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COGNITIVE DEVELOPMENT IN BILINGUAL CHILDREN:  
A CASE FOR BILINGUAL INSTRUCTION IN EARLY  
CHILDHOOD EDUCATION

Patrick Lee  
Oakland Unified School District

**Abstract**

This article overviews the research on the complex relationship between bilingualism and cognitive development and the important implications of this relationship for bilingual education. Recent studies are discussed that examine the cognitive development in bilingual children with regard to metalinguistic awareness, concept formation, and analogical reasoning. A case is made for additive bilingual instruction in early childhood programs as a means of reinforcing the productive and receptive knowledge of the first language during this critical period of linguistic, social, and cognitive development.

The number of limited-English-proficient children in the United States has increased dramatically over the past ten years. In 1990, California alone was populated by more than 861,000 linguistic minority students, with such students constituting almost 25% of the state's kindergarten through 3rd grade population, 16.3% of the students in grades 4 through 8, and 12.9% of the students in grades 9 through 12 (California Department of Education, 1992). The debate over how LEP students should be educated continues not only in California, but across the nation. There are numerous supporters of bilingual education who claim that it is only through such programs that the content of school curriculum, as well as the language of the school and society, can be adequately learned (Wong Fillmore & Valadez, 1986). There are at the

same time many opponents of bilingual education who instead support English-only instruction to unify the country and ensure learning of the societal language (Bennett, 1986; Imhoff, 1990).

The debate over bilingual education centers around several key issues, such as culture and language maintenance, individual, community, and national identity, and equitable access to social, economic, and educational opportunities. However, an underlying issue that learning psychologists have grappled with over the years is whether or not bilingualism should be a desired goal primarily from a cognitive perspective. These scholars recognize that examining the effects of bilingualism on mental and intellectual capacities has far-reaching implications for language policy and teaching. If research consistently demonstrates a positive relationship between cognition and bilingualism, educators can argue that such findings support the aim to promote bilingual education. If, on the other hand, bilinguals are shown to be comparatively deficient to monolinguals, educators could conclude that proficiency in two languages should not be a primary educational goal in the classroom.

This article examines these complex issues. First, a review of the early studies examining the cognitive development of bilinguals is presented. Although such research reports negative effects of bilingualism, shortcomings in methodological approaches leave much of the findings suspect. Next, a review of more recent research is presented that addresses these limitations, and supports the notion that bilingual children do indeed display cognitive advantages when compared to monolinguals. Many of these studies have focused on "balanced bilinguals," so a distinction will be made between these studies and those few studies that have investigated cognition and varying degrees of bilingualism. Next, this article examines existing theories explaining how bilingualism affects cognitive processes, and concludes with a discussion of implications drawn from the presented findings focusing on bilingual instruction in early childhood education in this country.

### **Early Studies Examining Cognitive Development in Bilinguals**

In examining the early studies of bilingualism and cognitive development, educators first need to consider the social concerns of the

United States during the turn of the century. The influx of immigrants to America, particularly from Southern and Eastern Europe, called attention to the concern over the new arrivals' poor adaptation to American society. This was evidenced in their poor performances on intelligence tests. Immediately, psychologists representing two theoretical camps came to the forefront offering explanations for these immigrants' performance levels. The hereditarians, such as Lewis Terman (1919, 1975) and Florence Goodenough (1934), argued that intelligence was innately-based, and that these immigrants were therefore descended from intellectually, genetically inferior peoples. Psychologists and educators representing this line of thought did not consider bilingualism to be a relevant factor. In contrast, the environmentalists, such as Stoddard and Wellman (1934), proposed that proficiency in two languages retarded cognitive growth and only led to mental confusion.

The early studies conducted during the first half of the century grew out of this social context; with such studies showing bilinguals' academic retardation and lower IQ scores, support was provided for the negative effects of bilingualism on cognitive development. Darcy (1953) concluded from a review of relevant research that "the general trend in the literature relating to the effect of bilingualism upon the measure of intelligence, has been toward the conclusion that bilinguals suffer from a language handicap when measured by verbal tests of intelligence" (p. 50). This language handicap was construed as representing the linguistic and mental confusion that retards intelligence through the college years (Saer, 1923). Furthermore, Macnamara (1966) claimed that bilingual children's lower verbal intelligence was a result of a "balance effect" whereby proficiency in a second language necessitated a loss in proficiency in one's first language. Thus, it was proposed that bilinguals never reached comparable levels of linguistic proficiency as did monolinguals. Studies illustrated that bilingual children, in comparison to monolinguals, demonstrated weaker verbal abilities, including poorer vocabularies (Barke & Perry-Williams, 1938), deficient articulation (Carrow, 1957), lower standards on written composition and more grammatical errors (Harris, 1948). Moreover, studies also indicated deficiencies in bilinguals' development of non-verbal abilities, such as mathematic competency (Carrow, 1957) and dextrality (Saer, 1931).

In contrast to these findings, linguists during the same period continued to provide accounts of children displaying mental advantages from simultaneous exposure to two languages. The most notable case study came from Werner Leopold (1949) who claimed that exposing his daughter Hildegard to two languages enhanced her mental development. He theorized that bilingual children are able to focus on the content of words rather than their forms because bilinguals learn early on the abstractness and symbolism of words and are forced to separate two different words for each referent. This objective metalinguistic awareness of language will be further discussed in a later section.

One needs to consider why empirical findings and case studies such as Leopold's seem to contradict one another with respect to how bilinguals develop cognitively. The explanation may lie in the poor methodological approaches of the empirical studies, which have in fact led to claims by current investigators such as Cummins (1976) that these early studies are completely unreliable. One major limitation was that the studies did not control for socioeconomic status between the bilingual and monolingual subjects. As McCarthy (1930) argued, bilingualism in America was confounded with SES since more than half of the children classified as bilinguals in early studies belonged to families from the unskilled labor group.

Another problematic area of the research methodology of early studies was the failure to adequately assess and consider differences in degree of bilingualism. This is certainly seen in how researchers defined and evaluated the bilingual or monolingual status of their subjects. Brunner (1929), for example, determined degree of bilingual proficiency according to place of birth of subject's parents. Furthermore, Hakuta *et al.* (1986) claim that early psychologists used a societal definition of bilingualism in determining language proficiency, as they classified subjects as bilingual according to foreign last name, particularly if a name represented a group that had recently immigrated to America. Obviously, such methods would not hold up under scrutiny today for it is clear that such techniques cannot ensure that the subjects investigated are indeed bilingual or "just monolingual of a minority language who barely spoke the language of the cognitive tests they were given" (Diaz, 1985a, p. 70).

### **Recent Studies Examining Cognitive Development in Bilinguals**

In the late 1950s a shift in the social sciences emerged where a behavioristic approach was being overshadowed by a cognitivist one. In line with such a shift, bilingualism began to take on a cognitive definition rather than a societal or empirical one; consequently, bilingualism was conceptualized as an individual's proficiency in two language systems. This led to theories hypothesizing the relationship between thought and language, and ultimately, to studies demonstrating positive effects of bilingualism on cognitive functioning.

The landmark study [that significantly impacted the field] was conducted by Elizabeth Peal and Wallace Lambert (1962) at McGill University in Montreal. Peal and Lambert introduced the concept of "balanced bilingual" in response to the mentioned methodological problem of early studies where "pseudobilinguals," or those not equally proficient in two languages, were being examined. In order to better measure the effects of second language acquisition on intelligence, these researchers argued that balanced bilinguals had to be investigated. Employing three different tests to determine such status, they compared French-English balanced bilingual fourth graders in Canada and comparable monolingual children on intelligence tests, including a modified version of the *Lavoie-Larendau Group Test of General Intelligence*, the *Raven's Coloured Progressive Matrices*, and subtests of the *Thurstone and Thurstone Primary Mental Abilities Test*. In addition to controlling for sex, age, and SES, Peal and Lambert also attempted to control for linguistic proficiency through self evaluations of the languages spoken by the children and through tests of vocabulary and association. The study found that bilingual children scored significantly higher than monolinguals on most of the measures of verbal and nonverbal intelligence, in particular on those tests requiring mental manipulation and reorganization of visual symbols, concept formation, and symbolic flexibility. Peal and Lambert concluded that the bilingual children outperformed their monolingual peers due to their enhanced mental flexibility and strong concept formation skills. Thus, contrary to previous studies, Peal and Lambert's research suggested cognitive advantages to being bilingual, calling into question the validity of earlier studies and supporting the claims linguists had been making for years.

In addition, the study was a breakthrough in terms of research methodology. Peal and Lambert went to greater lengths to determine "true" bilingual status, and controlled for variables inadequately addressed previously (e.g., SES, parental education, years of schooling) that may have confounded earlier studies. Nonetheless, researchers have been cautious in readily accepting Peal and Lambert's findings as conclusive. Macnamara (1966) points out that the Canadian researchers' sample may have been biased because they selected bilingual subjects from those children who scored above a certain level on the English version of the *Peabody Picture Vocabulary Test*. The bilingual sample was also in a higher grade, receiving more formal instruction than the monolingual sample. And third, the frequency distribution of the *Raven's* scores was significantly different for both samples (negatively skewed for bilinguals, opposite for monolinguals). All such factors could have biased the sample in favor of the bilingual children. However, as previously mentioned, one could hardly argue that this study in particular [significantly impacted] the field examining intelligence and bilingualism in many positive respects. After decades of studies demonstrating negative effects of two-language proficiency, psychologists and educators began examining potential positive effects.

Since the early 1960s there have been multifarious studies examining the cognitive development of bilingual children. A significant portion of the literature is devoted to metalinguistic awareness (MLA), which refers to "the ability to make language forms opaque and attend to them in and for themselves" (Cazden, 1974, p. 24). Thus, metalinguistic awareness involves the ability to objectify language, to focus on the form, rather than the meaning, of sentences. DeVilliers and DeVilliers (1978) discuss metalinguistics as it reflects an awareness of component sounds, word-meaning correspondence, rules of grammar and semantics, and ambiguity. Research has shown MLA to be an important element in intellectual development, including the development of reading skills (see Hakuta, 1986), and in schooling participation, including language uses that are typically required in the classroom - thinking about language forms, defining words, categorizing words by parts of speech, breaking words into component syllables, identifying sounds, and identifying written sentences for punctuation (Lindfors, 1991).

Several studies lend support to the notion that the bilingual experience enhances the ability to think flexibly and abstractly about language. Ianco-Worrall (1972) studied South African children from ages 4 through 9 proficient in English and Afrikaans. Administering the *Semantic-Phonetic Preference Test* illustrated bilingual children's preference for comparing words along semantic dimensions, a linguistically, developmentally more advanced ability, than along phonetic dimensions. Specifically, bilingual children appeared to be two to three years ahead of the monolinguals with regard to semantic development.

A second significant study investigating metalinguistic awareness was conducted by Ben-Zeev (1977) with bilingual Hebrew-English children. This researcher found that such children outperformed monolinguals on tasks involving "symbol substitution," e.g., constructing grammatically-violated sentences according to the experimenter's direction. Such tasks are designed to measure children's awareness of language features as well as the ability to control the automatic production of correct sentences. Other studies have also examined enhanced metalinguistic awareness in bilinguals. For example, Irish-English and Ukrainian-English bilingual children were shown to have greater capacities to evaluate tautological and contradictory statements than their monolingual peers (Cummins, 1978a). Furthermore, Galambos (1982) found that El Salvadoran children proficient in English and Spanish demonstrated a stronger syntactic orientation when judging grammatically correct and incorrect sentences in both languages.

The literature thus strongly suggests the cognitive advantages of bilingualism, particularly with regard to metalinguistic awareness. But bilingual children do show other enhancements in their mental development. The relationship between bilingualism and concept formation is illustrative. Bain (1974) studied the discovery of rules needed to solve linear numerical problems, including capacities for classification and rule generalization. Bain's findings, similar to those of other scholars (e.g., Liedtke & Nelson, 1968), display bilingual children's superior performance on concept formation tasks.

Analogical reasoning has also received a great deal of attention by psychologists because of its developmental importance in cognition.

Diaz (1985a) examined the effects of learning a second language on the ability to reason by analogy. In investigating such ability in Spanish-English bilingual children aged five to seven years, Diaz presented sentences such as the following for children to complete:

The princess is beautiful, the monster is \_\_\_\_\_.  
Snow is ice, rain is \_\_\_\_\_.

Diaz found from this longitudinal study that those children with stronger proficiency in both languages displayed stronger analogical reasoning ability. Moreover, research appears to suggest a positive relationship between bilingualism and a wide range of other cognitive measures, including enhanced ability to restructure perceptual solutions (Balkan, 1970), stronger performances in rule discovery tasks (Bain, 1975), greater verbal ability and verbal originality, and precocious levels of divergent thinking and creativity (Cummins & Gulutsan, 1974).

In contrast to the findings of positive effects of bilingualism on cognitive development, some studies suggest negative effects, or a cognitive disadvantage. Ten to eleven year old Japanese-English bilinguals, for example, scored lower on measures of verbal ability than monolinguals in a comparison group (Tsushima & Hogan, 1975). Furthermore, Ben-Zeev (1977) found that while the Spanish-English bilingual children studied showed comparably stronger performance levels on tasks requiring verbal transformation and analyses of structural complexity than English monolinguals, these same bilinguals also showed some delay in vocabulary and grammatical structures. Therefore, one must consider advantages as well as disadvantages that may be linked to bilinguality, and which processes may or may not be affected by the experience of developing proficiency in two language systems. Possible explanations for how bilingualism affects cognitive process will be discussed in a later section.

Despite the general consistency of findings illustrating positive links between intellectual capacities and bilingualism, some researchers are quick to point out limitations of the methodologies employed in these studies. One issue centers around the notion that bilingual and monolingual groups are not comparable due to the impossibility of true random assignment. "Groups can differ in environmental upbringings

with childhood bilingualism co-occurring with variations in a wide range of socioeconomic, cultural, educational, and ethnic variables," all of which may contribute to differences in tests of mental abilities (Hakuta *et al.*, 1986).

Another criticism is that the research discussed has largely ignored the issue of direction of causality, i.e., does bilingualism enhance cognitive development or do more intellectually gifted children become higher-proficient bilinguals? In order to examine the issue of cause and effect it is imperative to conduct longitudinal studies as opposed to collecting correlational data from cross-sectional studies. Bank and Swain (1975) conducted one of the only early longitudinal studies in this area. They evaluated changes in IQ scores for children from regular and Canadian-French immersion programs, and found that the later group had significantly higher IQ scores throughout testing points during the five-year period. Relevant longitudinal findings are also presented by Diaz (1985a) who studied 5-7 year old Spanish-English bilingual children enrolled in bilingual education programs. Assessing performance on cognitive tasks at two points in time (6 months apart), Diaz found that L2 (English) proficiency was a strong predictor of various cognitive measures, including metalinguistic awareness and performance on nonverbal abilities measured by the Raven's. Clearly, though, future research is needed to infer the causal direction in such a relationship.

Finally, many of these studies have exclusively examined balanced bilinguals. Therefore, findings may not be generalizable to a majority of bilinguals who are not "equally" proficient in L1 and L2, and who do not have facility with both as a means of communicating. Such is certainly the case of many children in bilingual programs here in the US who are in the early stages of acquiring or learning English.

#### *Cognitive Development and Degree of Bilingualism*

In light of the aforementioned criticisms, some researchers have begun to examine the intelligence of bilinguals from a within-group, within-bilingual, framework. Such a perspective allows for an examination of how differing degrees of bilingualism may be related to cognitive abilities. Duncan and DeAvila (1979) performed one of the earliest of such studies when they analyzed tests of cognitive ability for

Hispanic children who differed in their proficiency in English and Spanish. The researchers classified the children into five groups according to bilingual proficiency: proficient bilinguals, partial bilinguals, monolinguals, limited bilingual, and late language learners. The most proficient subjects, i.e., the proficient bilinguals, performed significantly highest on all measures of cognitive ability, with no differences among the partial bilinguals, monolinguals, and limited bilinguals. Bilinguality in such studies is typically concerned not merely with the impact of high degrees of bilingualism (i.e., high levels of proficiency in L1 and L2 skills) on cognitive functioning, but equally important, with the impact of dominant bilinguality (i.e., greater proficiency in one language over another), on these processes (Hamers & Blanc, 1989).

Duncan and DeAvila's results are suspect, however, because differences may have been attributable to basic intellectual abilities or IQ since such factors were not controlled. To overcome this limitation, researchers have utilized multiple regression techniques where "the effects of bilingualism on cognitive ability could be assessed by estimating the variance explained by second-language proficiency, once the variance explained by first-language ability and other relevant variables (such as socioeconomic status) is partialled out from the analysis" (Hakuta, Diaz & Padilla, 1986, p. 19).

In a study of low-SES Hispanic elementary school children enrolled in bilingual education programs, it was found that those children who displayed greater proficiencies in L1 and L2 performed significantly better on measures of metalinguistic awareness and nonverbal intelligence (Hakuta, 1985). Other studies have similarly found a positive link between second language proficiency and enhanced cognitive skills (e.g., visual-spatial skills, analogical reasoning, and classification tasks) when multiple regression techniques were employed as part of the methodology (see Hakuta *et al.*, 1986 for review).

The specific relationship between L2 proficiency and cognitive abilities may seem apparent at first glance. For example, Duncan and DeAvila reported, as previously mentioned, higher scores on cognitive tasks for their group of highest proficient bilinguals, with no significant differences in performance by the partial bilinguals, monolinguals, and limited bilinguals. These findings lend strong support to Cummins'

threshold hypothesis (1976) which claims that cognitive advantages are only possible once a certain level or threshold of first and second language proficiency has been acquired. Cummins proposes that children must attain a critical level of proficiency in their native language in order to avoid cognitive deficits associated with bilingualism, and that a critical level of proficiency in L2 must be reached if advantages in cognitive functioning are to develop. Thus, those children who do not achieve high levels of proficiency in both L1 and L2 are at a cognitive disadvantage when compared to monolinguals. Although Cummins' model proposed mental disadvantages developing within certain contexts, such as unbalanced bilingualism, his interactionist hypothesis represented a shift from a disadvantaged model of bilingualism to an advantaged one.

Diaz' (1985a, 1985b) research further examines the validity of the threshold hypothesis. In a study of Spanish-English bilingual kindergarten and first grade children who varied in their L2 proficiency, Diaz found that degree of bilingualism predicted cognitive variability in children with low L2 proficiency, with such variability weakly linked for children comparatively more proficient in L2. Therefore, as Diaz postulates, we need an alternate hypothesis to Cummins' theory that will take into account the ways in which "degree of bilingualism will predict significant portions of cognitive variance only before a certain level of second-language proficiency has been achieved" (Diaz, 1985b, p. 1386). Furthermore, Garcia (1985) criticizes Cummins' interactionist theory because its support comes primarily from Canadian studies with a potentially biased subject pool in which only high achieving children were selected for inclusion into bilingual education groupings. Successful subjects may also have come from higher-SES backgrounds where L2 acquisition was overtly rewarded. These contexts, then, do not represent situations of low SES students where a minority language and culture do not hold the same highly respected status. Garcia argues,

..it is not necessary to account for differences in bilingual (balanced or not) and monolingual's cognitive performance on the basis of a cognitively advantaged/disadvantaged conceptualization. Instead, it remains possible that individual differences in intellectual functioning combined with the

support/non-support of the social context for acquiring linguistic and academic skills, are the factors responsible for any specific differences in bilingual and monolingual performance on cognitive measures"(p. 19).

### **Bilinguality and Cognitive Processes**

Given the strong evidence for positive links between bilingualism and cognitive processes, researchers have found explanatory power in varying models. Although much past research has focused on outcome, or product, measures of cognition rather than process variables (Diaz, 1985a), researchers have proposed theories to explain the positive relationship.

An objectification theory claims that by acquiring two languages, bilinguals learn more about the forms as well as the functions of language in general, which affects various cognitive processes. Vygotsky (1978, 1986), one of the first to discuss the effects of bilingualism, claimed that the bilingual child is able "to see a language as one particular system among many, to view its phenomena under more general categories, and this leads to awareness of his linguistic operation." Experience with two language systems may enable bilinguals to have a precocious understanding of the arbitrariness of language. For example, researchers have demonstrated that bilingual children are often more willing to relinquish a known name for an object and substitute a nonsense or unconventional word (e.g., Ben-Zeev, 1974; Ianco-Worrall, 1972), and to verbalize the arbitrary link between words and referents (Cummins, 1978b). Moreover, the ability to objectify language is linked to a capacity Piaget (1929) termed non-syncretism, which is the awareness that attributes of an object do not transfer to the word itself. Edwards and Christophersen (1988) found that bilinguals may have an enhanced level of such understanding, and researchers such as Olson (1977) have shown such capacity to be linked to literacy. Lastly, by learning that two words can exist for a single referent, bilinguals may develop not only increased knowledge of their L1 and L2, but of language in general as a symbolic system. Thus, such children

may process concepts through higher levels of symbolic and abstract thinking (Hakuta, 1986).

A second model proposed by researchers is consistent with code-switching theory. Because bilinguals are able to move rather easily from verbal production in one language to that in another, they may have an added flexibility. Peal and Lambert (1962) theorized that the ability to code-switch provides bilinguals with an added mental flexibility when solving cognitive tasks. They assert,

...bilinguals typically acquire experience in switching from one language to another, possibly trying to solve a problem while thinking in one language, and then, when blocked, switching to another. This habit, if it were developed, could help them in their performance on tests requiring symbolic reorganization since they demand a readiness to drop one hypothesis or concept and try another (p. 14).

Other psychologists and psycholinguists operate from a verbal mediation theoretical framework to describe how bilinguality affects cognitive processing. From such a perspective, bilinguals are believed to have an enhanced use of self regulatory functions of language as a tool of thought guiding inner speech or verbal thinking. For example, Diaz and Padilla (1985) found that children with high degrees of both L1 and L2 proficiency, in comparison to those with lower degrees, produced more self regulatory utterances, in addition to employing more task-relevant linguistic functions (e.g., labeling, guiding, transitional and planning utterances). Thus, language may be a more effective tool for bilinguals in approaching cognitive tasks.

The objectification, code switching, and verbal mediation theories have contributed to our understanding of bilingual children's active processing of linguistic information into coherent systems of knowledge. Emerging from these models is a discussion of related cognitive strategies bilingual children appear to utilize in making sense of their language environments. Segalowitz (1977) claims that proficiency in two languages leads to a more sophisticated, better-equipped "mental calculus" that governs manipulation of symbols and alternation between linguistic rules. Bialystok and Ryan (1985) link bilingualism to greater

cognitive control in information processing, while Genesee (1981) proposes that bilingual children's enhanced awareness of the arbitrariness of the word-referent relationship is a result of an enhanced general cognitive ability to analyze underlying conceptual characteristics in information processing.

### *Sociocultural Context of Bilingualism*

Investigations into the cognitive effects of bilingualism cannot be viewed in isolation from the sociocultural context in which bilingual children learn and develop. Bruner (1966) argues that once children reach the symbolic stage, the cultural environment serves as a catalyst for mental growth and development. Therefore, the conditions under which different types of bilingualism occur must be examined, as Fishman (1977) notes,

...better controlled experiments...cannot explain shifts in social climate that take place across a decade or more. I would predict that every conceivable relationship between intelligence and bilingualism could obtain, and that our task is not so much the determination of whether there is a relationship between the two but of when (i.e., in which socio- pedagogical contexts) which kind of relationship (positive, negative, strong, weak, independent or not) obtains (p. 38).

Lambert (1977) distinguishes between an additive form of bilingualism and a subtractive form. An additive form involves both languages and cultures being complementary positive influences on overall development, which results from valuing the languages and cultures of families and communities. Thus, an additive approach to bilingualism involves acquisition of a second language at the same time that all abilities in L1 are maintained, as is the case of children from a dominant social group learning a minority language within school. A subtractive form of bilingualism, on the other hand, occurs when two languages are competing. Lambert claims that when ethnolinguistic minority children reject their own cultural values and practices for those of the prestigious, dominant group, L2 eventually replaces their native language. In contrast, immigrant ethnolinguistic minority children,

including those in the US, often do not fully develop their cognitive abilities in their native language while they must confront instruction in another language at school. Skutnabb-Kangas and Toukoma (1976) claim that subtractive programs lead to "semilingualism," a situation in which children are not able to communicate and function adequately in either language for a number of years. Semilingualism, these researchers claim, can eventually lead to cognitive retardation.

Empirical support lends strong evidence to differential cognitive effects of varying types of societal bilingualism. Long and Padilla (1970), for example, found that children whose low status native language was valued and fully used in the household performed better in school than children whose low status L1 was neglected and substituted with L2 at home. Moreover, Dube and Herbert (1975) found that school performance and linguistic proficiency in both languages increased when children's mother tongue was valued and used in the classroom. Therefore, in examining how bilingualism might affect cognitive development one must consider whether communities, be they schools, families, or society in general, view bilingualism as a desirable and valuable condition, or rather as unnecessary and of little value and importance.

### **A Case for Bilingual Instruction in Early Childhood Education**

Important implications can be drawn from the research on bilingualism and cognition that have direct relevance to bilingual instruction, particularly at the early childhood education level. Cummins (1984) claims that often children are not provided with access to bilingual education due largely to the myth held by educators of the cognitive handicap attributed to bilinguals. This "myth of the bilingual handicap" holds that when linguistic minorities fail in school it is because of their bilinguality. While the educational goal then becomes to develop proficiency in L2 for such students, the children's use of their native language is discouraged or forbidden. Cummins argues that this leads to feelings of embarrassment and shame of one's own culture and language, which in turn can lead to use of L2, abandonment of L1, and ensuing academic difficulties. This reinforces the myth and results in stronger advocacy for L2 instruction. Cummins argues that the school

system, rather than bilingualism, is responsible for low achievement of some linguistic minority children, and that schools need to provide instruction that will value one's mother tongue and encourage its use.

When one considers the implementation of bilingual education programs, one must recognize the need for such programs at the early childhood education level. The preschool years in particular are critical to social, linguistic, and cognitive development, as Garcia (1985) states, "...basic linguistic skills of adult language as well as important personal and social attributes are significantly influenced during these years" (p. 20). Garcia goes on to argue for the removal of potential barriers to such development through providing bilingual instruction in early educational interventions. Research examining the effects of bilingual instruction in early childhood education is limited. However one major study involved an evaluation of bilingual Head Start programs which revealed that bilingual instruction was positively linked to enhanced cognitive language development, concept development, and perceptual motor development (Sandoval-Martinez, 1982).

There is, however, ongoing debate over which types of bilingual education programs should be provided for preschoolers. For example, Dulay and Burt (1972) claim that an immersion or transition program focused on incidental, naturally occurring exposure to L2 is the most effective strategy for second language acquisition (as measured by rates of L2 errors related to L1 structure). In contrast, DeAvila and Duncan (1979) provide evidence for effective L2 acquisition and enhanced cognitive flexibility linked to formal maintenance programs that reinforce native language and provide formal instruction of L2. Furthermore, a review of the research lends strong support for positive effects resulting from an additive approach to bilingual education (programs that aim to enable L2 acquisition without loss of L1) rather than a subtractive approach (where L2 is acquired at the expense of L1). Hakuta (1985) argues against bilingual education solely as a means to enhance cognitive development, but states that when bilingualism is a desired goal, enhanced cognitive ability is an added gain to the advantages of learning two languages and two cultures.

However, one must also examine the sociocultural contexts in which bilingualism occurs, as threats to language shift and erosion may render bilingual instruction at the early childhood education level

socially and cognitively damaging. The No-Cost Research Group conducted a nationwide investigation into the effects of learning English in preschool for linguistic minority children and families (Wong Fillmore, 1991). Researchers examined approximately 690 American Indian, Arab, Asian, Latino, and other immigrant families whose children had attended English-only or bilingual preschools. These children and families were compared to a group of 311 Spanish speaking families whose children had attended preschools where instruction was provided exclusively in their native language.

The study produced several important findings with regard to language patterns in the home: 64.4% of the children who had attended an English-only preschool, and 47.2% who had attended a bilingual preschool, were rated by their parents as demonstrating a negative change in language use. Their native language was being displaced by English. In comparison, only 26.3% of the children who attended preschools instructed in their native language experienced a negative linguistic shift. In addition, 42.1% of these children, in comparison to only 18.6% of those in a bilingual preschool and 2.8% of those in an English-only preschool, showed a positive change, i.e., an increased use of the family's home language.

Furthermore, the NCRG study also found that, unlike many of the children in the comparison group who were enrolled in native language preschools, main study children attending bilingual or English-only programs used English more frequently and their L1 less frequently with siblings, parents, and other adults in the household. These children were also 6 to 8 times more likely than comparison group children to be judged by parents as being linguistically less proficient when compared to age appropriate standards.

One must consider the far reaching implications of this study. Children as young as 3 and 4 years of age are indeed susceptible to external and internal assimilative forces to learn English. They quickly recognize upon entering preschool, particularly when the curriculum is presented in English, that English proficiency provides a link to social communication and acceptance. Ultimately, children's L1 is often displaced by English, which might be quite damaging cognitively, given that many children abandon their L1 before developing communicative competence and adequate linguistic proficiency in L2. Furthermore,

displacement of L1 by English can be quite detrimental to many immigrant families because of the potential negative effects on parent-child relationships. Many such parents have limited, or no, proficiency in English. When children lose productive as well as receptive knowledge of their native language, communication barriers result. Moreover, given a population of preschool-aged children, such barriers can be disastrous as parents are then limited in their ability to socialize and teach their children during a critical period of early childhood social, cognitive, and linguistic development. In such instances, parents are left unable to transmit knowledge, cultural values, and belief systems effectively.

We need, therefore, to address issues centered around additive versus subtractive forms of bilingualism and the extent to which environmental factors and social forces dictate language acquisition and patterns of language usage. How can teachers effectively implement native languages in the preschool environment? How is this accomplished in a linguistically heterogeneous setting? Does bilingual education necessarily lead to a negative language shift? What factors are responsible for an absence of such a negative shift? Or as Hamers and Blanc (1989) state,

To what extent can an additive form of bilingualism 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? (p. 57).

Such are critical questions and concerns for future researchers to investigate.

### **Conclusion**

Some researchers, educators, and lay persons continue to maintain the belief that bilinguality impedes cognitive development. Palij and Homel (1987) propose two probable explanations: the lag in publication of relevant findings in research journals and in secondary sources, such as textbooks; and research on bilingualism and biculturalism has not

been a major focus of US psychology as is reflective of American culture's ambivalent perspective on language maintenance of minorities. However, as research in this field continues to define the relationship between bilingualism and cognition, perceptions and beliefs about the nature and significance of these links may be altered. Those educators committed to equitable education for limited English proficient students will need to advance a research agenda that incorporates explorations into the significant role of bilingual instruction at all levels of education, but particularly within a level largely ignored in language research, that of early childhood education.

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