The Importance of Being Bilingual

*The effects of bilingualism on cognitive development and the role of language valorisation*

B. A. Essay

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April 2012
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May 2012
Abstract

Supported by numerous studies, bilingualism has been linked to both cognitive advantages as well as disadvantages in children’s cognitive development. Previous data mostly revealed negative outcomes but following an increased emphasis on methodological precision during experiments, tables have turned and results have appeared both negative and positive (Diaz, 1983).

Research conducted by Bialystok (1999) has indicated increased concentration abilities among bilinguals, Hakuta and Diaz (1985) found a strong connection between the level of bilingual proficiency and cognitive flexibility, and Kovacs and Mehler (2009) discovered enhanced executive functioning amid bilinguals. However, studies have also implied the opposite where bilinguals have shown a delay in grammatical structure and vocabulary acquisition (Ben – Zeev, 1977). Attempting to explain this opposing evidence, Hamers and Blanc (2000) have contended for the importance of language valorisation and child’s social network which appear to play a paramount role in language acquisition. Moreover, Cummins has introduced two hypotheses in order to reveal an answer to the different outcomes concerning bilingualism (Hamers & Blanc, 2000). Basing their model on Lambert’s distinction between a subtractive and additive type of bilingualism, Hamers and Blanc (2000) argue for the importance of children’s social environments which must be adequate in bilingual development. The goal here is to shed a light on bilingualism and its effect on children’s cognitive development in accordance with the available data. Furthermore, a few theories concerning the reasons why bilingualism influences children the way it does will be introduced.

Evidently, bilingualism as a subject is complex and determining clear distinctions and definitions has proven difficult. Therefore, reaching absolute and undeniable answers may be problematic. Even still, studies suggesting a positive relationship between bilingualism and cognitive development far outnumber the ones indicating the opposite, where social networks and language valorisation play paramount roles in determining level of bilingual proficiency.
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Preface

As globalization and population movements are increasing, different cultures inevitably come into more contact with each other resulting in growing numbers of multicultural societies (Hamers & Blanc, 2000). These mixed communities lead to multilingual families and children who identify themselves with more than one culture and in many instances use different languages for each parent; that is they become bilingual. Skutnabb-Kangas and McCarty (2008) maintain that a bilingual possesses “proficiency in and use of two or more languages by an individual; the term does not always imply an equally high level of proficiency in all the relevant languages” (p. 2). Although there appear to be various definitions of the concept, the one given by Skutnabb – Kangass and McCarty will be applied here in instances where “bilingualism” is mentioned.

Studies of the relationship between bilingualism and intelligence commenced around the 1920s and were based on psychometric tests of intelligence. During those times it was a commonly held belief that children should not be encouraged to master two languages simultaneously as it could lead to an intellectual and cognitive disadvantage as well as linguistic confusion (Diaz, 1983). These ideas were indeed supported by evidence where bilinguals were believed to contract a “language handicap” (Diaz, 1983, p. 25). As a consequence of this “language handicap” bilingual children were considered to suffer from increased social isolation as they appeared to have difficulties in identifying themselves with either language group. Notably, the psychometric tests, on which these findings were based, were not questioned for validity. The issues related to bilingual children were directly connected with bilingualism serving as the main cause and therefore regarded as a negative addition for a child to possess. By “children” is meant all young individuals ranging from birth until approximately 11 years of age. The age 11 is chosen as it is approximately at the onset of puberty which has been regarded around the end of the “critical period”. During the critical period, children are considered to be most susceptible to language learning and acquiring native-like fluency which decreases with age, possibly due maturational changes in the brain (Bialystok, 2001).

The turning point came in 1962 with the publication of a study by Peal and Lambert who emphasized the importance of a systematic methodological approach. Their results
indicated that bilinguals do not suffer from any negative effects of bilingualism on their cognitive and metalinguistic development. In fact, most studies from their publication point to a positive impact. On the contrary, some investigators such as Tsushima and Hogan, have reached the opposite conclusion where bilingualism negatively affected children’s verbal ability and school achievement (1975). Nevertheless, most investigations have implied a positive link between bilingualism and cognitive development.

These assertions have lead to the encouragement of children becoming bilingual, whether or not the family is multicultural, which has resulted in bilingual individuals outnumbering monolinguals according to today’s estimations (Hamers, 2004). Whether or not a child grows up in a multicultural society the presence of certain factors around the child is paramount in his or her language acquisition and the way the learned forms are put into function. Several studies have indicated the importance of language valorisation in a child’s bilingual development during the acquisition of a second language. Although many studies illustrate a positive impact of bilingualism on children’s cognitive development, there are also some data demonstrating the opposite results. Despite these different outcomes, most researchers agree on the significant role played by the child’s social network and language valorisation on his or her bilingual development.
1  Bilingualism Studies

With rising interest in psychometric intelligence examinations in the early 1920s, systematic studies of the relationship between bilingualism and intelligence increased. To begin with, early research indicated a negative connection between the two, or even more drastically, “a language handicap” (Diaz, 1983, p. 25) among bilinguals compared with their monolingual counterparts. Interestingly, the results were directly traced to bilingualism as the leading cause for the deficiencies and not to methodological issues or inaccurate tests. As the results were entirely based on psychometric tests, other variables such as the subject’s background and socioeconomic status were disregarded. These variables are today considered highly influential in a child’s cognitive development process. Additionally, the degree of bilingualism was determined by “foreignness of parents”, family names or even residency which are variables too unstable and inaccurate to be accounted for in a scientific research. Therefore, previous results based on imprecise measured tests have been criticized or even deemed invalid (Diaz, 1983, p.26).

With the publication of Peal and Lambert’s study on the comparison between bilingual and monolingual children in 1962, the ideology of bilingualism drastically changed (Hakuta & Diaz, 1985). The difference between Peal and Lambert’s research and previous ones was mostly in the accuracy of measurements and choice of subjects. Firstly, Peal and Lambert used examinations in an attempt to determine the level of the bilingual children’s language proficiencies in each language. Secondly, they applied multiple intelligence tests as well as tasks on verbal and nonverbal abilities (Diaz, 1983). The results of their research showed the opposite of prior beliefs where there appeared to be a positive relationship between bilingualism and intellectual functioning as well as bilinguals scoring significantly higher on intelligence tests (Hamers & Blanc, 2000). According to Hakuta and Diaz

the results served to allay commonly held fears concerning the products of bilingual education, namely, that it would produce retarded, poorly educated, anomic individuals without affiliation to either ethnolinguistic group and incapable of functioning in either language (Tucker & d’Anglejan, 1971). Bilingual education would not create, the study assured, a social or cognitive Frankenstein. (p. 320)
The reason for this different outcome has been traced to the care which was taken in the way the research was conducted; ensuring that each concept and aspect in the study was clearly defined (Hamers & Blanc, 2000). As a result, other researchers investigating bilingualism were forced to identify and define concepts as well as choosing participants with increased accuracy. The interest of bilingualism and its effects on children’s cognitive and metalinguistic development has been present for a lengthy period of time where diverse ideologies have been presented. With the Peal and Lambert study in the second half of the 20th century, an important contribution was given to the field of bilingualism and the methodological problems associated with it, mainly the clarifications of definitions. In particular it was the distinction made by Peal and Lambert between balanced bilinguals and pseudobilinguals that became a much needed input to the field of bilingualism (Hakuta and Diaz, 1985).

As a consequence of this distinction, greater focus has been put on the relationship between children’s two separate linguistic competences (Hamers & Blanc, 2000). This has in turn led to an increased and more detailed understanding of the nature of bilingualism. Hamers and Blanc define a balanced bilingual as an individual who is equivalently competent in each language, and a dominant bilingual (or a pseudobilingual as referred to by Peal and Lambert), as someone who possesses superior competence in one language than the other which is more often the individual’s mother tongue. In other words, for a balanced bilingual the formula would be L1=L2 but for a dominant one, L1 > L2 or L2 > L1. Malakoff & Hakuta (1991) claim that balanced bilingualism appears to foster positive cognitive development in children, especially under adequate circumstances where both languages are supported by the community as well as society at large in an academic as well as an emotional manner.

Following the many studies on bilinguals and monolinguals which aim to discover cognitive differences between the two groups, Hakuta & Diaz (1985) have criticized the way in which participants are chosen. They assert that when subjects are selected, they never fully represent circumstances in the real world. They also claim that “bilingualism or monolingualism is determined by sociolinguistic facts that are, as would be true of most sociolinguistic facts, related to a wide range of social variables” (p. 329). Consequently the differences between monolinguals and bilinguals are greater and more complex than just one group (monolinguals) speaking one language and the other (bilinguals) two languages. According to Hakuta and Diaz the two linguistic groups are divided by more factors than the amount of languages they speak, such as background
and socioeconomic statuses, which can serve as variables affecting the outcomes of studies based solely on those two factors. Therefore it follows that for researchers to account for every possible variable can prove extremely difficult, or even impossible.

In order to solve this methodological problem, Hakuta & Diaz (1985) suggest that studies conducted on bilinguals in an attempt to discover their cognitive development should be within the bilingual group and not between monolinguals and bilinguals. They insist that

if degree of bilingualism can be reliably measured within a sample of children becoming bilingual and if this measure of degree can be shown to be related to cognitive flexibility, then one would have come one step closer to finding a pure relationship between bilingualism and cognitive flexibility. (p. 330)

Even within the two linguistic groups, bilingual and monolingual, there are different variables for which researchers should account if possible. This on the other hand may prove of immense difficulty as they are so many.

In an attempt to address these methodological issues and as a consequence of these interfering variables, Hakuta & Diaz (1985) conducted a longitudinal study within a Spanish dominant bilingual group. Participants were divided into groups based on their degree of bilingualism which was determined by tests designed to measure linguistic competence in each language. The result of their study indicated a strong relationship between the degree of bilingual proficiency and positive cognitive development, illustrating the importance of balanced form of bilingualism on a child’s cognitive development. The more balanced a child becomes in his or her bilingual proficiency, the more positive effects bilingualism has on the child’s cognition. Although the study only suggests the effects of bilingualism on children and does not account for all social factors which may serve as variables, it appears to give an idea of the advantage balanced bilinguals have over dominant ones. Moreover, as a longitudinal study where tests were repeated over a certain period of time, Diaz and Klingler (1991) maintain that “study examined the direction of causality between bilingualism and cognitive ability, testing two possible causal models through multiple-regression techniques. The data supported the model where children’s degree of bilingualism is the possible causal factor” (p. 171). Additionally, Diaz and Klingler demonstrate that as the participants of the study were immigrant children of low socioeconomic status, the disruptive influence of bilingualism on their cognitive abilities could be avoided with sufficient language valorisation and development through bilingual educational programs. Nevertheless, it
must be kept in mind that there are other factors which can affect the outcomes, but the research appears to be an indicator of the positive effects of bilingualism on cognitive development. As most studies have implied a strong relationship between bilingualism and cognitive advantages, it may be assumed that despite not perhaps being the main cause for these benefits, bilingualism is a strong indicator of a child's future cognitive abilities.

2 Bilingualism and children’s cognitive advantages

After the publication of the Peal and Lambert study in 1962, further research was conducted implying the same results, or a positive effect on children’s cognition caused by bilingualism. Most studies have provided empirical evidence on the cognitive advantage among bilingual children compared with their monolingual counterparts, particularly in high control tasks requiring increased cognitive flexibility (Bialystok, 1999). Deán (2003) defines flexible cognition as:

the dynamic construction and modification of representations and responses based on information (i.e., similarities, cues, relations) selected from the linguistic and nonlinguistic environment. That is, when there is a range of plausible ways to understand and respond to a problem, flexible thinkers select patterns that limit this range. The selected information must change over time as a function of shifting task demands. That is, as new problems and circumstances are imposed by the environment, the cognitive focus should shift to new, pertinent information. (p. 275 – 276)

This flexibility can be tested with changing task demands which are unpredictable or novel to the participant.

A study undertaken by Ellen Bialystok (1999) on cognitive complexities and attentional control among bilingual children supported the claim of bilingual cognitive advantages. Engle et al. define attentional control (2004) as a cognitive act applied effortfully and voluntarily in order to obstruct any information that is irrelevant or distracting, and suppress any response tendencies which are irrelevant to the task.

The research by Bialystok (1999) consisted of 60 children who were equally divided into two age groups ranging from 3,2 to 6,3 years of age and represented two linguistic groups. Half of the children were bilingual speakers of Chinese and English where their mastery in English differed but their Chinese was fluent. The other half
consisted of monolingual speakers of English. All the children had similar socioeconomic backgrounds and attended the same school. The children were given tasks in two separate sessions; PPVT-R and Visually-Cued Recall Task in the first session and the Moving Word Task and the Dimensional Change Card Sort Task in the second. The results correlated with Bialystok’s previously mentioned ideas as the children “were shown to have equivalent levels of receptive vocabulary (PPVT-R) and comparable capacity for working memory (Visually Cued Recall). Both these measures indicate a general equivalence of intelligence” (p. 641). However, when solving tasks in which the solution was made more complex with distracting information, the bilinguals showed better skills than the monolinguals. The study gives empirical support to the claim that bilingual children are more able to solve problems which are based on attention and opposing information (Bialystok, 1999). Consequently, this may indicate that bilingual children possess an increased advantage in problem solving requiring a high level of control, or selective attention.

Another study, one by Kovacs and Mehler (2009) on cognitive gains in 7-month-old bilingual infants, indicates enhanced executive control among bilinguals. According to the researchers, bilingual speakers are compelled to exercise their cognitive abilities in order to manage two languages in an effective manner. Furthermore, the same researchers refer to cognitive control or executive functions (EF) as “mechanisms involved in conflict monitoring, planning, attentional control, and the suppression (inhibition) of habitual responses” (p. 6556). In their study, Kovacs and Mehler discovered that despite both groups performing equally on a task testing learned responses, the bilinguals showed an increased capability on suppressing this previously learned response and update the anticipated action according to the changing demands of the task. This could indicate that even before language production begins bilinguals show better executive control than monolinguals. In addition, it appears that having to process more than one language from birth could be sufficient to improve executive control which can be considered a cognitive gain resulting from bilingualism. These conclusions support the findings of Bialystok presented above.

Another research, by Bialystok and Martin-Rhee (2008), revealed an increased ability in control of attention among bilingual children. Testing inhibitory control on French-English bilingual children showed that despite scoring lower on tests on receptive vocabulary, the bilinguals held a significantly greater advantage in complex tasks demanding control of attention than monolinguals. In this part of the study, the
children were given three tasks which differed in the amount of delay between the exposure to stimulus and the chance to respond. That is, the children were tested on the ability to respond to certain stimuli and the withholding of responses, or their attentional control. In contrast, when the same children were tested on inhibition of response which demands the execution of motor responses and less attentional control, the results were equivalent with the monolingual children. The authors explain the outcome by distinguishing “between bivalent displays which are comprised of two potentially conflicting dimensions, and univalent displays in which only a single feature is presented” (p. 85). Where the tasks in question were distracting and required a higher control over attention, or based on bivalent displays, the bilinguals outperformed the monolinguals whereas the univalent displays were equally resolved by both language groups. Bialystok and Martin-Rhee explain their findings explaining that bilingual children are constantly required to control their attention between two opposing and active language systems in order for communication to take place in the demanded language. Additionally, Martin-Rhee and Bialystok (2008) maintain that some developmental psychopathologies, such as attention deficit disorder and autistic spectrum disorder, have been linked to ineffectual inhibitory control. Based on these assertions, bilingualism can be regarded as an important factor in children’s developmental processes. As Martin-Rhee and Bialystok claim, bilingualism can enhance inhibitory control which in turn influences certain disorders in a positive manner. Therefore it follows that bilingualism could possibly serve as a factor in limiting the progression of these disorders but it must be stressed here that further research on this subject is necessary for validity. Nevertheless, bilingualism could be an important addition to the data needed in order to understand children’s developmental processes.

Other studies have demonstrated results giving further evidence to these assertions, such as a comprehensive research by Carlson and Meltzoff (2008) on executive functioning. The researchers discovered that bilinguals outperformed monolinguals on tasks requiring the management of conflicting attentional demands (conflict tasks). However, the two groups performed comparably on delay tasks which demand impulse control (Carlson & Meltzoff, 2008).

These outcomes have all supported the claim of bilinguals’ advance in their cognitive development and metalinguistic awareness resulting in a more advanced cognitive flexibility. Hamers and Blanc claim that it is the bilingual child’s ability to
alternate between and then manipulate two systems of symbols rather than one that causes this extensive cognitive flexibility and enhanced metalinguistic awareness. Other researchers maintain the same ideas, such as Hakuta and Diaz (1985) who claim that the bilinguals’ flexibility could be a result of abilities related to language, for example the language use in observing cognitive functioning or an early perception of its structural properties and conventionality. In addition, Vygotsky maintains that “bilingualism frees the mind from the prison of concrete language and phenomena” (Hakuta, 1985) which indicates the flexibility resulted by simultaneous language acquisition.

3 Bilingualism and negative cognitive effects

Although studies showing positive effects of bilingual development by far outnumber the ones indicating cognitive disadvantages, there are still some reporting a negative outcome. A study by Ben-Zeev (1977) implied that despite showing a good performance in tasks requiring verbal transformations and analyses of structural complexity, Spanish-English bilinguals appeared to show delay in grammatical structures and vocabulary acquisition (Lee, 1996). Another study was conducted by Hoff et al. (2011) on monolingually and bilingually developing children between the ages of 1;10 to 2;6. The monolinguals were exposed only to English whereas the bilinguals were surrounded by English and Spanish. The research showed that children who are exposed to two languages simultaneously do not typically acquire each language at the same rate as children only exposed to one language. Additionally, the study reported that dual language input affected both the children’s grammatical development as well as vocabulary. Importantly, the data reveals that despite language acquisition requiring more time among bilinguals than monolinguals, the gap between the two groups closes in about three months. Therefore, even though it takes longer to acquire one language than two, it does not take twice as long (Hoff et al., 2011). This same study indicates that if vocabulary knowledge among monolingual children is compared with bilinguals’ vocabulary in both languages, the result is that both groups are comparable. The difference is that monolinguals possess whole vocabulary in one language as opposed to bilinguals who have a vocabulary divided between two languages. These results are in agreement with Bialystok’s report concerning a study on 1700 children between the ages of 3 and 10, testing their English receptive vocabulary.
Children who spoke English along with another language scored lower on the tests than their monolingual counterparts. Despite these results, Bialystok (2010) maintains that there is no reason to believe that bilingual children have a smaller overall vocabulary – in fact, their combined vocabulary may be larger than that of monolinguals – or that they have poorer communicative ability than monolinguals, only that their vocabulary is distributed across two languages. (p. 561)

Following this further, Hamers & Blanc (2000) point out the importance of acknowledging the difference between monolinguals and bilinguals concerning the total amount of language exposure each group receives. They claim that it should not come as a surprise that monolinguals possess a richer vocabulary than bilinguals as their language input is limited to only one language. However, simultaneous bilinguals’ single-language productions in the dominant language are smaller than for monolinguals. Hamers and Blanc also maintain that in order for a child to develop a balanced form of bilingualism where the child possesses equivalent proficiency in both languages, between 40-60 per cent of exposure to each language is needed. This means that despite some studies revealing negative effects of bilingualism on children’s cognitive development, it is usually the child’s vocabulary that has suffered. However, evidence has shown that if vocabulary is measured based on the bilinguals’ two languages as opposed to only one, the outcome is that their language productions in both languages combined are comparable to the monolinguals’ amount of vocabulary in their only language. This is true given that all circumstances around the child are ideal and there are no first language interruptions during a child’s early literacy development. If, on the other hand, a child is forced to change language while he or she is still pre-literate, the interruption can lead to a change in language related cognitive development (Birna Arnbjörnsdóttir, 2011). According to Birna Arnbjörnsdóttir (2011), other reasons for negative effects of bilingualism on children’s cognitive development can be traced to confusion where there are discrepancies between L1 and L2 language behaviour or even among children who do not have access to the necessary educational resources. Otherwise, if a child has access to all the necessary resources and bilingual development is continuous and stable, combined vocabulary acquisition should be comparable between monolinguals and bilinguals.
4 Bilingualism and valorisation

Language serves as a tool for both communicative and cognitive purposes. It does not have an independent existence but is used as basis for a meaningful overall behaviour which is considered appropriate in a given culture (Hamers, 2004). Consequently, as language behaviour can be regarded as an outcome of societal factors on the individual level, so can language behaviour at the societal level be considered an outcome of individual language behaviour. Evidently, between these two types of language behaviours are constant interactions in which language valorisation plays a central role (Hamers, 2004). Hamers (2004) defines the concept of valorisation as “the attribution of certain positive values to language as a functional tool, that is as an instrument that will facilitate the fulfilment of social and cognitive functioning at all societal and individual levels” (p. 72). Norms and values are attributed to language by the people and the culture in which they exist. Families and tied knit networks encourage certain language behaviours through language valorisation and institutions enforce norms which are prevalent in the society (Birna Arnbjörnsdóttir, 2011). Therefore, language behaviour is controlled by these values and norms which vary between different cultures. As a consequence, a child’s social environment adopts the appropriate language behaviour as implied by the culture in which they live, which the child then learns to value and put into function, or dismiss.

In this vein, it is a child’s environment, his or her social network, which serves as the most influential factor in a child’s language behaviour and determines which features of a language the child will learn to appreciate and value. If one language is devalued in a bilingual child’s social environment, the child will most likely value more the higher esteemed language and disregard the other, which in turn determines the type and level of L1 or L2 proficiency the child will develop (Hamers & Blanc, 2000). In this way, a child’s social network plays a paramount role in the process of bilingual development.

According to Hamers and Blanc (2000), a social network includes all interpersonal relations established by an individual. This means that a child’s network consists of all the people with whom they interact in their closest environment, such as family, school and kindergarten, and can therefore be of various sizes. For example, a child who has many siblings, goes to school and plays sports most likely interacts with more people
than an only child living on a farm. Therefore, social network sizes vary according to
the child in question. Hamers and Blanc (2000) also claim that most studies related to
social networks, whether regarding language or not, demonstrate that “close-knit,
territorially based social networks act as norm-enforcement mechanisms by exerting
pressure on their members to adopt the network norms, values and behaviour, including
those pertaining to language” (Milroy, 1980 cited in Hamers & Blanc, 2000). For
example, Hamers (2004) mentions a mixed – lingual, well educated family. In this
family, both parents use each of their languages in communicating with the child. In this
environment, both languages are used for social purposes, basic communications for
everyday use, as well as cognitive functioning like for literacy – oriented activities
which can enhance a child’s cognitive organisation. Under such circumstances, both
languages are used for multiple functions (social and cognitive) and are equally valued
by both parents. Therefore, the child learns to attribute positive values to each language
and in turn use both languages for all functions, both social and cognitive. The child
will learn to valorise both languages and consider them interchangeable.

In some instances a child’s bilingualism is carefully planned, as in some mixed-
lingual families. These kinds of bilingualisms are mostly found in middle-class families
where parents often take great care in maintaining both languages and ensuring that they
are equally valorised. This is done in order to urge the child to develop a balanced and
additive form of bilingualism, often by applying Grammont’s Principle (Hamers &
Blanc, 2000). The principle is based on the idea that by separating contexts (languages),
bilingual acquisition is enhanced and the child therefore encouraged to master
simultaneously two different languages. However, if the context is mixed, that is the
same person uses different languages around the child, bilingualism is assumed to be
hindered. Supposedly, this can lead to a child using elements and rules from both
linguistic systems in the same utterance (interference). (Hamers & Blanc, 2000).

According to Grammont’s Principle, the home environment should “introduce a strict
‘one language – one person’ correspondence” (p. 62-63). Despite many people
following this idea, there are few, if any, studies that have given support to it. In fact
Hamers & Blanc (2000) argue that its application to bilingual children will have no
effect of their cognitive functioning. Far more important is the child’s social network
where the child has access to both linguistic systems in both communicative as well as
cognitive functions which must be sufficiently valorised in order for the child to gain an
additive and balanced form of bilingualism (Hamers & Blanc, 2000).
In a study from 1989, investigating the relationship between parental language use and child language mixing, Goodz wished to discover whether or not parents in mixed-lingual families would be capable of strict parent-language separation. Goodz concluded that despite parents’ belief that they were maintaining a strong separation, they were more likely to respond to their child’s language mixing by mixing themselves. As a consequence, Goodz deduced that there is a strong relationship between parents’ language behaviour on their children where parents provide input which children adopt (Lanza, 1997). This example shows the importance of bilingual children’s environment as the language behaviour and functions they witness is what forms their own conception of ideal behaviour and functions, which is not restricted to planned or coincidental bilingualism. The social network and its valorisation on appropriate language use appear to have the biggest influence on the way in which a bilingual child will come to put it into function.

However, as social norms vary between cultures, not all conventions are equally valued, and functions considered desirable in one surrounding may be frowned upon in another. Hamers (2004) maintains that in every society language is reviewed and put to use as a communicative and cognitive tool. However, certain functions of language are more valorised than others and this varies between cultures. For example the use of a highly valorised language in a family with restricted language competence, such as the use of a minority language in an immigrant family, or the use of literacy-oriented activities in an illiterate family. The functions serve little purpose and are therefore devalued (Hamers & Blanc, 2000). Following this further, Hamers and Blanc argue for the importance of feedback mechanism in regards with valorisation (2000).

A feedback mechanism is explained as a reaction to a child’s behaviour which can determine the value the child will come to attach to it. For example, if a child gets positive feedback when using a language in cognitive functions, the more motivated he or she will become in continuing to use the language in that particular function and in turn attach a positive value to it. Cognitive functions include the use of language in activities encouraging organising and analysing knowledge as well as learning and discovery (Hamers & Blanc, 2000). This means that the more successful a child proves to be in one function of a language, the more he or she will value it, hence, the child will become more motivated to use the language for that particular function (Hamers & Blanc, 2000). As well as feedback mechanism can lead to positive motivation it can also cause discouragement. If a child proves to show poor success in certain language
functions and receives negative reactions from his or her surroundings, the less motivated he or she will become and therefore avoids using the language for that specific purpose.

5 **Bilingualism: different forms**

This brings the focus to the importance of sociocultural context on language valorisation. Hamers & Blanc (2000) claim that it is the individual’s perception of both languages and their relative social status play the most important part. Moreover, the type of bilingualism a child will develop depends on his or her bilingual experience and the socio-cultural context in which it occurs. According to this, the type of bilingualism depends on the child’s closest environment during the process of language acquisition and the way in which the languages are perceived by the culture as those perceptions transfer onto the child. In order to explain this process and its results Lambert (1974) introduced a theory where a distinction is made between an additive and a subtractive form of bilingualism (Hamers & Blanc, 2000). If a child grows up surrounded by two different cultures and both languages bring complementary and positive elements to the child’s overall development, the result is an additive form of bilingualism. In these cases the learning of a second language (L2) does not affect the first language in negative ways or replace it and the positive values are attributed by the community as well as the family (Hamers & Blanc, 2000). This additive approach leads to the acquisition of a second language where all abilities in L1 remain intact; it does not suffer any negative consequences in the process (Lee, 1996). Hamers & Blanc (2000) also explain that when an additive form of bilingualism develops, both languages receive equal amounts of positive values from the community which in turn transfers onto the child; both languages are equally valorised.

As opposed to this form of bilingualism, a subtractive form is when the two languages in question compete rather than compliment the existence of the other. This can lead to a gradual loss of one language and a total replacement of the second one (Diaz & Klingler, 1991). In other words, one language is more valorised by the social network than the other which can lead to the development of subtractive form of bilingualism. This kind of bilingualism can occur for example when a child’s schooling takes place in his or her L2 which is also a more dominant language than L1 that is used at home, like among ethno-linguistic minorities. In other words, L1 receives little
valorisation from society compared with L2 (Hamers & Blanc, 2003). Apparently, Lambert’s theory indicates the importance of socio-cultural factors and the positive values societies attribute to the language in question. This in turn affects which form of bilingualism a child will develop and consequently its cognitive development. Although Lambert’s theory explains the nature of the relationship between determining social factors in bilingual development, it has also been criticized. According to Hamers & Blanc (2000) the theory lacks explanation on the development of socio-psychological mechanisms and other developmental processes which are paramount in children’s cognitive growth. As a result, the criticism it has faced is mostly based on the claims that it appears only to clarify what takes place, the consequences, as opposed to why. In other words, it is insufficient to say that bilingualism means cognitive advantage or that it equals cognitive deficit. The reasons why bilingualism affects children’s cognitive development, whether in positive or negative ways, are still unclear. There appear to be too many factors involved which must be taken into consideration in order to reveal a decisive answer. However, some ideas have been put forward in an attempt to clarify certain points, such as the concept of “semilingualism” (Hamers & Blanc, 2000).

The construct of “semilingualism” was introduced by Skutnabb – Kangas & Toukomaa (Hamers & Blanc, 2000). “Semilingualism” refers to a given point in the process of one language replacing another within subtractive situations (Diaz & Klingler, 2000). Hamers & Blanc (2000) claim that the concept has been used in order to describe a child who cannot reach monolingual proficiency in literacy skills in any of his or her languages and may even prove incapable of developing further linguistic abilities. Despite these constraints, ‘semilingual’ labelled children are not restricted in their basic use of language as a communicative tool and they show no failure in the matter in everyday life. In fact, ‘semilingual’ children have been shown to be quite fluent but their fluency appears to conceal the deficiency in their structural knowledge of both languages (Hamers & Blanc, 2000). Although the notion of ‘semilingualism’ has been used in order to explain a subtractive situation in bilingual development, it has also been heavily criticized. Hamers & Blanc (2000) claim that some definitions of the notion are ill-defined as well as insufficiently explained. More importantly, these deficits have been measured and compared with standardized criteria which have been set according to outcomes of traditional psychometric tests. This means that according to some previously set standards and test results, a person may be considered semilingual in one situation while regarded fully competent in another.
6 Bilingualism and Literacy

Particularly in the Western world, literacy is highly valorised in which school plays an important role. According to Hamers & Blanc (2000), a study by Landry & Allard on French – speaking minority setting in New Brunswick, demonstrates that there is a strong relationship between parental valorisation on the mother tongue and academic results; the more L1 is valorised, the better children achieved in school. Therefore it appears that negative perceptions of L1 by minority children can be prevented if their mother tongue (or L1) is adequately valorised in the child’s social network which in turn leads to better academic results. Another study by Long and Padilla (1970) showed that pupils obtained higher grades when their L1 was used in the household and fully valorised than when it was substituted for L2. Lee (1996) also mentions a study by Dube and Herbert from 1975 who discovered that when a child’s mother tongue was valued and used in the classroom, academic performance and linguistic proficiency increased. Seemingly, there is a strong relationship between language valorisation and cognitive development which in turn could be the key to better academic results. Based on these findings, if a child’s social network views bilingualism or the child’s L1 as a desirable asset it encourages proficiency and use which in turn enhances the child’s cognitive development and linguistic proficiency.

According to Hamers & Blanc (2000) there are two independent cognitive operations involved in literacy – oriented language use: firstly a person must analyse the knowledge and therefore manipulate the representations involved. Secondly it rests on cognitive control which is required in order to select and coordinate the information within a certain time frame. Evidently, both high levels of analysis information processing and control are necessary in those metalinguistic activities. Hamers and Blanc also assert that language is used in a contextualized manner in the beginning of a child’s development, such as when a child points at a desired object in order to get it; the referent and linguistic unit are both present. Further on in a child’s development, he or she learns to de-contextualize language where the meaning depends more on linguistic information as opposed to situational information such as through literacy. Reading and writing then lead to more complex processes, both cognitively and linguistically. These processes enhance cognitive organisation as the message’s every
element must be produced by the writer himself and expressed in his text (Hamers & Blanc, 2000).

This cognitive organisation serves as an advantage in a child’s cognitive development. With reference to Wells from 1985, Hamers and Blanc (2000) claim that according to Wells’ study, pre-schoolers who have learned the functions and mechanisms of de-contextualized languages are better equipped when attaining literacy in school. However, children from a literacy-oriented society who had no knowledge of de-contextualized language before schooling have shown to experience difficulties in cognitive organisation of academic tasks, either written or oral. The reasons for these advanced cognitive processes in bilingual children in relation to literacy are explained by Bialystok (2001). She claims that in order for a child to learn to read, understanding the meaning of the symbolic representation is necessary because written text is a symbol for the recording of spoken language. Writing on the other hand is different where children often appear to have difficulties in interpreting indirect symbol systems. A drawing of an object, a cat for example, can be changed to represent another cat in order to indicate a change in meaning. Altering the word “cat” however, like enlarging the font, has no effect on the referent (the concept cat) which proves difficult for children to comprehend. As a consequence, children need to learn to understand that there is a separation between words and their referents, that words are not embodied with their referents (e.g. the word water is not actually wet) and that associations between specific words and meanings can be altered (Bialystok, 2001). This process of learning to interpret indirect symbol systems serves as an important part of cognitive achievement and cognitive organisation. Consequently, children need to learn to be able to focus on the forms of the words and accept that words represent language.

Bialystok (2001) mentions a study by Ben-Zeev where children were requested to substitute we for spaghetti in the sentence ‘We are good children’. Ben-Zeev found that bilingual children were more capable than monolinguals in making this substitution, ignoring the meaning of the words and concentrating on the instructions. Bilinguals seemed to show more willingness to accept that the meaning of a word can be altered, that it is more an agreement rather than necessity. Bialystok also refers to Piaget’s experiment where children were asked whether it is possible to change the names for the sun and moon and if so, what the sky would look like in the night. Most children accepted the idea that changing names is in fact possible and that the sun could be in the sky at night. What majority of the children could not accept was that the sky would stay
dark and not become light (which it would of course, as only the words have been altered and not their meanings). Bilinguals have been reported to reach the understanding that specific words and their meanings can be altered, earlier than monolinguals which can be traced to the different cognitive organisational skills between the two groups (Bialystok, 2001). Testing this theory, Bialystok (2001) compared monolinguals’ and bilinguals’ ability in separating words and their meanings. She discovered that bilinguals comprehended this separation and reached an understanding of the task a year earlier than monolinguals. Seemingly, bilinguals show greater advantage in literacy attainment than monolinguals which can be explained as a consequence of their superior cognitive flexibility and word awareness.

### 7 Bilingualism hypotheses

Just as high valorisation can lead to greater academic outcomes, so the opposite can occur if the circumstances and encouragement are not sufficient. Furthermore, cultural differences must be taken into consideration as academic results appear to differ according to culture and society where some functions may be regarded desirable whereas in others they may not. In other words, values differ between cultures. Accordingly, children are taught and brought up in diverse environments with various methods which could influence the way in which measures are taken and the values attributed to certain language functions.

In an attempt to identify the reasons why some bilinguals fail to achieve high academic results in school, Cummins (1984) introduced two theories. He suggested that at the beginning of exposure to the second language (L2), the competence in L2 is a “function of the mother tongue” which he called the ‘Developmental Interdependence Hypothesis’ (Hamers & Blanc, 2000, p. 95). This hypothesis suggests that at the beginning of L2 exposure, L2 competence is a function of the competence of L1. If L1 language functions are adequately developed at the onset of L2 exposure, the child is likely to achieve high competence in L2 without affecting L1 in a negative manner. Conversely, if L1 is insufficiently developed when bilingual education begins, L2 competence will become low. In short, L1 and L2 literacy skills are, according to Cummins, interdependent.

His second explanation, or the ‘Minimal Threshold of Linguistic Competence Hypothesis’, holds that a threshold, or a certain level of linguistic competence in L1,
must be crossed before the beginning of L2 education in order to prevent negative influence on cognitive development (Hamers & Blanc, 2000). This first threshold is defined by Bournot-Trites and Tellowitz (2002) “as the level where the student can follow instructions in L2 and participate in basic social communication” (p. 9). If a child reaches this threshold, there will be no negative effects on his or her cognitive development. However, if the child fails to reach the first level (or threshold) he or she will not succeed in reaching average competence in each language (Hamers & Blanc, 2000). Furthermore, in order for cognitive growth to accelerate and be positive, a second and higher level of linguistic competence must be attained. Without reaching this level of increased competence, the influence will not become positive but remain neutral. This means that following sufficiently developed language functions in L1, competence in L2 will benefit given that the child’s exposure to L2 is adequate (Hamers & Blanc, 2000). Consequently, these hypotheses suggest that the cognitive functions acquired in L1 can be transferred to L2, and vice versa. In other words, high levels of competence in L1 enhance L2 acquisition and high levels of L2 competence positively affect L1 development. Both these hypotheses have been supported by a number of studies.

One research was conducted by Duncan & de Avila on Hispanic-minority school children in the USA. The bilingual children with high levels of proficiency in L1 and L2 were reported to outperform significantly monolinguals and other non-proficient bilingual children on cognitive tasks. All the children were chosen from the same sample with similar cultural backgrounds which makes the results more reliable (Hamers & Blanc, 2000). Another study conducted by Verhoeven (1994) in the Netherlands on Turkish immigrant children also showed a positive transfer concerning reading abilities between L1 and L2 (Bournot-Trites & Tellowitz, 2002). Cummins’ hypotheses can be useful as they are attempts to explain how bilingualism can be destructive as well as productive and beneficial for the child depending on his or her environment. If social surroundings are adequate and equally encourage the use of both languages (equally valorised), the child will benefit in his or her cognitive development. This is in turn important when considering the ways in which a child should be raised in a bilingual environment and sheds a light on the significance of parents’ language behaviour and valorisation which appears to transfer onto the child. Despite the hypotheses being supported by empirical evidence, there is still data reporting them insufficient.
According to Diaz (1985) a study revealed that the degree of bilingualism could predict cognitive changes in children who had low L2 proficiency, whereas such changes were less likely to occur to children with higher L2 proficiency. Based on these results, Diaz claims that an alternative hypothesis needs to be presented in order to explain how the degree of bilingualism predicts cognitive variance “only before a certain level of second-language proficiency has been achieved” (Cummins, 1985b cited in Lee, 1996, p. 1386). Garcia also criticizes the hypotheses arguing that basing bilingual (balanced or not) and monolingual cognitive performance on cognitively advantaged/disadvantaged conceptualization is not requisite. Instead, other factors should be taken into consideration such as intellectual functioning combined with social context and its support system for acquiring linguistic and academic skills. These should be looked at as factors responsible for different performances on cognitive criteria (Lee, 1996, p. 510).

As already mentioned, socio-cultural factors are big influences on bilingual children’s scholastic and linguistic achievements, whether it is in positive or negative ways. In minority groups where one language is less valued than the other, supposedly poor academic results can be traced to socio-cultural considerations but only up to certain parameters. Many children come from diverse cultural backgrounds where L1 is not valorised in their school environment and yet many of them do not suffer from any cognitive or linguistic disadvantages. According to Hamers (2004) immigrant children who are not below average socio-economic standards perform just as well as monolinguals on cognitive and linguistic tests. Attempting to explain these results, Hamers & Blanc (2000) introduced the ‘Socio-cultural and Cognitive Interdependence Hypothesis’. The two dimensions necessary in order for a child to attain an additive type of bilingualism are the development of language in its cognitive use and the valorisation of language and its functions. The differences between subtractive and additive bilingualism are considered on a continuum which are resultants of two dimensions. One dimension represents the cognitive aspects of language where the other concerns the amount of valorisation the child and society attach to language (see figure 1).
At the additive end of the continuum the child and society have attached high valorisation to the language and its cognitive function. More specifically “the ability to analyse language and control linguistic cues” is well developed (Hamers & Blanc, 2000, p. 107). On the opposite end of the continuum, the subtractive end, is a child who has not developed any literacy related skills in his or her first language which is also a devalued language. This child is required to attain these particular literacy skills in the second language which is the more valued language in society but not the child’s first language and he or she has therefore little or no knowledge in the particular language. Therefore, the child is more likely to develop a subtractive form of bilingualism.

The reasons why a bilingual in subtractive situation scores less on cognitive demanding tasks are, according to Hamers and Blanc (2000), threefold. Firstly, because of the low valorisation attached by society to the child’s L1, he or she has difficulties in perceiving the two languages as interchangeable and in turn incapable of using them for socially valorised functioning. Secondly, cognitive demanding tasks are introduced exclusively in the majority language, L2; the child may consider L2 as the only language appropriate for cognitive functioning. Thirdly, the child is required to learn
new language forms for language functioning he or she has not yet developed, as opposed to learning functioning before acquiring the form as is the case in first language development.

**Conclusion**

To sum up, it can be deduced that bilingualism is a complex field difficult to measure. Early investigations suggested bilingualism to affect negatively children’s language and cognitive development resulting in linguistic impairments, decreased intelligence and linguistic confusion. With the publication of Peal and Lambert’s research in 1962, these assertions were disregarded and improvements made in the way concepts were defined and subjects selected. In particular it was their distinction between balanced and dominant bilinguals that proved of great importance to future investigators. This distinction has given researchers an opportunity to experiment the differences among bilinguals with balanced language proficiency with clearer definitions and outcomes. This has resulted in scholars studying the subject of bilingualism to come one step closer in unmasking the causes and effects of bilingualism on children’s cognitive development.

As a consequence of the increased attention given to bilingualism and improved methodology, most research indicate a positive effect of bilingualism on children’s cognitive development. Some studies have demonstrated an increased cognitive flexibility; others have suggested better results on tasks requiring high control, selective attentional control, enhanced executive control and inhibitory control, among others. All these factors have been investigated by researchers and supported by empirical evidence. Moreover, literacy also appears to affect academic results in a positive manner. Therefore, there appears to be a strong link between balanced bilingualism and greater academic results.

Despite most studies illustrating positive effects of bilingualism on cognitive development, some demonstrate the opposite where the outcome is negative. Mostly these negative effects appear to affect children’s vocabulary as bilinguals have been reported to have poorer vocabulary than their monolingual counterparts. The main negative influences have been shown to be on literacy development when L1 proficiency is not developed alongside L2 proficiency.
There appear to be many influential processes involved in order for a child to succeed in becoming a balanced bilingual. Hamers and Blanc (2000) have argued for the importance of language valorisation, which can serve as a determining factor whether a child attains an additive type of bilingualism or a subtractive type. In these processes, it is a child’s social network which is suggested to be the most influential on bilingual proficiency, resulting in negative or positive effects on the child’s cognitive development. Cummins’ Interdependence Hypothesis implies that children need to reach certain levels of competence in L1 in order for L2 literacy not to suffer negative consequences. This idea has been further developed by Hamers and Blanc who present a hypothesis which emphasizes the importance of language valorisation in order for a child to reach an additive form of bilingualism which has been indicated to lead to positive cognitive effects.

Seemingly, bilingualism has many complicated factors which need to be taken into consideration when investigated. The study of bilingualism and its effects on children’s cognitive development still remains a fascinating subject with many implications which researchers struggle to identify. Although the data accumulated up until today may not yet expose all the complicated sides of bilingualism it certainly serves as important input in getting one step closer to understanding the field a little bit better.
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doi: 10.1.1.112.9315


doi: 10.1017/S136672890700322