-blends discussed by these authors involve a degree of simultaneity in the production of elements of two distinct languages which is impossible in language mixing involving two languages of the same modality. A closer look at language contact phenomena in other types of bilingualism, however, shows that simultaneity is not unique to inter-modal language contact phenomena. Consider for example the mixed utterance in (1) which represents an adult bilingual's blending of the German idiom *Um Himmels Willen!* and the English idiom 'For heaven's sake'. English 'for' surfacing as German *für* ('for') (not a part of the German idiom), the unclear status of the possessive, and the English pronunciation of 'Willen' give an idea of the degree of sophistication which is implicit in this instance of language mixing of two languages of the same modality (cf. Tracy 2000: 12).

(1)   Für   heaven('s)   Willen!   (ibid.)
       for   *...*   *sake*

Because of the modular organisation of language, language production and language perception involve the simultaneous processing of information from different linguistic levels (i.e., the phonological, morphological, syntactic, and semantic levels) (Grosjean 1997; Tracy 2000). We therefore advance the complexity of bilingual language processing which may result in sophisticated combinations of abstract features of two distinct languages while involving only one modality of expression. This is the case of the subtle type of mixing of lexical and morphosyntactic features of German sign language (DGS) and written German observed by Plaza-Pust (this volume) in her analysis of the L2 German written productions in bilingually educated deaf students.

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2.   As pointed out by Boyes Braem (2001b: 12), the notion of lexical redundancy needs to be treated with caution. In a strict sense there is hardly ever a complete overlap of elements of two different languages. "Lexical redundancy" as used in this context thus refers to identity in category and partial overlap in meaning.

In summary, much like the outcomes of other situations of language contact, cross-modal language contact phenomena have many intriguing dimensions which deserve further examination. Because of the sociolinguistic factors that have determined and continue to determine bilingualism in the deaf communities cross-modal contact phenomena (including contact varieties and also fingerspelling or mouthing) have been subject to a controversial debate. Where language policies and language planning are oriented towards the maintenance of the majority language only, language mixing in the minority group can be taken as an indicator for the predominance of the majority language which might ultimately undermine the maintenance of the minority language (cf. Turner 1995).[3] However, where two linguistic communities do not live in regionally separate areas language contact phenomena can be considered to be a 'natural' outcome,[4] and, ultimately, an integral part of sign bilinguals' repertoires, as is also discussed by Yang (this volume) in relation to the linguistic skills in the Chinese/CSL signed/spoken/written language continuum.

As mentioned at the beginning of this chapter, the origins and functions of language mixing can change over time. This holds equally of cross-modal language contact phenomena. Lexical items borrowed from one language into another may spread in the use among members of a linguistic group and be incorporated into the native lexicon through restructuring processes in the course of their integration (for a detailed discussion of the optionality of the assimilation processes and the distinct components of the native lexicon see Brentari & Padden 2001: 89ff.).

As we will discuss in what follows, the contributions to this volume provide further insights into the dynamics of sign bilingualism at the level of the individual learner, how it unfolds in different acquisition situations and is reflected in different types of cross-modal language contact phenomena.

3.2   Bilingual learners: The dynamics of sign bilingualism in language development

Research into bilingual language development has sought to establish whether the development of language in this type of acquisition situation differs qualitatively from the one in monolingual acquisition (Meisel 2004). Beyond the (psycho-)linguistic interest in clarifying this question, the insights gathered concerning the question of whether or not bilingual language acquisition has negative effects on the development

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3.   Language shift or language death in the sense of abandoning sign language is excluded in Ann (2001) for physiological reasons (also Hyltenstam 1994). This argument, however, ignores the predominant circumstances which have prevented many deaf individuals to acquire sign language for more than a century.

4.   That contact signing includes features of English in a different way than artificial codes do can be taken as further evidence for the "naturalness" of language mixing in a situation of language contact (Lucas & Valli 1989: 39, who remark on the ironic dimension of this contrast).

of the child *viz*. her acquisition of language also have a socio-political and an educational dimension (Tracy 1996; Siebert-Ott 2001) in that they may reinforce or help in debunking the monolingual myths that continue to abound around bilingual learners. Apart from potential delays in the languages acquired, evidence of language mixing or fusion of the two systems during the initial stages are often considered to show bilingual learners' difficulties in language acquisition, an interpretation that clearly reflects the 'monolingual yardstick' against which bilinguals have been commonly measured as becomes apparent in the numerous studies that have been undertaken on bilingual language acquisition.

As Plaza-Pust explains in her contribution, the progressive convergence of the different lines of research in the area of developmental linguistics has provided important insights about the differences and the commonalities across acquisition types. Crucially, there is an increasing consensus that the same language specific learning mechanisms are involved in different acquisition situations and that variation in learner grammars, including borrowings across languages, is an integral part of language development (Plaza-Pust 2000; Siebert-Ott 2001). What is important for present purposes is that these internal constraints interact with the environment in complex ways. For instance, two languages may not develop at parity in bilingual acquisition because of an unequal exposure to both in the course of the bilingual development. Also, varying rates of language mixing might be related to the patterns of language use in the learner's surrounding.

Bimodal bilingualism in deaf children always involves an asynchrony in the development of the two languages given the very restricted access to the spoken language and the circumstance that exposure to the written language is scheduled at a later age because it is bound to a formal context. What distinguishes this type of bilingual development from other types of successive bilingual acquisition is that for most deaf children the acquisition of their natural language or L1, that is, signed language, is delayed as they are usually not exposed to it prior to the identification of their deafness.

Another variable in bilingual language acquisition that needs to be taken into consideration concerns the relation of the child's languages to the community in which she is growing up. Romaine (1995) distinguishes several acquisition situations in relation to the environment (home, community) and types of language use (e.g., separation by parent, environment or mixed languages). Lanza (1997: 14) further mentions the language used by the parents to address each other. Social-cultural characteristics of the environment in which the child is growing up and the educational philosophies mentioned previously are assumed to play an important part in whether or not children succeed in their bilingual development (Siebert-Ott 2001: 4).

A good part of the longitudinal studies into children' s bilingual development concern the type of "family bilingualism" whereby the language of one of the parents is the language of the majority community (Lanza 1997: 10). The situation is markedly different regarding the research into sign bilingualism in which longitudinal studies of family bilingualism are virtually non-existent. In this light, the studies of Petitto and

colleagues (2001), and Baker and Van den Bogaerde's (this volume) are particularly valuable in that they provide important insights about the separation and the interaction of the two languages in *natural* acquisition environments. On methodological grounds, the evidence gathered in this type of studies is an important requisite for the assessment of sign bilingual development in other acquisition situations, as we will explain immediately.

The relative lack of studies on bimodal bilingualism in deaf children of hearing parents is related to diverse circumstances. As educational policies have been oriented toward the promotion of the spoken language in deaf individuals, there has been little interest in the assessment of sign bilingual development (Strong & Prinz 2000) and only few bilingual educational settings in which the research could have been conducted have been available. Another factor concerns the lack of appropriate measures of sign language knowledge which have only been developed recently as mentioned previously (Chamberlain & Mayberry 2000, Haug 2005; Singleton & Supalla 2003). Over the last decade, these circumstances have changed and increasing numbers of studies are now providing important insights into language development in bilingually educated deaf children, including the research presented in several chapters of this volume.

3.3   Language separation and interaction in sign bilingual development

As Niederberger, Dubuisson et al. and Plaza-Pust discuss in their contributions, several hypotheses have been put forward with respect to 'positive' and 'negative' effects of the cross-modal language interaction in sign bilingual development. In bilingualism research, the dichotomy is usually associated with a facilitating (i.e., accelerating) *vs.* delaying effect in the learning of the target language properties (cf. Odlin 2003: 438; Müller et al. 2002; Kellerman & Sharwood-Smith 1986). It is important to also notice that different notions are being used in the literature to refer to different types of interaction between two or more languages in the course of the bilingual development, that is, language transfer, linguistic interference, cross-linguistic influence, code mixing or linguistic interdependence, to name but a few (see Odlin 2003; Kellermann & Sharwood-Smith 1986). It is interesting to note that some of these concepts are associated with additional meanings, such as a 'movement' of knowledge from one language to another, or an 'obstructing' effect of one language in the development of the other. Many of these notions also have negative connotations which can also be taken as an indication of the attitudes toward bilingualism and bilinguals' language use and the common view that the 'ideal' bilingual "is (or should be) two monolinguals in one person" and should keep his two languages separate at all times (Grosjean 1992: 52).

As pointed out by Plaza-Pust, the positive or negative effects attributed to language interaction in bilingual development need to be carefully examined both in relation to the theoretical frameworks used and the available empirical data obtained in different acquisition situations. According to this author, research into the acquisition of L1 and L2 German is illuminating in both respects: the evidence of inter- and

intra-individual variation obtained in longitudinal studies of monolingual children has challenged longstanding assumptions about the absence of variation in child language acquisition (following the instantaneous model of language acquisition proposed within the Principles and Parameters Theory). If monolingual children, too, are faced with the task of an eventual convergence of alternative structural patterns, variation in child bilingual or adult L2 learners cannot be considered to be exclusive to these acquisition situations and, hence, a 'negative' side product of cross-lingual interaction. Rather, as proposed by Tracy (1994/5, 2002; also Plaza-Pust 2000; Hohenberger 2002) competing linguistic representations can be assumed to be one of the driving forces in language development.

Consequently, as Plaza-Pust emphasises in her contribution on the development of L2 written German, variation in the learner grammars of the bilingual deaf students investigated provides important clues about underlying language learning processes that "make the system move". The dynamics of sign bilingualism at the level of developing grammars is thus reflected in system-internal conflicts that may involve but are not restricted to competing linguistic representations of two distinct languages. Additionally, the contact phenomena observed reveal how the learners skilfully exploit the linguistic resources available to them, at times, allowing them to express more complex meanings than would have been possible through the use of the written German L2 structures only. These findings pattern with the evidence gathered about language mixing in other acquisition situations in which it was equally found to serve as a relief strategy tied to specific reorganisation phases in the development.

The dynamic view of language development portrayed and related assumptions of the role of variation in the learner grammars differ markedly from traditional assumptions about language learning and interpretations of learner errors which are often implicit in the didactic conceptions of the teaching of written language as a second language to deaf students. In this respect, there is an urgent need that research informs practice about the alleged normative aspects of language development. If, as is assumed here, language mixing is an integral part of adult and child bilinguals' repertoires, evidence of cross-linguistic interaction in sign bilingual learners cannot be used as an argument against the bilingual education of deaf students. Instead, didactic conceptions of second language teaching are required that would take the dynamics of language development into consideration. As Plaza-Pust explains in her contribution, this is the case of the bilingual teaching method adopted in the Hamburg and Berlin programmes. What needs to be acknowledged additionally is that bilingual children, much like adult bilinguals, are communicators "who will use all means available" (Lanza 1997; Grosjean 1992). Studies on language mixing in natural acquisition situations as the one conducted by Baker and van den Bogaerde demonstrate that cross-modal language mixing represents an essential part of adult and child bilingual signers' repertoires.

3.4   Signed / spoken language mixing in mother-child interactions

As pointed out by Lanza (1997: 4) mixing at the discourse level has received little attention in the research on child bilingualism. Bilingual children's language choice in relation to their interlocutors, the reactions of these to their language choice, in particular mixing, can provide important insights about the input-output relationship in the bilingual development.

It is important to note that additionally to the formal aspects of the two languages, children also acquire knowledge of language that is appropriate within a given socio-cultural framework, i.e. communicative competence (Lanza 1997: 6; Tomasello 2001). As pointed out by Lanza (1997: 7), "the bilingual chid is not only acquiring two linguistic systems but is more generally acquiring communicative competence, as he or she develops a social identity simultaneously with the development of language". For example, as a part of their language socialisation, children learn when it is appropriate to code-switch in relation to specific social situations (op. cit.).

Research into language mixing in the input and output of bilingual children is scarce. This holds equally of bilingual deaf children. Baker and Van den Bogaerde's investigation thus fills an important gap. What makes their longitudinal study particularly interesting is that it includes the analysis of language input to and output of deaf and hearing children of deaf mothers. The results provide evidence of different mixing patterns and rates in the deaf mothers' productions in relation to the hearing status of the children which is, in turn, mirrored in the output of the hearing and deaf children. The comparison of the input provided to the children at age 3 and 6 shows that both hearing and deaf children receive a fair amount of code-blended input at age 3 and 6. However, their mother uses more NGT (Sign Language of the Netherlands) with the deaf children and Dutch with the hearing children. With respect to the children's language choice, the authors observe that the deaf children use predominantly NGT and only to a far lesser extent code-blending although the amount increases over time. The hearing children in contrast use a larger amount of code-blending and also Dutch in the interactions with their mother.

The interaction of the two languages in bimodal language mixing also provides some clues as to the co-activation of both languages in both deaf and hearing bilinguals at the level of language processing. Following Grosjean's distinction of bilinguals' modes, we may assume that in the interaction situations studied by Baker and Van den Bogaerde children and mothers were in a bilingual mode (both languages activated). However, their different use of either language shows that additional factors need to be considered which calls for an analysis of the functional or pragmatic factors that might determine the choice of one or the other option. In their conclusion, Baker and Van den Bogaerde suggest that mixing is related to three interacting factors: the competences of the children in the two languages, their input and their language choice. On a more general level, studies like these reflect the contact situation of deaf adults and

children in their everyday lives. These children learn the norms and rules of language use in their environment, like other bilingual children in other contact situations.

An interesting issue that would have to be pursued in future follow-up studies concerns the question of whether the high frequency of some particular code-blends in the input would result in the learning of these as a unit by the children. The question is an important one in that it targets the issue of contact induced language change, a topic that has been at the heart of the debate in contact linguistics ever since its emergence as a scientific discipline as remarked upon at the beginning of this chapter (Winford 2003; Lightfoot 2006). Individual speakers' adjustments in day-to-day accommodations can trigger linguistic changes to the extent that these forms are part of the input provided to child learners (Mufwene 2001: 18). Whether or not deaf children reanalyse the mixed forms they are exposed to as combinations of two distinct languages or 'contribute' to their integration as a unit into the native vocabulary will depend on both innate and environmental factors that will have to be carefully examined in future studies (for a detailed discussion of loan vocabulary see the contributions in Brentari 2001).

From a psycholinguistic perspective, the evidence gathered provides additional support for the assumption that the human mind is well equipped to deal with contact situations (Tracy 2000). Research on the acquisition of two languages of different modality suggest that this is true irrespective of the modality of expression of the languages involved (also Petitto et al. 2001).

Following this line of reasoning it seems plausible to assume that the acquisition of a written language in deaf children is equally determined by a dynamic relationship between the autonomy of the linguistic systems involved and their interaction. The following section is dedicated to the evidence gathered in this respect.

3.5   The written language as L2

Given the relation of the written language to the spoken language, the former has often been regarded as 'secondary' to spoken language acquisition. This view has also affected much research into the written language acquisition of deaf students in that most studies have focused on the lack of access to the spoken modality and potential relating developmental shortcomings. Because of this, approaches to written language acquisition have seldom been conceived of from the perspective of a *second* language. A different view is adopted by some scholars in the field who emphasise the need to look at the written language in its own right, that is, as a language that can be acquired as a second language by deaf students. Günther (2003), for example, explains that written language though being related to the spoken language is an autonomous semiotic system (cf. also Ardito et al. this volume).

Both Krausneker and Plaza-Pust's contributions discuss the acquisition of the written language as an L2 and compare the deaf learners' L2 written language development with the development of other L2 learners of the same language in order to

ascertain whether the underlying language mechanisms are the same. In her investigation, Krausneker had the possibility to directly compare the development of hearing and deaf students regarding the development of German L2 given the diverse linguistic backgrounds of the hearing students participating in the bilingual classroom studied. This author remarks on the differences between both learner groups which are reflected in a different speed of the development at the distinct linguistic levels. According to her, a key to this difference lies in the amount of input available to the children and the predominant mode of learning the L2: while hearing children are continuously exposed to the L2, deaf children's input and output in this language is much more restricted.

It becomes apparent that the L2 learning situation of deaf learners is similar to the one of many learners of foreign languages (i.e., languages that are not used in the environment), at least with respect to an 'impoverished' learning situation. Hearing learners obviously have the advantage of their access to the spoken language input and, in general, can build up on the knowledge gleaned in their L1 about writing systems. In both cases, however, the question of the quantity and quality of the input required for L2 acquisition to be successful needs to be taken into consideration.

The issue of the 'critical mass' needed for the dynamics of language development to unfold is also discussed in Plaza-Pust. The longitudinal study of the development of German syntax reveals that the students basically climb up the structure tree like other learners of German. With respect to the variety of patterns produced, the range of individual variation encountered is similar to the variation observed in other types of language acquisition. As remarked by this author, variation is an indicator of the learning processes that shape the organisation of language, its *dynamics* (see also Krausneker). However, as mentioned previously, the fundamental step in the acquisition of the target grammar consists in the eventual convergence of different linguistic representations, a task that remained to be tackled by some of the learners by the end of the recording time covered in the study.

Although the investigations portrayed are based on small-scale studies which imposes caution in the interpretation of their findings (also Woll & Morgan 2002 with regard to the studies on signed language L1), the results discussed in the contributions by Krausneker and Plaza-Pust bear important implications for the teaching of written language to deaf students. Following the assumption that the same underlying learning processes guide the acquisition of L2 German in deaf and hearing children, the relevance of a rich input both in terms of structural and pragmatic diversity needs to be emphasised. While the conscious learning of grammatical rules and vocabulary is important for the development of a metalinguistic awareness of the differences between the languages acquired, the unfolding of grammar can only occur on the basis of a rich input that would include the diversity of target syntactic patterns and their multiple uses in context. Further, as Plaza-Pust discusses in her contribution, it is important to take into consideration both the autonomy and interaction of the different linguistic components in the acquisition process. Grammar development, as we know from

studies into child language acquisition, is intertwined with lexical development in complex ways (Hohenberger 2002; Tracy 1991, 2002). For grammatical processes to unfold, learners' lexica need to reach a critical mass (Hohenberger 2002; Karpf 1993). As Krausneker contends, the developmental delay observed in her study on deaf students in comparison to hearing learners would thus seem to reflect the effects of a slower pace in their lexical acquisition.

Several autonomous yet interacting competencies are involved in written language production and comprehension. Their orchestration in the course of the developmental process also depends on the broader context in which written language is used and has a 'meaning' which emphasises the relevance of conceptions of literacy that embrace the diversity of social functions written language fulfils beyond that of "knowledge deposited in books" (see Ardito et al., this volume). Particularly new technologies open a new perspective in the promotion of the interactive component of written language use which has often been neglected in the teaching approaches used in the education of deaf students. In the face of the developments concerning communication through electronic media, the traditional distinction of spoken language as the mode of face-to-face interaction and written language as the mode of decontextualised communication needs to be called into question. Nover et al. (1998: 69), for example, consider the use of a computer lab in which students would have the opportunity "to communicate spontaneously and to socially interact with others using a form of English. It provides an opportunity for students to attach their opinions, feelings, and ideas to English" (cf. also Albertini & Schley 2003).

Beyond bilingual education in school, however, the question of whether and to what extent parents engage in activities around literacy cannot be disregarded (Kuntze 1998), an issue that is also at the focus of current research into the literacy development of minority language students (see section 3.6 below).

The preceding considerations regarding the acquisition and use of the written language highlight the relevance of providing a stimulating context to deaf students that would motivate them in using this language (Kiedrowski 2004: 96; Ardito et al., this volume). While students will be informed about the relation of the written and the spoken language modes, it is important that they learn about the autonomy of both and their respective functions as the bilingual experience described by Ardito et al. demonstrates.

3.6   Bilingual literacy: Inter-dependence of linguistic skills

Studies on bilingual first language acquisition, as explained throughout the preceding sections, have amply shown that bilingualism *per se* does not negatively affect children's development. The language faculty is well equipped to deal with the development of two or more languages. At the grammatical level the bilingual child's languages develop separately early on provided certain input conditions are met. Both languages might interact, but this interaction is expected given the organisation of language which is characterised at all levels by autonomy *and* interaction.

In the course of the bilingual development children also learn the functional and pragmatic dimensions of language use and develop the capacity to reflect upon and think about language, commonly referred to as metalinguistic awareness. Following Lanza (1997: 66), the bilingual children's monitoring of their own utterances can be considered to be one of the "earliest signs of the ability to reflect on language". Thus, evidence of metalinguistic awareness is also reflected in children's ability to adjust their speech (language choice, but also choice of style) to the situation. From a developmental perspective, the ability to monitor speech, which appears quite early in the development, can be distinguished from the capacity to express and reflect on that knowledge as both involve different processes (Lanza 1997: 65).

It is important to note that this latter dimension of metalinguistic awareness is not attained spontaneously but will only be acquired through the reflection on structural and communicative characteristics of the target languages in academic settings. As mentioned in some contributions to this volume, this metalinguistic awareness includes the learners' conscious knowledge of the grammatical characteristics of the language(s) learned and their relation to the culture(s) of the community as well as their use in different communicative domains. The different competences mentioned are reflected in the Council of Europe (2001: chapter 5) distinction of the three goals to be achieved in European plurilingual education, namely, the attainment of linguistic, communicative and intercultural awareness.

Metalinguistic awareness as a function of bilingual development has been at the focus of the debate in relation to the bilingual education of linguistic minority students in general, and bilingually educated deaf students, in particular, as is explained in the contributions of Dubuisson et al. and Niederberger. The remainder of this chapter is dedicated to a discussion of the theoretical underpinnings and empirical results concerning cross-modal interaction at this level.

3.6.1   *The Inter-dependence Hypothesis and the claim for bilingual education*

Cummins Interdependence Hypothesis (1991) targets precisely at the functional distinctions regarding language use and their impact on academic achievements in acquisition situations in which the home language (L1) differs from the language (L2) used in school. As remarked by MacSwan (2000: 16) the advantage of middle class children observed by Cummins and numerous other scholars is related to "the special alignment of their particular home experiences and speech registers with those encountered at school". For those children who are confronted with features of literary discourse at home it can be assumed that they profit from the knowledge gleaned at home in the mastery of literacy related tasks in school (op. cit.). Following Cummins Interdependence Hypothesis, where such an 'alignment' is not given, L1 teaching is needed to foster an adequate development of academic language while children progressively acquire their L2. With respect to the acquisition of academic skills in the latter, the assumption is that children can draw on the knowledge developed in their L1, as academic skills in the L1 and the L2, unlike conversational skills, are assumed to develop

interdependently and to make up what is referred to as the "Common Underlying Proficiency". According to Cummins (1991: 85), correlations between L1 and L2 academic language skills "reflect underlying cognitive attributes of the individual that manifest themselves in both languages".

Cummins' emphasis on the role of a strong foundation in the L1 as a requisite for bilingual children's academic success, concerns the academic disadvantages that result from a mismatch between L1 and L2 skills which might be more pronounced in the case of linguistic minority members, in particular, in the case of socially stigmatised minorities. If children are expected to cope with academic tasks through a second language prior to its mastery and have not developed academic skills in their L1 it is assumed that this will bear on their cognitive and academic development (Cummins 1979). Hence the claim for a bilingual mode of education in which L1 academic skills are fostered prior to their use in the L2.

The theoretical justification for a bilingual approach to the education of linguistic minority students and deaf students bears some important similarities (Strong & Prinz 2000: 131) which is the reason why the Interdependence hypothesis has been widely used in the field of deaf education. Note that the demand for bilingual education related to this hypothesis is based on the tenet that the children's home language (the minority language) should be used so that they are not "'held hostage' because of their limited knowledge in the majority language" (Kuntze 1998: 3). Applied to the education of deaf students, two fundamental differences to the situation of other linguistic minority students need to be acknowledged: first, the attribution of the status of primary language to signed language irrespective of the language used at home (Kuntze 1998: 3), and second, that deaf students are often enrolled without knowledge in any language. Given that access to the spoken language is severely restricted, the role of this language in the linguistic and academic development is limited (Niederberger, this volume; Hoffmeister 2000), including reading development. Consequently, the promotion of signed language as a base or primary language in the bilingual education of deaf students is a fundamental requisite for their cognitive and communicative development. Hence, despite the differences mentioned, both educational situations are similar in that the demand for teaching in the L1 as a part of the overall aim of promoting literacy development implies that students are given the opportunity to make progress in subject matter content at grade level (Kuntze 1998: 3).

With respect to literacy development in written language L2 the question arises as to which skills developed through L1 signed language teaching would manifest themselves in L2 literacy skills as is assumed on the basis of the aforementioned hypothesis of a "Common Underlying Proficiency". As Padden and Ramsey (1998: 53) put it, "it cannot be the case that simply knowing ASL leads to reading development" (also Chamberlain & Mayberry 2000: 238). This points to the necessary distinction of language knowledge and the knowledge about the properties of a language. Furthermore, it is important to note that the cognitive academic proficiency that is assumed to be interdependent across languages in Cummins Interdependence Hypothesis and related

assumptions is not a monolithic ability but is rather composed of different components which makes it necessary to carefully examine the skills that might be involved in the 'transfer process' where both languages do not develop at parity.

Given that literacy involves higher-level processes apart from grammatical and lexical knowledge, metalinguistic skills need to be considered in the conception of the interaction of the two languages and the facilitating effect attributed to the stronger language in the development of the weaker one (Niederberger, this volume). As children progress in their academic development, they are confronted with the task of learning new registers and literary forms that serve as a means to express the complexities of subject matter and to pay attention to the functional and normative aspects of language that play a role in academic tasks (Siebert-Ott 2001: 108). In the research on sign bilingual development, the identification of the skills that would belong to a common underlying proficiency in the sense outlined is further complicated due to the circumstance that the L1 or base language has no written form that would be used in literacy related activities in the educational area. Thus, in this acquisition situation, the notion of a transfer or interaction of academic language skills needs to be conceived of independently of 'print' which has led to an ongoing controversy about whether or not signed language can facilitate the acquisition of L2 literacy (see Niederberger's and Dubuisson et al.'s contributions for a detailed discussion).

3.6.2   *Correlations of signed language and written language skills*

Throughout the last years, numerous studies have been conducted to investigate the potential relations of signed language and written language skills in the spirit of the Interdependence Hypothesis portrayed.

In a first step, as Niederberger explains in her contribution, research into the competencies of bilingually educated deaf students have been concerned with demonstrating a link between signed language and written language literacy skills. The positive correlations found have provided support for the assumption that good performances in both languages are 'linked'. The comparison of the results obtained regarding ASL-English with other language pairs (LSQ-French, LSF-French, in Dubuisson et al.' s and Niederberger's contributions respectively) provides additional support for the assumption of a relationship between the competencies attained in both languages.

In a second step, studies like the ones portrayed in Niederberger's and Dubuisson et al.' s chapters, have been dedicated to the identification of the specific skills in signed language that would be associated with specific literacy skills in the written language. Given the differences between both languages at the level of the modality of expression and organisation, some authors assume that the interaction or transfer mainly concerns the level of story grammar and other narrative skills (Wilbur 2000). Other scholars, however, believe that the interaction concerns more specific linguistic skills manifested in the comprehension and production of signed vs. written language (Chamberlain & Mayberry 2000; Hoffmeister 2000; Strong and Prinz 2000). Summarising the evidence gained in these studies, higher correlations were obtained between narrative

comprehension and production levels in ASL and English reading and writing levels than between ASL morphosyntactic measures and English reading and writing.

In her contribution, Niederberger focuses on LSF narrative skills vs. morphosyntactic skills in relation to the reading and writing skills in French of bilingually educated deaf students. Niederberger's results confirm the correlations found with respect to ASL and English in that a significant correlation of global scores in LSF and French was found, and correlations between narrative skills in both languages are higher than regarding morphosyntactic skills. Further, SL comprehension skills are higher correlated with French reading and writing skills than SL production skills. Given that LSF narrative skills also correlate with French morphosyntactic skills the interaction of both languages seems to involve more than global narrative skills.

This assumption is further supported by the results obtained by Dubuisson et al. in a study of the use of spatial markers in LSQ and higher level skills in reading comprehension. Given the longitudinal design of the investigation, further insights into the development of the skills in each language and their interrelation could be obtained. The children's mastery of the use of space to mark syntactic and semantic relationships in a sentence (and beyond) was taken as indicator of their global proficiency in LSQ. It is important to note that the use of space plays a central role in the cohesion of signed narratives. The results show a general improvement in the use of spatial markers, whereby the scores for locus assignment markers are higher than the scores for reference markers, and suggest that the former are easier to acquire than the latter, an assumption that needs to be verified in longitudinal studies on the natural acquisition of LSQ as remarked upon by the authors.

Dubuisson et al.' s reading test was specifically designed to measure four skills (mental operations) that are involved in text comprehension: locating, grouping, selection and inference. Specifically, the ability to locate and infer information when reading was assessed over a period of three years. The results show a general improvement in the children's ability to infer information, as locating information was well mastered at the beginning of the study. With respect to the global ability in the use of space in LSQ and global reading comprehension, the authors observe a highly significant correlation in the first year of the study. More specifically a correlation was found between the ability to assign loci in LSQ and the ability to infer information in reading. Two years later, the authors observed the same correlations. Additionally, they observed a correlation between locus assignment in LSQ and locating in reading, and global LSQ and locating in reading.

While these results provide additional support for a positive relation between signed language and literacy, the authors concede that an adequate interpretation of the nature of the interaction of the skills measured in both languages (linguistic and non-linguistic) would require a comprehensive model of the interaction of the different skills that is, however, unavailable thus far. Moreover, Niederberger's observation that oral comprehension scores correlate significantly with written French and LSF narrative

scores adds an additional dimension in the inter-dependence of the linguistic skills in bilingually educated deaf students that would have to be taken up in future studies.

On a critical note, as remarked upon by Dubuisson et al., caution is required with respect to the use of measures to tap global proficiency in a language before the descriptive study of the language is completed (as is the case of LSQ, for example).

The results in both Niederberger and Dubuisson et al.'s studies do not provide any direct information about the directionality of the relationship between both languages. However, Niederberger argues that the early exposure to LSF and advanced proficiency in this language prior to the instruction in the written language can be assumed to have facilitated the development of the latter. Crucially, she considers the potential role of an enhanced metalinguistic awareness (developed first in L1 LSF) to tackle the comprehension and production tasks in written French, an assumption that is further corroborated by the findings discussed in Krausneker. This author remarks on how the children consciously plan and carry out the writing process which provides evidence of their increasing metalinguistic awareness of the differences between ÖGS and German. According to her observations, students planned their texts in ÖGS first and then sought to translate them into German.

All in all, the results obtained point to the relevance of contrastive teaching in bilingual education and related promotion of metalinguistic awareness in bilingual students. As Padden and Ramsey (1998: 52) put it the associations between signed language and written language "must be cultivated". Whether these "cultivations" pertain to the relation of fingerspelling and the alphabetic writing system, special registers or story grammar in both languages, an enhanced awareness of the commonalities and differences between both languages will help students to skilfully exploit their linguistic resources in the mastery of academic contents. In this respect, the school effect observed in Niederberger deserves to be examined in more detail in a follow-up study in particular regarding the length and type of exposure to sign language and the metalinguistic or academic language skills that were fostered in the different educational settings.

4.   Outlook: Toward an integrated view of sign bilingualism

To conclude, the research into language development, interaction, and maintenance in sign language contact situations documented in the different contributions to this volume opens new perspectives in the endeavour of providing an integrated view of the dynamics of sign bilingualism. While bimodal bilingualism is a relatively new field of scientific investigation, the progress that has been made in the last years deserves to be emphasised. The studies included in this volume are not only firmly embedded in the broader area of bilingualism, but are also knowledgeable of the specific characteristics of sign language contact situations. Each of the chapters, as we believe, takes us a step further in our comprehension of the internal and external factors that play a part in the path toward bilingualism in the deaf communities.

At the same time, the knowledge gleaned from the research portrayed in this volume raises important issues that will deserve further examination in future follow-up studies. There is for example, a persistent lack of knowledge of the available sign bilingual education methods. As mentioned previously, sign bilingual education programmes have been implemented in several countries worldwide, some of them with the mandate that concomitant research be undertaken. Thus far, however, the different didactic conceptions and their outcomes have not been systematically compared (Plaza-Pust 2004). Morales-López's study shows that there is substantial variation among the programmes implemented in Spain, and Niederberger observes a school effect in the measures obtained for the bilingual development of deaf students in different institutions. It will be interesting to find out in future studies whether and how specific didactic conceptions (concerning the teaching of the two languages but also the teaching of content matter in a bilingual framework) are reflected in the students' bilingual behaviour.

Another important issue concerns the assessment of sign bilingualism in deaf students and the necessary theoretical underpinnings of the tools developed. Assessment methods have been developed for sign languages other than ASL, i.e. for LSF as explained in Niederberger, and LSQ as described in Dubuisson et al.' s contribution. Krausneker and Plaza-Pust used qualitative methods to evaluate the development of the written L2. Their methodology, in particular, the one described in Plaza-Pust, highlights two requisites that need to be taken into consideration in the study of deaf students' grammars and the potential cross-linguistic interaction in the course of the bilingual development. The first requirement concerns the availability of a descriptive framework that would embrace the grammatical properties of both languages with a focus on the ones that could 'compete' or be borrowed from one language into another. The second requirement pertains to the available knowledge about monolingual developmental paths in either language. In both respects, additional research is needed. In the investigation of sign bilingualism, scholars are faced with remaining gaps regarding the knowledge about the characteristics of signed language grammars and their development in a natural acquisition situation (the situation is less critical for ASL and BSL as research is well advanced regarding these two signed languages). It is important to note that the distinction of language contact phenomena from other developmental errors needs to be based on the insights gathered about the range of variation encountered in monolingual acquisition situations: as errors in bilinguals are easily related to their 'bilingualism', knowledge about monolingual errors will prevent researchers from jumping to conclusions. However, given the contact situation of signed languages in many sociolinguistic contexts, monolingual acquisition paths in a strict sense are virtually non-existent: deaf children of native signers are simultaneously exposed to signed and spoken language early on as the study portrayed in Baker and Van den Bogaerde's contribution demonstrates. Still, as these children are acquiring signed language in natural acquisition situations the evidence gathered regarding their developmental paths is indispensable for an appropriate assessment of the development of bilingually educated children with non-signing parents. Recall that signed language is considered

to be the primary or first language of deaf learners in bilingual education settings on accessibility grounds and is assessed as such in studies on their bilingual development (Niederberger; Dubuisson et al.; Ardito et al.; Plaza-Pust; this volume). An issue that needs to be taken up in follow-up studies, however, is to what extent the delayed exposure affects the development of sign language in this acquisition situation. Morford and Mayberry (2000: 125) highlight the relevance of the language learning processes occurring during the first year (segmentation, phonology in ASL) the lack of which might have cascading effects on other levels of language processing in the children exposed to a signed language later in their lives. As the hearing loss of many deaf children is not identified until after the first year, further research is needed regarding the question of whether these gaps can be compensated for later on in the development.

Another issue that deserves further attention in the investigation of bilingually educated deaf students of hearing parents is the use of the two languages outside the school boundaries. This dimension is important in that it relates to the amount of language input available and the domains of language use. As pointed out by Lieven (2002: 280) the effects of the environment on the sign language development "is not only of practical importance" but also may provide further insights into the "precise roles of the language environment in all children's language learning".

To conclude, while the preceding observations suggest that we are still at the beginning of a long journey, the insights gained thus far provide additional support for the assumption that the human mind is well equipped to deal with contact situations irrespective of the modality of the languages involved. At the same time, it is important to realise, as becomes equally apparent in the research undertaken, that the path toward bilingualism is not predetermined. Whether or not deaf individuals become bilingual communicators depends on multiple factors. In this regard, it is hoped that the knowledge that can be gleaned from each of the chapters in this volume also contributes to a more dynamic relationship between the research-policy-practice axis that determines sign bilingualism and its perception in the broader social context.

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