

BILINGUAL EDUCATION BY IMMERSION IN NAMUR, BELGIUM PRINCIPLES AND PEDAGOGICAL ISSUES

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In 2000 the first bilingual classrooms for the Deaf were created in the French-speaking part of Belgium. This paper firstly aims at describing the core principles of these classrooms: language immersion, language status, and inclusion of deaf pupils within classes of hearing pupils. Secondly, it will be shown why and how the ordinary curriculum must be adapted to such a bilingual setting. The results of this 15-year experience will be illustrated by examining an example from mathematics, particularly how the concepts of “multiples and divisors” are taught across the primary school levels from a bilingual perspective. The pedagogical proposal includes teaching the terms and structures used in each language in defined stages, as well as a homogeneous use of iconic, spatial structures and visual supports. Bilingual deaf pupils are expected to build a triple relationship between the subjects, a sign language and a written spoken language. Making this triple relationship explicit is a subtle but crucial work for the teachers.

INTRODUCTION

In 2000 the first bilingual classrooms for the deaf were created in Namur, a town of 100,000 inhabitants and the capital of Wallonia, which is the French-speaking part of Belgium. An ordinary school in the city centre, called *Communaut  Scolaire Sainte-Marie* (hereinafter *Sainte-Marie*), accepted the project dreamed by three parents who materialized it by creating * cole et Surdit * (*School and Deafness*). Today thirty pupils from 2.5 to 17 years old are involved in this project.

This paper firstly aims at describing the core principles of this curriculum: language immersion, language status, and inclusion of deaf¹ pupils within classes of hearing pupils. Secondly, it will be shown why and how the ordinary curriculum must be adapted to such a bilingual setting. This contribution is based on the experience of the first teacher involved in the project. She stopped teaching in 2012 in order to document this teaching experience, which is uniquely pioneering in the French-speaking part of Belgium, and to synthesize the knowledge acquired on the features of this bilingual curriculum. These features come from the willingness to put each language and the bilingual skills of all pupils at the core of this education programme.

The results will be presented by examining an example from mathematics, particularly how the concepts of “multiples and divisors” are taught across the primary school levels from a bilingual perspective. The pedagogical proposal includes defined stages in the terms and structures used in each language, as well as a homogeneous use of iconic, spatial structures and visual supports.

CORE PRINCIPLES OF THE BILINGUAL CLASSES IN NAMUR

Bilingual programmes for the deaf and hard of hearing are many and varied. The linguistic and pedagogical principles of each programme are shaped by the local mainstream education and teaching policies, by the existing or missing teaching structures for the deaf, by developments in medicine, and by the place given to sign language and spoken language in the teaching and rehabilitation structures and by the parents’ demands.

¹ Throughout this paper, the term ‘deaf’ will refer to both ‘deaf’ and ‘hard of hearing’.

The bilingual classes of *Sainte-Marie* in Namur were created in response to what the founding members of *École et Surdit * considered management flaws and insufficient care for deaf children in the French-speaking part of Belgium. The first critic was that rehabilitation prevailed over education. The second critic pointed to insufficient reflexions on the quality of the teaching languages, and the consideration of sign language as the default language when a child had failed in an oralist programme. And third, the shortcomings of the two kinds of schooling possibilities. On the one hand, the requirements of the special education for the deaf are less demanding than the ones of the ordinary education, which is not justified by the deafness per se and reduces the chances of the young deaf to access higher education. On the other hand, high-quality teaching is only accessible by integrating in mainstream education those who can negotiate spoken French. But being integrated in isolation in mainstream education will very often be detrimental to the deaf child. The core principles of this project are the linguistic immersion, the status of the two languages concerned and the inclusion of the deaf pupils in ordinary classrooms.

Immersion

The legal basis of the bilingual classes of Namur is a decree on education by linguistic immersion (initially meant for immersion in spoken languages: Dutch, English and German) passed in Wallonia in 1998. Thus, from the start, the central idea has been the linguistic immersion, and not the handicap. It means that sign language is not considered a default choice. On the contrary, both languages, i.e. LSFb and French, are seen as equal, complementary and not competing. For example, sign language proficiency is a decisive criterion in the recruitment of a teacher, and the content of the curriculum includes specific LSFb classes with the same status as (and additionally to) the French courses of the ordinary curriculum. The complementary nature of the two languages and the permanent articulation between them are at the core of this bilingual education.

Status of the languages

As regards the education by immersion in spoken languages in Wallonia, e.g. in Dutch for (mostly) French-speaking pupils, the programme alternates courses given by one teacher in one language and courses given by another teacher in the other language. Each language is used and assessed in its oral and written form (listening, reading, speaking and writing skills) and the proportion of the language of immersion (e.g. Dutch) gradually decreases up to the end of primary school². But when it came to creating the courses for the bilingual programme by immersion in LSFb, adjustments were needed.

LSFb is the language of the face-to-face (or video) communication: the teacher's explanations, the teacher-pupil interactions, and the pupil-pupil interactions are signed in LSFb, whether within or outside the classroom. French is the language of the written communication: the blackboard, the texts, and the written evaluations are in French. The education programme aims at making all the children, whether their strongest language is LSFb or French, able to use both languages with accuracy: LSFb in the oral (namely face-to-face or video) communication and French for reading and writing. In this context, since a course always mixes oral and written productions and supports, the two languages are inseparable during class and throughout the whole curriculum. Furthermore, the teacher helps the pupils to constantly draw parallels between them: what was just explained in LSFb is called such in French; this paragraph in French means this in LSFb, etc. This principle requires a high command of both languages on the part of the teacher and progressively develops the pupils' skills in linguistic comparison. Skills in spoken French are never assessed. But spoken French is encouraged outside the classroom, in order to better French

² At the end of primary school, an external final exam, called *Certificat d' tudes de base* (Basic education certificate) is organized by the government of the Federation Wallonie-Bruxelles. This exam is fully and exclusively designed in French, even since 1998 and the decree on education by immersion. This explains why the immersion in the other language is less important when approaching the end of the primary school.

reading or writing skills, to help connexions between LSF and French, or to communicate with hearing classmates or adults. Children from 2.5 to 6 years old (i.e. during pre-school) are exposed to French with Cued Speech during specific school times that are designed as recreational and natural French-immersion times. From primary school onwards, the teacher uses French with Cued speech on an ad-hoc basis when she/he refers to the oral counterpart of written words or structures. No course is designed and addressed to the pupils in spoken French, and proficiency in spoken French is not a condition or a prerequisite for success.

Inclusion

The deaf pupils of the bilingual classes and their hearing classmates are registered in Sainte-Marie in the same way. They receive the same education and must meet the same requirements. Over the years, the school has implemented a real inclusion culture, at the levels of the children, their parents, the teachers, the educators and the management. Groups of deaf pupils are included within ordinary classes. Two teachers work in tandem before, during and after the class: a hearing French-speaking teacher and a deaf or hearing bilingual (LSF-French) teacher. All subjects (including gymnastics) are taught by these tandems, except language courses, namely French, LSF and English. In these cases, the deaf pupils are separated from the hearing group and the pedagogical methods are specifically adapted. For example, instead of audio exercises in English, pupils will practice reading and understanding scrolling texts, similar to a credits text.

This context of inclusion gave these tandem teachers the opportunity to compare their experience, difficulties, hypothesis and analyses. The suggestions presented below regarding the teaching of "multiples and divisors" in primary school come from their constant reflexion.

BILINGUAL MATHEMATICS

For mathematics, the deaf pupils are in class with the hearing group and their teacher tandem. They follow the courses with their bilingual teacher (in LSF and French) while their hearing classmates follow the courses in French. A wide range of linguistic profiles is found among the deaf. Some are profoundly deaf children from deaf families whose first language is LSF, and have had an extremely limited access to French before school. But some are born within hearing families, are hard of hearing, have hearing aids or cochlear implant(s), their first language is (spoken) French and they were first confronted with LSF at school. And others speak neither LSF nor French (or any other language) when they arrive in class. But all of them are expected to learn the same curriculum in mathematics as they develop their bilingual skills in LSF and French.

Multiples and divisors

The bilingual teachers, both in the primary school and in the first levels of the secondary school, view "multiples and divisors" as a difficult subject to teach in sign language. A priori, we reject the hypothesis that the problem might come from the children themselves and their inability to understand these concepts.

The difficulty may be attributed to LSF itself. It should be noted that the lack of shared signs for the concepts of "multiple" and "divisor" increases the difficulty in learning these concepts at school since they are as yet unfamiliar outside the school. It should also be born in mind that LSF often uses irreversible structures whereas French allows reversible ones. For example, "J'ai pris ma douche après avoir joué au foot" ("I had a shower after I played football") in French can be phrased in reverse order, namely "Après avoir joué au foot, j'ai pris ma douche". LSF has a fixed order, namely FOOTBALL FINISHED / SHOWER, which is chronological. Does this example reflect a wider tendency? If yes, does it explain the difficulty in making the signers master the extremely common exercises proposed to hearing French-speaking pupils, which underline the reversibility of mathematical operations through

the reversibility of language structures (e.g. “Is 6 a divisor of 12?” can be written “ $12 : 6 = ?$ ”, and “Is 12 a multiple of 6?”, can be written “ $12 = 6 \times ?$ ”)? In any case, the bilingual teachers cannot count on the help of methodological supports in sign language on this topic.

It is likely that the teacher would not mention the difficulty in the same way if they had to teach “multiples and divisors” in LSF only, without any reference to French and to the programme of French-speaking schools. French (as well as English) has several morphologically derived terms related to the concept of “divisor” (but not for the concept of “multiple”): *divisible* (divisible), *diviseur* (divisor), *dividende* (dividend) and *diviser* (divide). These terms allow to put into words the features of the mathematical operation at stake. The relations between these terms are at the core of the majority of the exercises. It might be that the kind of exercises and questions traditionally used in the French-speaking school programmes (e.g. “Fill the blanks with ‘is a divisor of’, ‘is divided by’, etc.) are linguistically and culturally irrelevant for the construction of these concepts in LSF.

In any event, the problem and the solution seem to be linked to the triple relationship the teachers and the pupils are expected to build between the concepts at stake, their formulation in LSF and in written French.

Visual support

We propose to base the learning of the concepts of “multiple” and “divisor” on a unique visual support, unchanged through the various stages and across the school levels. This visual representation should be complemented by the use of colours and geometrical forms, which will facilitate the links the teacher will make between the diagram and the written forms (see Figure 1).

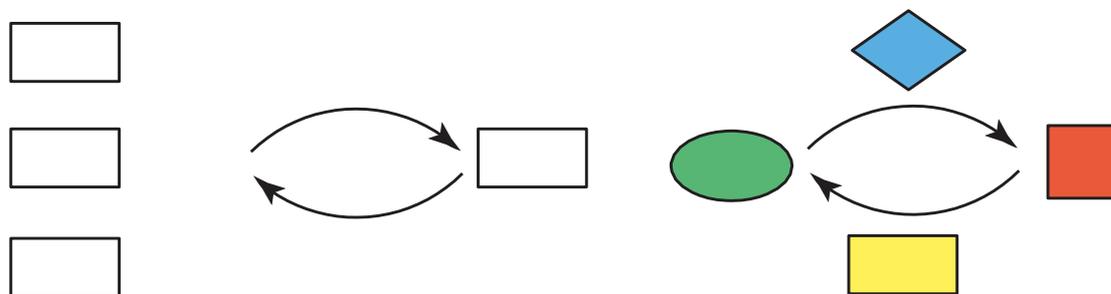


Figure 1: Main visual support

Of course, the diagram can be used to support all the forms of calculations by varying the unknowns to solve. It can also serve to work on the transcription between the diagrammatic and the mathematical (linear) writing, as illustrated in Figure 2.

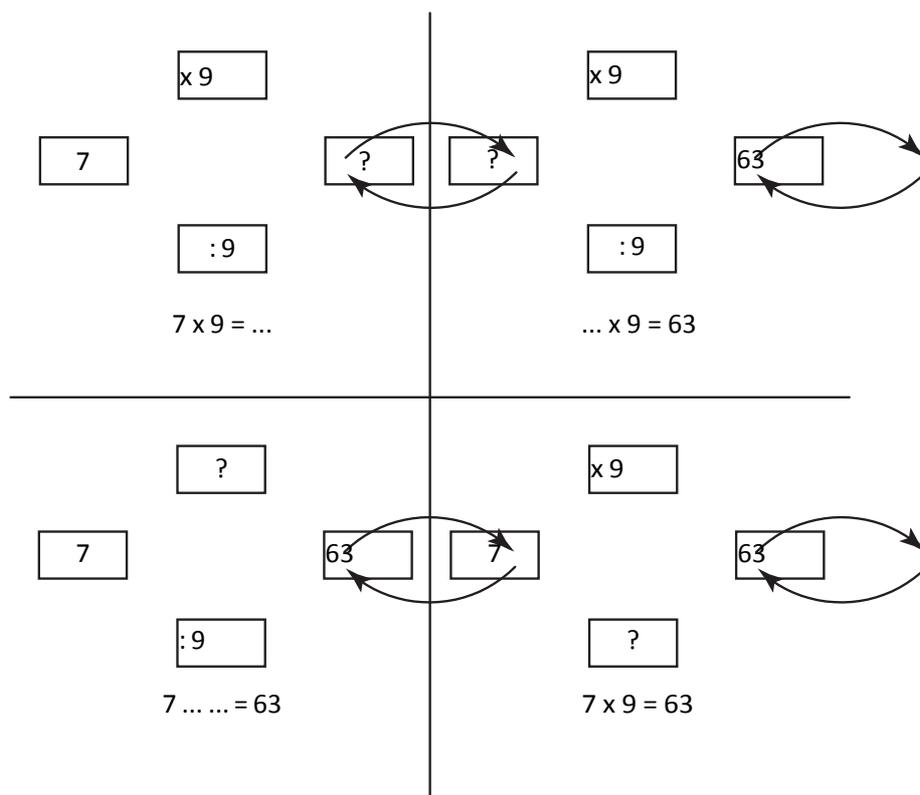


Figure 2: Using the main diagram for various calculations and writing exercises

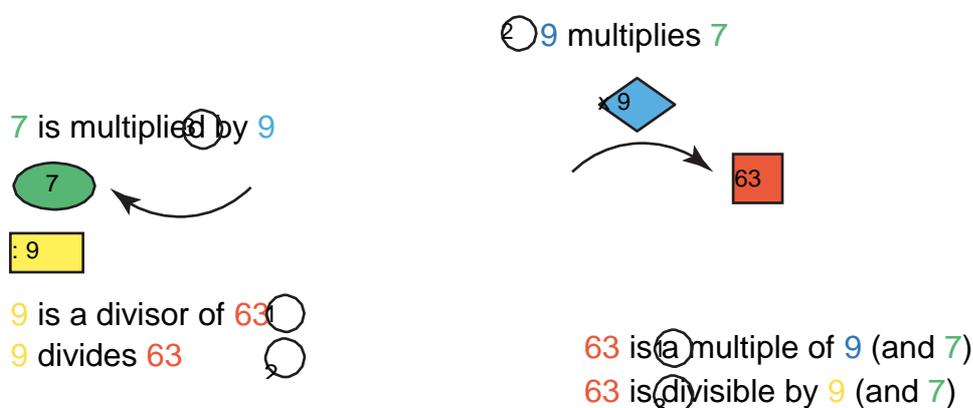
LSFB structures

Apart from its obvious clarity, the visual representation will also help the teacher and the pupils express in LSFB the numbers and the relations between them. Pointing signs directly towards the diagram or within a spatial representation of it in LSFB will be the main components of the signed discourse during classes, until lexicalized signs spontaneously emerge³. Progressively, and according to the development of the pupils' LSFB, the spatial formulation of the mathematical relations will be associated with their rephrasing in terms of active vs. passive constructions ("can divide", "is divisible by", etc.). The active vs. passive opposition will be expressed in LSFB through 'constructed action' (Metzger 1995) structures (Figure 3). These structures are expected to facilitate the connexion between the formulation of the mathematical operations in LSFB and in French.

³ In practice, it is likely that provisional code-signs will emerge during the teaching to reduce the number of signs.

mastered in various stages (see Figure 5). At the end of the 2nd year of primary school (7 to 8 years old), children are expected to be able to read the rephrasing of the mathematical message (“3 multiplied by 5 is 15”, “15 divided by 5 is 3”), and to read the declarative structures including “multiple” and “divisor”. At the end of the 4th year (9 to 10 years old), pupils must be able to read and write declarative and interrogative active structures (“multiplies”, “divides”). At the end of the 6th and last year (11 to 12 years old), pupils are expected to be able to read and write declarative, negative and interrogative structures, both active or passive (“is multiplied by”, “is divisible by”). The connexions between the mathematical concepts and the French phrasing will be constantly supported by the colour codes on the diagram and the text.

Seven multiplied by nine equals sixty-three Sixty-three divided by nine equals seven



To be mastered at the end of

- ① the 2nd year of primary school (7 to 8 years)
- ② the 4th year of primary school (9 to 10 years)

Figure 4: Stages in the French structures to be taught

CONCLUSION

Teaching to deaf pupils in a bilingual approach as the one proposed in Sainte-Marie Namur (Belgium) entails a careful reflexion on what can be called a “bilingual pedagogy”. This bilingual pedagogy not only focuses on the development of each language, but also on the connexions between them during their acquisition, in a tight articulation with the learning of the subjects. As shown with an example from mathematics, each simple topic gives rise to a rich network of relations between the subject, the sign language production and the written expression. Making these relations explicit for all the school subjects and thanks to the teacher’s 15-year long experience, is the current work of the bilingual classes of Namur, in collaboration with the University of Namur.

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