The influence of Plurilingual education on child development

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Bi hizkuntzazko garapenari buruzko azken datuak eta haurraren garapen kognitiborako dakartzan ondorioak berrikustearekin abiatzen da lan hau. Gero, haurrak elebitasun eransgarriaren molde bat gara dezan behar diren baldintzak azaltzen ditu. Elebitasun eransgarriaren eta kengarriaren arteko bereizkuntza da egileak proposaturiko elebitasun-eredu teorikoa –psikologiko-soziala–. Egileak nabarmendu egiten du behin eta berriro gizarte-faktoreek hezkuntzan eta elebitasunaren garapenean duten eginkizun garrantzitsua, ama-hizkuntzaren balorazio-prozesuei dagokienez, hala gizabanakoen nola gizartearen mailan.

Giltz-Hitzak: Bi hizkuntzazko garapena. Elebitasuna. Elkar ukitzen duten hizkuntzak. Eleaniztasuna.

El autor empieza repasando la última actualidad en materia de desarrollo bilingüe y sus consecuencias para el desarrollo cognitivo del niño. Posteriormente trata las condiciones necesarias para que un niño pueda desarrollar una forma aditiva de bilingüismo. Propone un modelo teórico –psicológico– social de bilingüismo basado en una distinción aditiva y sustraedora. El autor destaca con insistencia el papel central desempeñado por los factores sociales en la educación y el desarrollo bilingüe con respecto a los procesos de valoración de la lengua madre, tanto en el ámbito individual como social.

Palabras Clave: Desarrollo bilingüe. Bilingüismo. Idiomas en contacto. Multilingüismo.

L'auteur commence par une révision de l'actualité la plus récente en matière de développement bilingue et ses conséquences dans le développement cognitif de l'enfant. Il traite ensuite des conditions nécessaires pour que l'enfant développe une forme additive de bilinguisme. Il propose un modèle théorique, psychologique et social de bilinguisme basé sur une distinction additive et soustractive. L'auteur souligne avec insistance le rôle central joué par les facteurs sociaux dans l'éducation et le développement bilingue par rapport aux processus d'estimation de la langue maternelle, aussi bien au niveau individuel que social.

Mots Clés: Développement bilingue. Bilinguisme. Langues en contact. Plurilinguisme.

In the present paper the state of the art on bilingual development and its consequences for the child's cognitive development are first reviewed and discussed at some length. We then review the conditions necessary in order for the child to develop an additive form of bilinguality. We further propose a social psychological theoretical model of bilinguality (Hamers & Blanc, 1989; in press), based on Lambert's distinction between additive and subtractive bilinguality, which explains contradictory outcomes of bilingual development. We stress the central role played by social factors in bilingual development and education; we insist particularly on the mother tongue valorisation processes, both at the individual and at the societal level.

The issue of the effect of bilingual education on cognitive development, both for the majority child and for the minority child is further discussed in the light of the available empirical data. Reviewing several approaches to bilingual education in different countries, we argue that the so-called negative consequences generally attributed to the child's bilinguality and used as arguments for assimilation in the main stream language and culture can be attributed to other social and educational factors, in particular to negative stereotypes about bilingual development. Finally, a number of suggestions are made as to the conditions required in order to have plurilingual educational approaches which benefit the development of the child's potential, lead to the development of additive bilinguality in the child and permit a harmonious development.

The choice of the language medium through which literacy is achieved is an essential issue in a multicultural setting. Two opposite claims are made by planners concerning the achievement of literacy: (1) literacy is most effectively achieved in the mother tongue; (2) it is most effectively achieved in a language of wider communication which possesses a written culture and economic power. The first claim is based on pedagogical concerns, whereas the second claim relies more on economic preoccupations. These two claims result in two different planning choices with regard to the language of education. The first claim, in its extreme form, leads to a curriculum exclusively in the mother tongue; this is the case in many developed countries, for majority groups whose mother tongue is also a language of wider communication with an extended written tradition (e.g. the anglophones in the United States and the French in France who can follow the entire curriculum from nursery school to university degrees in one language).

The second claim, in its most extreme form, leads to a monolingual curriculum in an official language which is not the child's mother tongue, as, for example, in some of the former French colonies in Africa where the one and only language of instruction is the exogenous language left by the colonisers (e.g. Benin and Togo, where education starts in French from nursery school onwards). Education exclusively through a L_2 often occurs for minority groups all over the world, because either language planning is such that it does not recognise the right to be educated in a non-official language (e.g. France, Belgium, Malaysia or Spain under the Franco regime); or the community size is too small to justify mother-tongue education (e.g. the case of many minorities in African and Asian countries, where a limited number of the numerically important national languages are used in education, e.g. Mali, India); or the cost of writing down a non-written language, creating teaching materials and training teachers in the mother tongue is too high.

Between these two extreme cases we find a variety of solutions which combine mother tongue and second languages to various extents in the curriculum. Most of these programs are based on the 'linguistic mismatch hypothesis', endorsed by UNESCO (1953), according to which a mismatch between home language and school language is the major cause of poor academic achievement of minority children. Srivastava (1984; 1990), for example, advocates a

literacy model for minority children in India, in which literacy is first introduced in the child's mother tongue; once the basic literacy skills are attained, the curriculum transfers to a formal language of education. Many varieties of these Vernacular-cum-Transfer literacy models are to be found all over the world (e.g. the numerous African countries where part or whole of elementary school is taught through the child's mother tongue and then education is continued through the exogenous official language, English or French). However, this switch is often not planned through a bilingual education program and children are not prepared for it.

In the literature the term 'bilingual or plurilingual education' is used to describe a variety of educational programs involving two or more languages to varying degrees. I limit its definition to describe any system of school education in which, at a given moment in time and for a varying amount of time, simultaneously or consecutively, instruction is planned and given in at least two languages.

This definition insists on the use of the two languages as media of instruction; it does not include curricula in which a second or foreign language is taught as a subject, with no other use in academic activities, although L_2 teaching may be part of a bilingual education program. I also exclude from this definition the cases in which a switch in the medium of instruction occurs at a given moment with no further planning of the two languages in the curriculum, as happens for instance, in the numerous cases of 'submersion' in which an individual child attends a program taught in the mother tongue of a different ethnolinguistic group and where the curriculum ignores this child's mother tongue: this is usually the case with immigrant children in mainstream education. However, I will refer to some of these cases in so far as they tell us something about bilingual development in education.

Whether a child is exposed to two or more languages through a planned bilingual education program or through the absence of planning, as is the case for the minority child in a main stream program this multilingual setting in which he or she is growing up has some important consequences for the child's cognitive development.

1. BILINGUAL DEVELOPMENT AND ITS COGNITIVE CONSEQUENCES: THE STATE OF THE ART

Research on bilingual development and its consequences is, unlike a popular myth often pretends not scarce but has, on the contrary been widely developed in the past decades.

Although it is more than 30 years since solid empirical evidence is available on the positive relationship between bilinguality and general intellectual functioning, and some very persuasive arguments have been put forward in favour of definite cognitive advantages for bilingual children, the stereotype of the negative consequences still survives with a number of professional people, such as doctors and teachers who are often the ones to counsel the parents in taking decisions. For example, it is not uncommon in Europe, Canada or the United States to find anecdotal evidence of teachers who counsel immigrant parents to abandon their mother tongue in favour of the school language, that is the language of the host country. If the parents do not have an excellent command of the host language, this can lead to negative consequences as the child is no longer exposed to an adequate linguistic model in the home. As we shall see later, a strong support of the mother tongue in the home and in the community, will benefit the child's academic results.

The empirical research on the cognitive consequences of bilingual development can be divided in two periods. The studies, mainly psychometric ones, conducted before the 1960 in which negative consequences are more frequently reported than positive ones; and the

period from the sixties onwards in which the studies demonstrating positive effects by far outnumber research which still mentions negative effects. An important turning point came in 1962 with the publication of the Peal & Lambert study: the authors had taken great care in defining concepts they used and in controlling several psychometric aspects of the study.

EARLY STUDIES ON THE COGNITIVE CONSEQUENCES OF BILINGUAL DEVELOPMENT

The early studies on the relation between bilinguality and cognitive development, sometimes undertaken in order to demonstrate the negative consequences of bilingual development, supported the idea that bilingual children suffered from academic retardation, had a lower IQ and were socially maladjusted as compared with monolingual children. Bilinguality was viewed as the cause of an inferior intelligence. Suffice it to mention the studies by Pintner & Keller (1922), who reported a 'linguistic handicap' in bilingual children, and Saer (1923), who spoke of 'mental confusion' to describe the bilingual's cognitive functioning. At the same time, the description from biographies, such as the ones by Ronjat (1913) and Leopold (1939-49) reported no negative effect for the development but rather a number of advantages described in terms of verbal flexibility and a greater awareness of the arbitrary character of language, were largely ignored by psychometricians.

Early models of bilingual development postulated that bilingualism inevitably led to a diminished functioning in the two languages. One such tentative explanation of the early research results is that of Macnamara (1966), who attributes the lag in verbal intelligence on the part of bilinguals to a 'balance effect': proficiency in L_1 diminishes as proficiency in L_2 increases, so that the sum of the two linguistic proficiencies cannot be superior to the monolingual's proficiency. It does not account for the fact that many bilingual children achieve a high level of competence in both languages and can surpass their monolingual counterparts in each language; neither does it account for the early research results stemming from the biographies written in the first half of the century.

A number of methodological criticisms may be levelled at these early psychometric studies: the bilingual subjects were often not comparable with the monolingual controls in terms of socio-economic background or proficiency in the language of testing; bilinguals were often selected on the basis of coming from an immigrant home, having a foreign last name or speaking a foreign language at home; the very notion of bilinguality was not adequately defined and tests were often administered in the subjects' weaker language. Failure to control for the level of the skills in the language of testing, the socio-economic differences and the test bias accounts probably for most of the negative findings in the earlier studies (Lambert, 1977). These variables have been better controlled in more recent studies which make use of more elaborate experimental designs.

THE RELATION OF BILINGUALITY TO INTELLIGENCE: THE PEAL & LAMBERT STUDY MILESTONE

One had to wait until the late fifties in order to come across the first of a series of rigorous experimental studies. Peal & Lambert (1962), compared English-French bilingual elementary-school 10-year old pupils in Montreal with their monolingual counterparts in each language, in order to pinpoint the intellectual components of the bilingual deficit. In contrast with the earlier research great care was taken in their methodological design. Besides matching the groups for age, sex and socio-economic level, the authors also controlled them for language proficiency; bilingual subjects had to achieve comparable scores in both languages in order to qualify, whereas monolinguals had to have very low scores on one of the languages.

The bilingual group scored significantly higher than the monolingual controls on tests of verbal and non-verbal intelligence. The bilinguals also showed patterns of a more diversified structure of intelligence. Peal & Lambert suggested that the higher scores of the bilinguals on intelligence measures could be attributed to greater mental flexibility and a greater facility in concept formation; they attributed this to their ability to manipulate two symbolic systems and thus analyse underlying semantic features in greater detail. These results were confirmed in a follow-up study (Anisfeld, 1964).

Since the Peal & Lambert study a large number of experiments have confirmed and refined their findings. Several dozens of studies, in different countries, in the Western World and in Asia and Africa, with diverse language and culture combinations and using different cognitive measures have confirmed their findings, detailed the various aspects of the cognitive advantages of the bilingual child and refined the notion of cognitive flexibility. In each of the three decades following 1962 the number of empirical studies on the cognitive consequences of bilingualism have almost doubled (Reynolds, 1991). Researchers nowadays take care to verify the degree of bilingual competence, the potential variables which can influence the outcome and the tests used. Furthermore, the theoretical issues of the relation between cognitive development and multilingual experience have also been addressed.

2. THE NATURE OF THE BILINGUAL'S COGNITIVE ADVANTAGES

Ronjat (1913) and Leopold (1939-49) had already drawn attention to the bilingual child's cognitive and verbal flexibility without being precise about its nature. Since the Peal and Lambert study, most researcher pay a growing attention to methodological issues and research design: a special attention has been paid to the level of bilingual competence, some studies referring only to balanced bilinguals, others making a distinction between high and low bilinguals. Studies in the sixties and the seventies tended to focus on outcomes (cognitive flexibility) whereas more recent experiments try rather to analyse processes (metalinguistic awareness). Altogether the growing body of research suggest that bilingual children reach a deeper level of information processing which leads to a greater metalinguistic awareness and a greater degree of verbal creativity. Table 1 summarizes the advantages mentioned in 34 research reports.

To sum up, the following advantages have been mentioned in the studies conducted after the Peal & Lambert study: a greater ability in reconstructing perceptual situations (Balkan, 1970); superior results on verbal and non-verbal intelligence, verbal originality and verbal divergence tests (Cummins & Gulutsan, 1974,); a greater sensitivity to semantic relations between words (Ianco-Worrall, 1972; Cummins, 1978); higher scores on Piagetian concept-formation tasks (Liedtke & Nelson, 1968); on rule-discovery tasks (Bain, 1975); and with traditional psychometric school tests (WISC-R Block Design) (Gorrell, Bregman, McAllistair & Lipscombe; 1982); a greater degree of divergent thinking (Scott, 1973; Da Silveira, 1989); a greater facility in solving non-verbal perceptual tasks and in performing grouping tasks (Ben-Zeev,1972). Bilinguals are also better in verbal-transformation and symbol-substitution tasks (Ekstrand, 1981); in correction of ungrammatical sentences (Diaz, 1985b) and in analogical reasoning tasks (Diaz, 1985b; Diaz & Klinger, 1991).

Cognitive advantages of bilinguality extend to non-verbal tasks; bilinguals outperform monolinguals not only in following complex instructions but also in perceptual-motor co-ordination (Powers & Lopez,1985), visual-spatial abilities (Hakuta & Diaz, 1985) and classification tasks (Diaz & Padilla, 1985).; bilingual children show greater originality in creative thinking (Torrance, Gowan, Wu & Aliotti, 1970) and outperform monolinguals on some aspects of matrix transposition tasks (Ben Zeev, 1977a).

The conclusions that bilingual children may be potentially more creative than monolinguals are further supported by a number of experiments in India. One such set of studies, conducted by Mohanty and his associates, with bilingual and monolingual children from the same tribal cultural background[1] is of particular interest because bilingual and monolingual groups are comparable on a large number of sociocultural variables: Kond bilingual children in the State of Orissa, speaking Kui and Oriya scored significantly higher than matched Kond children monolingual in Oriya on measures of metalinguistic ability, Raven's Progressive Matrices and Piagetian conservation tasks (Mohanty & Babu, 1983; Pattnaik & Mohanty, 1984; Mohanty & Das, 1987; Mohanty, 1994a). Furthermore, the bilinguals were also better at detecting syntactic ambiguity. In fact, bilingual schooled children outperformed monolingual schooled children on all intelligence and information processing tasks, but the unschooled bilinguals did not significantly outperform their monolingual counterparts on all measures. Mohanty (1994a) interprets these results as a manifestation of a higher metalinguistic ability and cognitive flexibility developed by the bilinguals; thus, bilingual experience may result in the development of a greater ability to reflect on language, especially when combined with cognitive activities such as the ones developed in schooling.

Since the last two decades a growing number of studies have focused on metalinguistic tasks and evidenced further the relation between bilinguality, cognitive development and metalinguistic awareness (Bialystok, 1990; Bialystok, 1992; Perregaux, 1994). Bilingual children perform better on problem-solving tasks than their monolingual counterparts (Kessler & Quinn, 1982, 1987) which is seen as evidence of greater metalinguistic competence and better-developed creative processes. Bilingual children are better in detection of language mixing (Diaz, 1985b) and outperform monolinguals on metalinguistic tasks which require attention to grammatical features (Bialystok, 1988). Diaz & Padilla (1985) found a positive relationship between degree of bilinguality and the use of self-regulatory utterances. Comparing the literacy development in monolingual and bilingual children Perregaux (1994) found that the bilinguals were better in deletion of phonemic units of non-words, a metalinguistic skill of literacy acquisition.

Although metalinguistic awareness seems to be linked to the level of bilingual competence attained (Bialystok, 1988), there is evidence that it already develops at an early stage of bilinguality. 6 year-old Anglophone children who had been for six months in a French immersion program obtained superior results on a phonemic segmentation task than did monolingual peers (Rubin and Turner, 1989). Children in the process of becoming bilingual through instructional programs have a higher awareness for syntactic structures (Galambos & Hakuta;1988; Galambos & Goldin-Meadow, 1990).

Reviewing the empirical evidence on metalinguistic awareness in bilinguals, Mohanty & Perregaux (1996) conclude that bilingual children probably develop special reflective skills which generalise to other metacognitive processes. Developing these skills enables the child to exercise a greater control over his cognitive functions and use them in more effective ways; therefore he will improve his performance in a variety of academic tasks. The authors assume that, because of their superior metalinguistic skills and greater linguistic sensitivity, bilinguals are better learners.

The findings of empirical research conducted since the Peal and Lambert study can be summarised as follows: bilingual children show consistent advantages in verbal and non-verbal cognitive tasks; they show advanced metalinguistic abilities, especially in their control of language processing; cognitive and metalinguistic advantages can be observed in bilingual situations that involve a systematic use of both languages, such as simultaneous acquisition and bilingual education; the cognitive effects of bilinguality appear early in the process of

bilingualisation and do not require high levels of bilingual proficiency or a balanced competence. Bilingual children make more use of language for verbal mediation (Diaz & Padilla, 1985); this would lead the child to make a greater use of language as a regulatory tool for cognition.

3. NEGATIVE CONSEQUENCES OF BILINGUAL EXPERIENCE

Although, since the sixties, the studies reporting positive effects of bilingual development by far outnumber the studies reporting cognitive disadvantages associated with bilinguality, there are still a number of studies reporting negative effects which have to be explained. Some just mention the negative effects, some mention negative effects along with positive effects, a few mention an intellectual handicap.

Lemmon & Goggin (1989) observed that Spanish-English bilingual college students in the USA, carefully selected as proficient in both languages though not balanced, who were given an array of cognitive tasks scored lower than English monolinguals on three cognitive tasks (WAIS-R, the Cattell Culture Fair test and the Guilford fluency/flexibility test). However, when they made a distinction between a group of low bilinguals (who, although proficient enough in English to be considered bilingual, scored low on the Gates-McGinitie Reading Test in their mother tongue) and a group of high bilinguals (who scored high on the Reading test) they observed that the high bilinguals outperformed the low bilinguals on seven of the ten cognitive measures. When they paired the high bilingual group with an equally proficient (on the reading test) monolingual group they found no differences on the cognitive tasks.

In a UNESCO investigation in Sweden Skutnabb-Kangas & Toukomaa (1976) found that Finnish migrant children, of average non-verbal IQ, attending Swedish comprehensive schools, were considerably below Finnish and Swedish norms in their literacy skills in L_1 and L_2. They further observed that those children who migrated at age 10 achieved a level in both languages fairly comparable to those norms, whereas children who migrated at an earlier age did not. They also found that the extent to which the mother tongue was developed prior to migration was related to achievement in both languages; from these findings they postulated that competence in the mother tongue had to be sufficiently established before the child could successfully acquire a second language. Similar results are mentioned by Pfaff (1981) in her study on children of Gastarbeiters in Germany.

Almost all studies mentioning negative effects have been conducted in Western cultures with children of minority groups schooled in the majority language. It must be noted that the more recent studies mentioning negative effects cannot be faulted on the ground of methodological weakness; for this reason we must find an explanation which takes into account the negative as well as the positive consequences of early bilingual experience.

4. EXPLAINING POSITIVE AND NEGATIVE EFFECTS

Most of the studies reporting the positive consequences of bilingual experience also report that bilinguals seem to develop a higher awareness of the arbitrary nature of the linguistic sign. The empirical evidence on the cognitive development of bilinguals is far from giving us a complete picture of those cognitive aspects that might benefit from a bilingual experience. It is reasonable to assume that not all thought processes are enhanced by bilingual experience and that those cognitive tasks which rely more on language will benefit most from that experience.

Negative consequences of bilingual experience have been described in terms of a cognitive deficit. The notion of 'semilingualism' has been used to describe the child who fails to reach monolingual proficiency in literacy skills in any language and might be unable to develop his linguistic potential (Skutnabb-Kangas & Toukomaa, 1976). 'Semilingualism' is defined as a linguistic handicap which prevents the individual from acquiring the linguistic skills appropriate to his linguistic potential in any of his languages. It does not imply failure to communicate in ordinary everyday situations, since children labelled as 'semilingual' are judged to be quite fluent; but this fluency is alleged to be only superficial and to mask a deficit in the knowledge of the structure of both languages.

The use of 'semilingualism' as an explanatory device has been criticised on the following grounds: first, the notion is ill-defined; 'linguistic potential' is unexplained; in addition, the deficit is measured only by comparison with standardised norms obtained through traditional psychometric tests and academic results From these, no conclusion can be drawn as to the existence of a linguistic/cognitive deficit; rather, there is enough counter evidence which suggests that sociocultural factors are responsible for poor normative linguistic achievement and scholastic results (Troike, 1984). Many immigrant groups who also come from a different cultural background, but who do not have to face depressed socio-economic conditions, perform linguistically and cognitively at least as well as monolinguals. It becomes difficult, then, to implicate language proficiency alone as an explanatory factor for poor performance.

DEVELOPMENTAL INTERDEPENDENCE AND THRESHOLD HYPOTHESES

One attempt to explain the contradictory positive and negative results has been proposed by Cummins (1984, 1991). One has to assume, first, a developmental interdependence hypothesis and, second, a minimal threshold of linguistic competence hypothesis. The first hypothesis suggests that competence in a second language is a function of competence in the mother tongue, at least at the beginning of exposure to the second language. The threshold hypothesis implies that a first-language competence threshold has to be crossed in order to avoid cognitive deficit linked to childhood bilinguality and that a second-language competence threshold must be passed if bilinguality is to positively influence cognitive functioning.

Empirical evidence in support of this construct is found in a number of studies. Hispanic minority school children in the USA who had developed high levels of proficiency in L_1 and L_2 performed significantly better than monolinguals and other non-proficient bilinguals from the same cultural sample on cognitive tasks. Duncan & De Avila, 1979). Bilinguals, fluent in L1 performed better on cognitive tasks than their non-fluent counterparts (Hakuta and Diaz, 1985).

The developmental interdependence, postulates that the level of competence in L_2 is partly a function of the competence developed in L_1 at the start of exposure to L_2. When certain language functions are sufficiently developed in L_1 it is likely that massive exposure to L_2 will lead to a good competence in L_2 without detriment to competence in L_1. A high level of competence in L_1 is thus related to a high level of competence in L_2. In support of this hypothesis Cummins (1984) reports, for example, on the Carpinteria Spanish-language pre-school program in California: Spanish-speaking preschool children who scored much lower on a school readiness test compared with English-speaking peers were exposed to a variety of language-enriching experiences in their mother tongue; at elementary school entry these children outperformed Spanish-speaking controls in both English and Spanish and compared favourably with English controls on readiness skills.

The interdependence hypothesis has received support from a number of studies, which mention a correlation between L_1 and L_2 skills (Hakuta & Diaz, 1985; Lemmon & Goggin, 1989). There is ample evidence that children transfer cognitive functioning acquired in L_1 to the new L_2 at school and, conversely, transfer newly acquired cognitive skills in L_2 to their L_1 (Cummins, 1984; Harley, Hart & Lapkin, 1986).

Instruction that develops first-language literacy skills is not just developing these skills, it is also developing a deeper conceptual and linguistic competence that is strongly related to the development of general literacy and academic skills. In other words, there is a common cognitive proficiency underlying behaviour in both languages. The interdependence or common underlying proficiency principle implies therefore that experience with either language can promote development of language-cognitive skills, given proper motivation and exposure to both languages.

Cummins (1984) suggests that cognitive academic proficiency can be conceptualised along two independent continua: the first relates to the degree of contextual support available for expressing and receiving meaning (from context-embedded to context-reduced); the second refers to the degree of cognitive involvement in the verbal activity (from cognitively undemanding to cognitively demanding). Thus, a verbal task may be cognitively demanding or not and, at the same time, be more or less context-embedded. Many of the linguistic demands of the school rely on context-reduced and cognitively demanding language behaviour. Most of the studies reporting negative consequences of early bilingual experience are concerned with measures of context-reduced and cognitively demanding behaviour of children who may not have developed the necessary underlying proficiency.

In other words, when bilingual development does not result in cognitive advantages it is almost always in cases where the children did not possess the skills prerequisite for literacy. It might well be that here we are dealing with a literacy or a metalinguistic problem, not a linguistic competence threshold: metalinguistic awareness is different from ordinary linguistic communication in the sense that it calls on different cognitive skills, and bilingual children differ from monolingual children on literacy and metalinguistic tasks (Bialystok & Ryan, 1985a; Mohanty, 1994).

THE ADDITIVITY- SUBTRACTIVITY THEORY: FOCUS ON THE SOCIO-CULTURAL CONTEXT

Lambert (1974,1977) suggests that the roots of bilinguality are to be found in several aspects of the social psychological mechanisms involved in language behaviour, particularly in the perception of the relative social status of both languages by the individual. He was the first to draw attention to the fact that different types of bilinguality may result depending on the sociocultural context in which bilingual experience occurs. He distinguishes between an **additive** and a **subtractive** form of bilinguality. In its additive form bilingual development is such that both languages and both cultures will bring complementary positive elements to the child's overall development; this situation is found when both the community and the family attribute positive values to the two languages; the learning of an L_2 will in no case threaten to replace L_1.

Subtractive bilinguality, on the other hand, develops when the two languages are competing rather than complementary; this form will evolve when an ethnolinguistic minority rejects its own cultural values in favour of those of an economically and culturally more prestigious group. In this case, the more prestigious L_2 will tend to replace L_1 in the child's repertoire. This happens, for example, when a minority child is schooled through an L_2 socially more prestigious than his own mother tongue. The degree of bilinguality will *'reflect some*

stage in the subtraction of the ethnic language and the associated culture, and their replacement with another' (Lambert, 1977, 19). This subtraction will manifest itself at several levels and will influence intellectual development and personality; language competence which first developed via the mother tongue will be affected.

Lambert's views explain why a cognitive advantage linked to bilingual experience is found primarily either among bilingual children from mixed-lingual families or among children from a dominant social group who receive their schooling through the medium of a relatively less prestigious L_2, while the subtractive form is met among children from ethnolinguistic minorities schooled through a dominant, more prestigious L_2. In the additive case, the two languages receive important positive values from the community and consequently from the child himself, whereas in the subtractive condition L_1 is little valorised compared with L_2. Lambert's model insists on the role played by the sociocultural environment in the development of bilinguality. It accords with a more general view of child development: the cultural environment plays a major role in the child's growth once the symbolic stage is reached; culture then serves as a catalyst for cognitive growth (Bruner, 1990). It is therefore crucial to focus on the cultural environment in which bilingual development occurs and to understand its role in the development of bilinguality.

By pointing out the relevance of the sociocultural environment Lambert stresses the role played by social psychological mechanisms in the development of bilinguality, particularly those involved in the internalisation of societal values. Lambert also introduces the notion of an interdependence hypothesis, but at the level of the internalisation of social cultural values and language statuses: it is the relative status between the two languages and its internalisation that will determine the nature of bilinguality.

There is ample empirical evidence to support the sociocultural interdependence hypothesis. For example, Long & Padilla (1970) and Bhatnagar (1980) demonstrated that pupils obtained superior academic results when their low-status L_1 was valorised and fully used in the home than when L_1 was neglected in the home in favour of L_2. Similarly, Dubé & Herbert (1975) found that school results and language proficiency in both languages improved when the mother tongue was valorised and used in the school system. There is also ample evidence, stemming from research on immersion programs that when a child is a member of a dominant ethnolinguistic group, for whom L_1 is valorised in the community, schooling through the medium of L_2 may be a way to develop high bilinguistic skills, possibly with positive cognitive effects.

Language is present in its different aspects in the child's environment and will be used to a varying extent and for different functions by speakers with and around the child in his social network. By social network we understand the sum of all the interpersonal relations one individual establishes with others over time. The relevance of a network, centred on the individual, lies in the fact that, on the one hand, it provides the child with functional and formal linguistic model(s) and with shared schemata acquired through routines, and, on the other hand, it transmits to the child the system of societal values, attitudes and perceptions relating to the language(s) and their users (Blanc & Hamers, 1987).

The relevance of the immediate surroundings for the development of bilinguality is of the uttermost importance. The interaction with the significant others will through the establishment of routines shape the form-function mapping necessary for the development of language. In the case of bilingual surroundings we must consider two aspects: (1) the functions for which language in general and the respective languages in particular are used and (2) the degree of relative valorisation attributed to each of the languages. If a language function is

present and used with the child it is at least valorised by those who use it. However this valorisation varies from one surrounding to another: highly valorised functions may little or not be used in families as, for example, the literacy function in an illiterate family; on the other hand a little valorised language may be used in the family, because of a lack of competence in a more valorised language, as, the use of a minority language in an immigrant family. However, more often than not, valorisation and use are closely related (Hamers, 1994).

Family networks are of primary importance in bilingual development. The language used by the parents in the interactions will determine the linguistic forms used by the child. In planned bilinguality parents will generally adopt a variety of strategies to maintain the weaker language, such as stays in the country where that language is spoken or attending peer-group sessions. The school network is also crucial in the development of bilinguality: almost by definition the school valorises the literacy-oriented activities which are performed in the language of schooling.

However, most cases of bilingual development are not carefully planned by parents but are more often the consequence of societal factors such as membership in a minority group, immigration, or living in a multilingual setting. In these cases the valorisation of the different languages around the child are of the utmost importance. As we already mentioned, negative consequences of bilingual experience are so far only evidenced in the schooling of minority children in Western countries. A lack of literacy-oriented activities around the bilingual child does not necessarily lead to a subtractive form of bilinguality.

Valorisation of L_1 and of literacy in the child's social network are both crucial for the development of literacy skills. The more the parents valorised the mother tongue, the better the children achieved at school (Landry & Allard,1994) and the more they will achieve a balanced bilinguality (Hamers, 1994). Negative perceptions of his mother tongue by the minority child can be avoided if L_1 is valorised in the child's social network. If, in addition, the school valorises the child's mother tongue, this will reinforce the child's positive perception of his language.

Because of the importance of literacy for social integration, we have to ask the question: why do children of ethnolinguistic minorities often not attain the literacy norms?

Literacy plays an important role in bilingual development. As already mentioned the cognitive outcome of bilingual development relies to a large extent on the valorisation of language for literacy-oriented activities, at least in Western cultures. The valorisation of literacy skills per se may has a positive effect on the child's representation of language: For example, in New Zealand English-medium schools, Samoan children were more successful in learning to read than Maori children; these results are attributed to the greater valorisation of literacy in the Samoan community (Clay, 1976). Furthermore, literacy and bilingual experience both foster the development of metalinguistic awareness which plays a crucial role in enhancing cognitive development. Therefore literacy must be considered as an important component in the cognitive development of bilingual children.

Literacy deals with the skills of reading and writing. But it refers to much more than the simple skill of encoding and decoding written language. It has a social and a psychological dimension. In a psychological perspective literacy must be viewed as a cognitive skill which develops as a consequence of mastering the written language, a capacity to employ language as a tool for thinking and communicating (Calfee & Nelson-Barber, 1991); it is used in problem solving, hypothesis construction, and the building of representations. As a new skill it has an impact on cognitive growth in the sense that it empowers the mind and has an effect on language processing and cognitive functioning (Olson, 1988; Chang & Wells, 1990).

Literacy, like other higher mental functions, is conditioned by its social context (Hiebert & Raphael, 1996).

Literacy modifies the way language processing is performed at all levels. There are major structural differences between the spoken and the written language: written language relies more heavily on idea units than spoken language (Chafe, 1985); it is decontextualised and depends more on lexicalisation than on the use of paralinguistic and non-verbal signals (Tannen, 1985); it calls upon a visual-spatial mode of speech which is represented as such in memory; it relies heavily on speech analysis: one important skill to develop in reading is the capacity to analyse speech into phonemic segments; illiterates are poor in this type of tasks (Bertelson, Morais, Alegria & Content, 1985). Phonological manipulations in the pre-school years is a good predictor of reading achievement (Bryant & Bradley, 1985). Pre-school literacy-related activities predict scholastic success (Wells, 1985). Children who are skilled in handling the semantic and syntactic structures of language are better able to cope with reading (Torrance & Olson, 1985). Metalinguistic awareness at both the formal and the symbolic level is a precondition of literacy (Bialystok, 1992).

The very skills that develop with the onset of literacy are the ones that develop as a consequence of bilingual experience: a greater linguistic awareness, more analysed language processing, better developed metalinguistic skills. As is evident from the research reports discussed above, bilingual children who start acquiring literacy seem to be advantaged compared to their monolingual counterparts.

For children who have an early experience in literacy prerequisites, the bilingual experience is likely to promote their cognitive control to the point where they are able to solve metalinguistic problems (Bialystok & Ryan, 1985b). Empirical evidence indicates that bilingual children are more advanced than monolinguals on an array of metalinguistic tasks. For children who develop simultaneous infant bilinguality, the very situation of being confronted with two interchangeable languages, i.e. two labels for one concept, at a time when they are developing a functional representation of language as a cognitive tool, may push them towards developing their analysed knowledge about language. For the child, developing an early representation that language is a cognitive organiser and that his two languages are interchangeable, may facilitate the general development of analysed knowledge in all areas. This representation will be facilitated if the child's environment valorises both languages equally. For children who began to acquire a representation of language as a cognitive tool through their L_1 and are then introduced at an early age to an L_2, this may have similar effects: the introduction of a new language to which they can apply their analytical ability will also prompt them to develop their metalinguistic skills further, thereby enhancing their ability to analyse knowledge.

5. THE SOCIOCULTURAL AND COGNITIVE INTERDEPENDENCE MODEL

There is no doubt that sociocultural factors are responsible for the poor linguistic and scholastic results of so many minority children. However, this need not be the case, witness the many immigrant groups who also come from different cultural backgrounds but do not have to face depressed socio-economic conditions, and who perform linguistically and cognitively at least as well as monolinguals (Troike, 1984). Schooling can be an important factor in the development of literacy. If we consider the two dimensions relevant to the development of additive bilinguality, that is the development of language in its cognitive use and the valorisation of language and language functions, several possibilities can occur, distributed on a continuum from additivity to subtractivity. This is presented in Figure 1.

At one end of the continuum there is the case of the child who lives in a bilingual social environment at home, in which both languages are valorised around him for both cognitive and communicative functions. At the other extreme there is the case of the child who lives in a unilingual home where his L_1 is little valorised and not used for cognitive functions; furthermore he is schooled exclusively in a highly valorised language, which is an L_2 for him, but in which he has at best a limited communicative competence; in addition he has to acquire literacy through this language. The distinction between additive and subtractive bilinguality must be considered on this continuum which is the resultant of two dimensions (Hamers & Blanc,

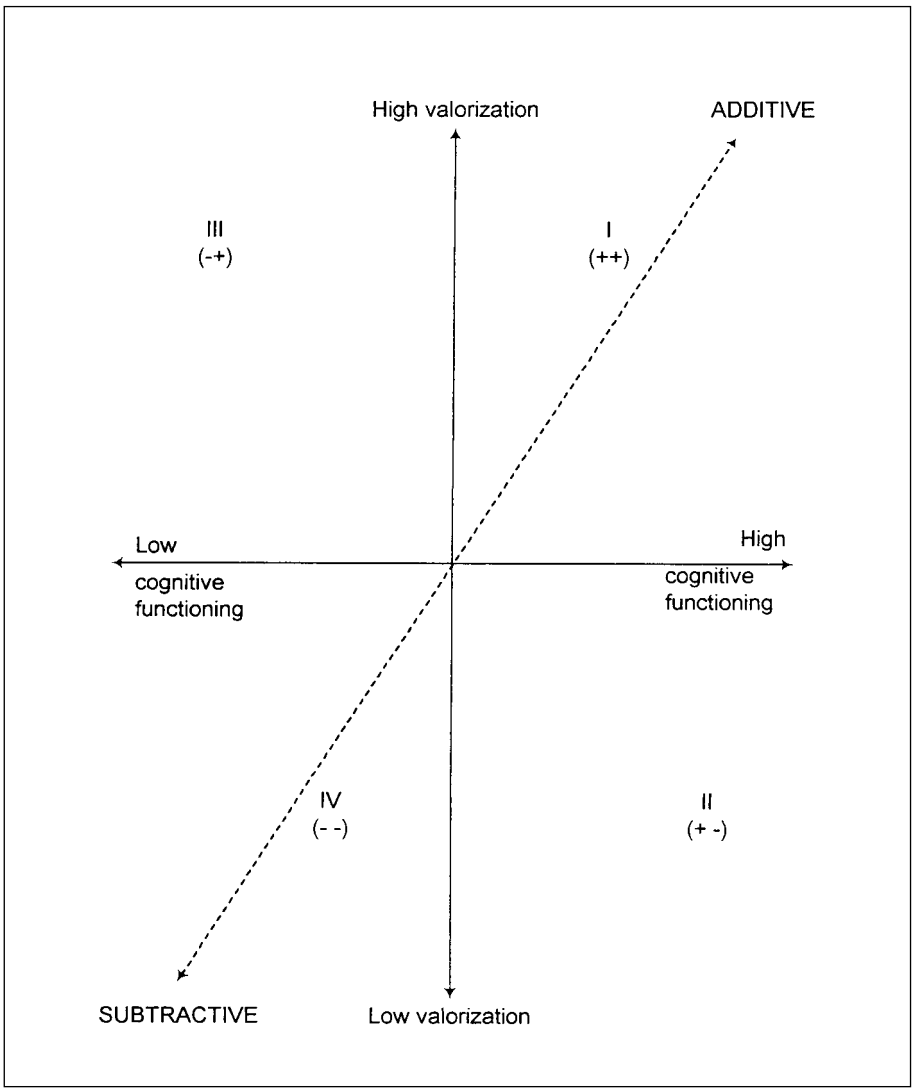

Figure 1. The socio-cultural and cognitive dimensions of the additive-subtractive continuum (from Hamers & Blanc, 1989).

1989). The first dimension deals with the cognitive function of language, more specifically with the ability to analyse language and control linguistic cues. The second dimension refers to the degree of valorisation that the child attributes to language. This valorisation results from the child's internalisation of social values attributed to the languages in the community and the surrounding networks. At the additive end of the continuum the cognitive function of language is well developed and both languages are highly valorised. Because the child valorises both languages to the same extent, he will perceive them as interchangeable. This perception will in turn enhance the overall cognitive functioning. At the other end, a child, who in the first place did not develop the cognitive literacy-oriented language skills in his first devalued language, and, who, at the same time is required to develop these skills do so in a socially more valorised language of which he has little or no knowledge, is likely to develop a subtractive form of bilinguality (Hamers, 1997).

The identification of all the conditions that are favourable to an additive form of bilinguality is still a long way off and raises a number of questions. To what extent is the child's perception of these social factors more important than the factors themselves? To what extent can an additive form of bilinguality develop in a subtractive context? In other words, how determining is the sociocultural context for the outcome of bilinguality and how far can the individual develop strategies and social psychological mechanisms that can modify the influence of the social context? The causal link between social psychological roots of bilinguality and their cognitive outcome is still little known. Not all the environmental factors which enable the child to reach the competence necessary for developing additive bilinguality have been identified. In other words, in order to have a better understanding of the development of bilinguality we must view it in relation to language valorisation in the social networks and in relation to the development of literacy.

Why is it that in a subtractive situation the bilingual child is less successful at cognitive tasks than his monolingual peer who also lacks these cognitive skills? First, because of the low value attached by society to his L_1 it will be more difficult for this child to see the two languages as interchangeable and therefore to use them for socially valorised activities. Secondly, schooling will reinforce this perception by introducing him to cognitive tasks exclusively in the majority language; he might then perceive the L_2 as the only language suitable for cognitive functioning. Thirdly, whereas in language development it seems necessary for the child to develop a function before he can acquire the linguistic form to express it, the child is here required to learn new forms of language for a language function he has not yet developed.

A crucial question that remains to be answered is: if early bilingual development enhances cognitive development, why is it that not all bilingual experience leads to cognitive enhancement? Positive cognitive consequences of early bilingual experience are almost invariably associated with positive parental attitudes towards both languages and towards literacy. On the other hand, when negative consequences are reported for bilingual experience, they invariably refer to a sociocultural setting which has the following characteristics: (1) the child comes from a socially disadvantaged subordinate group; (2) he speaks a mother tongue which is little valorised in the society at large; and (3) he is schooled through a prestigious L_2 while the school system tends to ignore or denigrate his mother tongue. So far we have no clear evidence that these negative consequences imply that the child's cognitive processes are less developed; rather, there is plenty of evidence that these children underachieve at school .

Because positive consequences of bilingual experience result from the enhancement of cognitive functioning, and negative consequences stem from the social conditions in which

the bilingual experience takes place, a general model of bilinguality should bring together both the cognitive aspects and the social aspects of bilingual development.

6. THE CONSEQUENCES OF PLURILINGUAL EDUCATION

We know turn to the next question: what is the effect of plurilingual education on the child's development?

As appears evident from the state of the art on bilingual development one has to make a distinction between plurilingual education for the majority child and plurilingual education for the minority child. According to its goal bilingual education can be divided into: (1) compensatory programs, in which the child is first schooled in his mother tongue in order to be better integrated into the mainstream education; (2) enrichment programs, normally designed for majority group children, which aim at developing an additive form of bilinguality; (3) group-maintenance programs, in which the language and culture of the minority child are preserved and enhanced. The argument against these programs is that they lead to socio-political disruption; while the programs are defended on ideological grounds, in the name of linguistic and cultural pluralism.

On the basis of our model of bilingual development we formulate a number of hypotheses concerning the consequences of bilingual education. The outcome of bilingual education depends upon a number of pre-school factors as well as upon the way the two languages are planned in education. Two factors are of relevance in education; (1) to what extent is the child proficient in the school language? and (2) to what extent has he developed the cognitive function in one or both of his languages before starting school? Considering the interplay of educational factors with the following factors: social psychological and cognitive developmental factors, such as onset of, and proficiency in, both languages; functions developed for language; valorisation of one or both languages for all or a limited number of functions; and the social representations which the child developed as a consequence, we make the followingassumptions:

1. If both languages are acquired simultaneously or if the child is fully proficient in both languages before entering school, he does not have the double learning burden of acquiring new language skills and literacy skills simultaneously; if, in addition, the child has already developed language as a cognitive tool, the acquisition of literacy skills will be facilitated; and, if the child has also developed an analysed representation of language in which both languages are perceived as interchangeable, thus amplifying cognitive functioning, the acquisition of literacy skills will further amplify this functioning and the child is more likely to develop an additive form of bilinguality. This is the case of the child in an educated mixed-lingual family.

2. If the child is only proficient in his L_1 when starting school in L_2, he will have to acquire the primary communicative skills in L_2 at the same time as the literacy skills in L_2. If he has already developed an analysed representation of language through his L_1, he can transfer it to the acquisition of literacy skills; the two languages will become interchangeable for cognitive operations, thus amplifying cognitive functioning. Because both languages are valorised in their cognitive function, this transfer will be relatively easy. The degree to which his analysed representation of language includes both languages as interchangeable tools will determine the degree of additivity. This is the case of immersion-school children and of some advantaged submersion children.

3. If a child proficient in his L_1 only or with a limited knowledge of L_2 at the onset of schooling in a relatively more prestigious L_2 has not developed the cognitive functions of langua-

ge in his L_1, he also faces the double burden of acquiring the primary communicative skills in L_2 simultaneously with the literacy skills. Because he does not possess the analytic representation of language the task of acquiring literacy skills is harder (as is the case for some monolingual children schooled in L_1). If, in addition, his L_1 is devalorised and stigmatised, he will not transfer the newly acquired skills to his L_1 but limit them to a L_2 in which he is not proficient. In the worst case, because he does not use his full language potential as does a monolingual child coping with the problem of acquiring literacy, the development of the analysed representation of language might be slowed down. Further devalorisation of L_1 by society and the school, where it is not used for the development of literacy skills, will lead to a perception that his two languages are not interchangeable as cognitive tools and that only L_2 can be used in that function. This might ultimately lead to a subtractive form of bilinguality.

7. BILINGUAL EDUCATION FOR THE MAJORITY GROUP

In all cultures and at all times élites have provided their children with bilingual education when they considered it necessary, either by employing a private teacher or by sending the child to an elite school, often in the country where the second language was spoken. In the last decades, certain dominant groups have adopted a more democratic way of ensuring bilingual education, namely through international schools and immersion programs.

So far, very little research has been conducted on the results of bilingual education in the multilingual European schools and their reputation is essentially based on anecdotal evidence and parental attitudes. In the present state of our knowledge we cannot say conclusively that the success of these schools is attributable only to their multilingual programs and not to their elitist character.

Immersion programs started developing in Quebec as a different approach for improving their working knowledge of French in the Anglophone community. Immersion simply means that a group of L_1-speaking children receive all or part of their schooling through a L_2 as medium of instruction. The immersion approach is based on two assumptions: (1) that at that age a L_2 is learned in a similar way to a L_1; and (2) that a language is best learned in a stimulating context which enhances the language functions and exposes the child to the natural forms of language. many forms of immersion have been developed: early total immersion, late immersion, partial immersion.

Numerous immersion programs have been evaluated over the last twenty-five years. To sum up, then, with regard to the assessment of immersion programs it seems that: (1) immersion programs are superior to traditional FSL programs, with students attaining a high level of proficiency, especially for receptive skills in L_2; (2) students are not handicapped in mother-tongue skills nor in academic achievement; (3) when differences occur between results in different immersion programs, they favour the early total immersion over partial immersion (Genesee, 1981) and over late immersion (Morrison, 1981); (4) there are indications that early immersion programs might favour the child's overall cognitive development.

To date, there are few examples, let alone studies, of immersion programs outside Canada. Introducing the majority child to a valorised second language used as medium of instruction at the age of five not only does not delay the child's acquisition of linguistic and academic skills, but it gives him a functional competence in the other language far superior to what he might have achieved by traditional methods and it may even enhance his cognitive skills and produce an additive balanced bilinguality. However, what has proved valid for the advantaged child of majority groups, whose culture and first language are valorised in his

community and who has already reached a sufficient level of analysed language by the time he goes to school, does not necessarily apply in the case of the minority child. It is to him/her that we now turn.

7. PLURILINGUAL EDUCATION FOR THE MINORITY CHILD

As already mentioned there is a world-wide claim, based on the 1953 UNESCO declaration, that literacy for minorities should be initiated through the vernacular; however, whether, once the basic skills have been acquired, education is continued in the vernacular depends essentially on the degree of subordination of the minority: a territorially well-established minority generally has the means and the power to ensure mother-tongue education, at least up to a certain level; a small minority with no territorial claims has neither the means nor the power to demand anything but a transition program in its mother tongue.

When discussing bilingual education for minority children two important contextual aspects of their development must be underlined: (1) they come from a little-valorised mother-tongue background and (2) because they often come from socially deprived communities their literacy-oriented skills are less well developed .

A major problem with education for ethnolinguistic minority children is the so-called 'cognitive handicap' attributed to their bilinguality, or the myth of bilingual handicap (Cummins, 1984). According to this myth the academic failure of minority children is attributed to their state of bilinguality; the solution, therefore, is seen as learning the dominant L_2 and using it for education.

In this myth the overt goal of L_2 education is to teach L_2 to the minority child in order to give him equal chances, the covert goal being to assimilate him; therefore, L_1 is devalorised and children are forbidden to use it in the school, because it could interfere with L_2 acquisition. As a result the child becomes ashamed of his own culture and language, substitutes L_2 for L_1 and obtains poor academic results. These are in turn attributed to the state of bilinguality and to a cognitive deficit. Hence, education insists even more on eliminating the 'cause' of the deficit, i.e. the L_1, and reinforces the myth. If this circle can be broken, then the poor academic achievement of the minority child can be improved. To achieve this, however, one must accept that the school system rather than the child's bilinguality is the main factor responsible for poor achievement.

Numerous experiments have been conducted on bilingual education programs for minority children and a certain number of them demonstrate that a subtractive form of bilinguality is not a necessary outcome (*The bilingual program for Finnish immigrant children in Sweden*; Hanson, 1979; *Reading programs for Chiapas children*,Modiano, 1973; *The Rock Point Experiment with Navajo children*; Rosier & Farella, 1976; *The Redwood City Project*; Cohen, 1975; *The California experiment*; Legaretta, 1979; *The Franco-Manitoban experiment;* Hébert, 1976; *The St-John's Valley bilingual education program*; Dubé & Herbert, 1975; *The 'Motet Project (Mother Tongue & English Teaching Project, 1981; The Carpinteria Spanish-language pre-school program* (Carpinteria Unified School District, 1982).

What can be concluded from this variety of experiments on bilingual education for minority children in Europe and North America? They all deal with potentially highly subtractive contexts; all make use of the mother tongue for formal education, either simultaneously with the dominant language, or before instruction is given in the dominant language. In all cases, academic and linguistic proficiency results in both languages are superior to those obtained

by control groups where instruction is in L_2 only. In all cases, the program valorises the mother tongue and culture, motivates the child to learn through his L_1, and develops his linguistic-conceptual capacities to the extent that he will make better progress in a L_2 than his peers schooled exclusively through L_2. These studies provide strong support for the view that for minority children, the acquisition of literacy skills should be dissociated from the acquisition of L_2 skills and that formal instruction should valorise the mother tongue.

The large majority of bilingual programs for minority children are transition programs which do not aim at functional bilinguality as do immersion programs. For most programs language planning has been decided by the dominant group; their ultimate goal is assimilation of the subordinate groups (Wong Filmore, 1991). Even if they aim at developing a certain degree of bilinguality, it is likely that in the long run the students will become dominant in L_2 and acculturate. If bilingual education appears to be a necessary condition for ethnolinguistic minority children, it is however not a sufficient one. It is the ethnolinguistic vitality of the group; the use of the mother tongue in the home and in the community, and the allegiance to the cultural group that will ensure cultural survival.

Far from representing a handicap, the use of the mother tongue in the home is an important factor in helping to attain academic achievement. In a longitudinal study Chesarek (1981) demonstrated that among elementary-school children from a Crow Indian reservation, those who had at least one Crow-speaking parent and who spoke exclusively English at home scored significantly lower on non-verbal intelligence tests than Crow children who spoke Crow as their first language, or English-speaking Crow children whose parents were both anglophones. Moreover, after three years of education in Crow, these children scored better than those educated in English only.

In a similar vein, Bhatnagar (1980), studying the adjustment of Italian immigrant children in Montreal, concluded that mother-tongue maintenance in the home leads to superior academic achievement, better proficiency in their second language, French, and improved social relations. Similar results were obtained with Hispanic children in California; those who came from homes where Spanish was spoken scored consistently better than Hispanic children from homes that had shifted to English (Dolson, 1985). The relevance of the home in language is of the uttermost importance. If the majority language invades the family network, the survival chances of the subordinate language are extremely small.

Today there is a general consensus that teaching literacy through the mother tongue is desirable for minority language speakers, not only for political and cultural reasons, but also for pedagogical reasons, that is, as a means of improving school performance both in L_1 and L_2. Reviewing research carried out in Canada, Danesi (1993) claims that instruction in L_1 is a necessary condition of school success. A similar, though weaker claim, is made by Carson & Kuehn (1994) that literacy development in L_1 facilitates literacy in L_2. We would claim that more than the fact of teaching literacy in L_1, it is the valorisation of L_1 as a cognitive tool by the school which is responsible for the development of literacy.

In an idealised model of bilingual education the different groups of a community decide jointly the languages in which instruction will be given. They not only have pluralist views of education but aim at a 'multicultural synthesis' (Robinson, 1981). Not only the minority children but also the majority children are instructed in both the dominant and the subordinate languages. The choice of the subordinate language varies according to the presence and the size of the minority groups; the school attempts to reflect the linguistic and cultural pattern of the community; hence the name 'community languages' sometimes given to this type of bilingual education. Majority and minority children are both taught together in each

other's languages; for example, where the Greek Australian group is numerous, Anglo-Australian children and Greek-Australian children would be taught the same curriculum in both English and modern Greek (Robinson, 1981). Lambert & Taylor (1990) have suggested a model of community education for American schools: the goals of education and the languages used to attain these goals should be decided by all ethnic minorities. This model implies teaching the different languages to all children. This ideal has been put into practice in the Two-Way Bilingual Education Programs" in the United States of America (Christian & Mahrer, 1992; Cazabon, Lambert & Hall, 1993; Nicoladis, Taylor, Lambert & Cazabon, 1998). These programs begin in elementary schools and serve an equal number of language-minority and majority children, with the goal of bilinguality for both groups. They combine the features of bilingual programs for language minority students with immersion for majority students. The results suggests that two-way bilingual education can be successful with minority group children whose home language is different from that of the school.

CONCLUSION

Bilingual education is determined by social historical, ideological, power-relation and social psychological factors which interact with each other and have to be taken into consideration when deciding on the language or languages of instruction. Bilingual education programs designed for majority children, such as immersion, benefit the child's linguistic skills and academic achievement and gives him the advantages of early bilinguality. Immersion programs appear as an applicable solution for children of dominant and socially advantaged groups. On the other hand for minority children who have little or no exposure to literacy, it is desirable to introduce literacy in the mother tongue.

For the child to benefit from a bilingual education certain prerequisites have to be met. First, his two languages have to be valorised for both the communicative and cognitive linguistic functions. Secondly, the child has must acquire certain functions of language in its L_1. before he is introduced to the L_2 for these functions.

In the case of immersion programs the children of the dominant/socially advantaged group possess a highly valorised L_1, which in the society is used for a whole range of cognitive and literacy-related activities. Although he is introduced to a L_2 of which he does not yet know the forms, he has reached a state of readiness because he is already familiar with the functions. In the case of a disadvantage minority child who is little exposed to literacy-oriented activities in his community and who speaks a devalorised minority language, if he is schooled through the more prestigious L_2, he must acquire both the forms in L_2 and the new functions. Furthermore, because of the devalorisation of the L_1 the latter will not be valorised for these functions.

Whereas there are many indications that the minority child benefits from being introduced to literacy in his mother tongue, this is too often ignored, either because the covert goal is assimilation of the minority child into the mainstream culture; or because the means are unattainable or economically too costly (as for example when the language is not written, or when there are no teaching materials or trained teachers available); or because those who plan education are still ignorant of research results, believe in the myth of the bilingual handicap and are convinced that the earlier the child is introduced to a prestigious L_2 the better he will develop academically. Bilingual education programs and mother-tongue teaching in the early school years have been shown to benefit minority children and improve their academic achievement. Time spent on teaching the mother tongue does not slow down their proficiency in L_2 and increases their language skills in the mother tongue and in the school language.

In contrast with the bilingual education for majority children, bilingual programs designed for minority children do generally not aim at functional bilinguality; they are rather a way of ensuring a better preparation for further education in a dominant L_2. This is achieved neither by total submersion in the L_2 nor by ghettoization in a shelter program. Transition programs in which instruction is given entirely or partially in the L_1 enable the minority child to catch up on academic achievement; they do not, however, provide him with the benefits of bilingual education that a majority child can gain from early bilingual experience or immersion programs.

One of the major differences between bilingual programs for majority and minority children lies in their final goals: functional bilinguality versus mainstream assimilation. These final goals are reflected in the cognitive outcome. The majority child benefits from a bilingual education at the cognitive level. On the other hand the minority child benefits from literacy development through its L1. When functional bilinguality is promoted in the minority child, as, for example, when the school and the family valorises the mother tongue sufficiently so as to maintain it, academic achievement is improved. The cognitive advantages which are linked to early bilinguality should be made available to all children and should be considered in planning bilingual education valorisation of both literacy and the mother tongue.

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Table 1. Studies (34) reporting cognitive advantages of bilingual development

Cognitive and verbal flexibility	Ronjat (1913); Leopold (1939-1949); Peal & Lambert (1962)
- superior results on verbal and non-verbal intelligence, verbal originality and verbal divergence tests	Cummins & Gulutsan (1974)
- verbal-transformation tasks and symbol-substitution tasks	Ekstrand (1981)
- the use of self-regulatory utterances	Diaz & Padilla (1985)
- greater sensitivity to semantic relations between words	Ianco-Worrall (1972); Cummins,(1978)
- correction of ungrammatical sentences	Diaz (1985b)
- detection of language mixing	Diaz (1985b)
- reconstructing perceptual situations; visual-spatial abilities	Balkan (1970); Hakuta & Diaz (1985)
- solving non-verbal perceptual tasks; Raven's progessive matrices; Piagetian conservation tasks; classification tasks; problem-solving tasks	Ben-Zeev (1972; 1977a); Pattnaik & Mohanty (1984); ; Mohanty & Das (1987); Diaz & Padilla (1985); Kessler & Quinn (1982; 1987)
- perceptual-motor co-ordination	Powers & Lopez (1985)
- Piagetian concept-formation tasks	Liedtke & Nelson, 1968)
- rule-discovery tasks; WISC-R Block Design and analogical reasoning tasks	Bain (1975); Gorrell, Bregman, McAllistair & Lipscombe (1982); Diaz & Klinger (1991);Diaz, (1985b)
- divergent thinking tasks	Scott (1973); Carringer (1974); Ben-Zeev (1972; 1977a); Okoh (1980); Da Silveira (1989)
- creative thinking tasks	Torrance, Gowan, Wu & Aliotti (1970)
- metalinguistic ability tests	Mohanty & Babu (1983)
- attention to grammatical features	Bialystok (1986)
- deletion of phonemic units of non-words	Perregaux (1994)
- solving metalinguistic problems	Bialystok (1988)
- metalinguistic skill of literacy acquisition.	Perregaux (1994)
- phonemic segmentation	Rubin & Turner (1989)
- word awareness	Yelland, Pollard & Mercuri (1993)
- awareness for syntactic structures	Galambos & Hakuta (1988); Galambos & Goldin-Meadow (1990)