

Bilingualism and Individuals' Cognitive and Emotional Development Issues and Answers

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Abstract:

Since the early 1940s considerable research literature has developed covering various aspects of bilingualism. Much of this research has centered round the impact of bilingualism on intellectual, academic, as well as emotional development of bilingual individuals. Others have been mainly concerned with the influence of being bilingual on the development of native tongue. The bulk of this research has consistently shown that bilingualism is detrimental effect and always stressed deficit dimensions in those aspects of development:

By the turn of the decade, the debate on bilingualism has taken a different trend. The pessimistic view has been outweighed by optimistic orientations. Studies done in North America and some other areas have shown that superiority of the monolinguals is far from being real, or at most is not attributed to the state of being monolingual. These findings have further complicated rather than clarified the issue. Guiding lights have come from a cognitive perspective relating language development (in general) to cognitive development. Interaction between the two spheres of development is worth consideration especially in relation to the likelihood of exploiting cognitive operations in the bilingual's language development, and of using the bilingual's mechanisms to resolve the interference between the two languages for the promotion of cognitive abilities.

The paper tackles two areas in bilingualism. The first area revolves around the relationship between bilingualism and the individual's intellectual and emotional development studies taking the pessimistic side are reviewed, issues behind adopting such stand are analysed. Studies of bilingualism holding the optimistic point of view are pointed out. Justifications, advocating such view are stated,; as well, the second area sheds light on the cognitive functioning of the bilingual child. Types of bilinguals are stated, challenges for acquiring two languages at a time are pointed out, along with strategies assumed to be used by the bilingual child. Implication for such review are stated to be taken into consideration by those concerned in bilingual education.

Introduction:

The paper aims to investigate two areas in child bilingualism, viz, the impact of bilingualism on the individual's intellectual and emotional development, and the cognitive functioning of the bilingual child. The first area is tackled through a review of the literature pertaining to both the pessimistic and the optimistic points of view along with issues raised for both views. The second area sheds light on the cognitive functioning of the bilingual child along with the issues related to the strategies assumed to be used by him.

Bilingualism and the Individual's Intellectual and Emotional Development

Does early bilingualism have a detrimental effect on a child's intellectual and emotional development? What happens to a child's academic progress if a second language different from the native language acquired earlier is used as a medium of teaching? These questions have always been the core of many speculations. The picture has always been unfavorable for bilinguals, especially in the research done before the World War II. In the post World War era, the number of studies favorable to bilingual education showed a proportional increase. This part of the paper tries to review some of the studies as well as the issues raised by both trends to substantiate their results.

The Pessimistic View of Bilingualism

Before the 1950's almost all reported studies conclude that bilinguals typically show poorer performance on the verbal types of intelligence tests. Indeed, many researchers have tried to find whether this is due to some handicaps in linguistic skills. Others have suspected the possibility that bilingualism causes a high incidence of emotional maladjustment. Yet in spite of the close association between bilingualism and such retardation, contradictory results make it difficult to determine the nature of this association.

Bilingualism and the intellectual functioning: The common procedure used in many studies on the relationship between bilingualism and intelligence is to compare the performance of bilinguals on verbal tests and on nonverbal tasks of intelligence. The underlying assumption for this procedure is that bilinguals would perform more poorly on verbal tests than on nonverbal tasks because of their 'linguistic handicap'. Another procedure, which is more commonly used, is to administer tests of intelligence to bilingual and monolingual children and compare the results. The underlying assumption is that bilinguals would show poorer performance on either verbal tests or both verbal and nonverbal ones than the monolinguals. Many of these studies are cross-sectional and have led to contradictory results.

The inferiority of the bilinguals to the monolinguals in their achievement on intelligence tests, particularly on verbal tests, has been reported in some early studies. Smith (1923) carried out a three-year investigation to test the assertion that bilinguals in Welsh rural areas are mentally superior to monoglots in the large towns of

South Wales. He concluded that monoglot children, between the ages of 8 and 11, make better progress than bilingual children in their power of expression, their choice of vocabulary and their accuracy of thought. So, far from being an 'intellectual advantage', bilingualism seems to be exactly the reverse, at least under the organization of schools in Wales at that time. These results were replicated by Saer (1923). He conducted a large-scale study and compared 1,400 monolingual and bilingual children in rural areas in Wales using the Stanford-Binet I.Q. Test. Results show that the bilinguals are inferior to the monolinguals and their inferiority appears to be of a 'permanent' nature as it becomes consistently greater with each year from 7 to 11 years. Yet, this difference between monoglots and bilinguals turns out to be 'inconsiderable' in urban areas. The author suggested that the children in rural areas learned English slowly and laboriously at school before they had completely mastered Welsh, while the children in the urban areas learned English at play effortlessly. Thus there is a possibility that the bilingual children in the rural areas were not proficient in English when they were tested. These studies cannot be judged as true experimental designs, since the two groups were not matched in all variables but bilingualism on one hand, on the other hand, the investigators seem to neglect some relevant factors such as the circumstances in which both groups learned their second language.

In the U.S.A. some of the early studies (Graham, 1925; Mead, 1927) reveal this inferiority of the bilinguals to the monolinguals in achievement on intelligence tests. These tests have been standardized on English-speaking children, and then translated into other languages for testing bilingual children. This might be a point of weakness regarding the validity of these tests. Moreover, many of the bilingual children tested were children of immigrants of low socioeconomic class. Such children, even the monolinguals, typically score low on these tests. Further, the children were tested before they had adequately mastered English and their mother tongue was merely a home language not a literary language properly taught at school.

The unfavorable effect has also been revealed, but in a rather milder tone, in other studies. Arsenian (1937) summarized the results of 32 reports of evaluations of bilingual situations. Of these 32, only 4 reported "no language handicap" among bilinguals tested. However, he suggested that these results are not sufficient for any definite generalizations regarding the intellectual advantages or disadvantages of bilingualism in the various localities where the experiments were carried out. Besides, most of these studies have neglected a factor which proved to be an important one. This factor is the socioeconomic status of the children tested. Arsenian tried to avoid the shortcomings he found in most of the studies he reviewed. He used the Hoffman Bilingual Schedule to determine the extent of the bilingual background of the child and the Pinter Non-language Test and the Spearman Educational or Visual Relationship Test for the measurement of intelligence. The investigator administered the intelligence tests on more than 2000 students, aged 9 through 14, then he divided them according to their responses to the Hoffman questionnaire. Students scoring 80% or higher were assigned to an experimental group, and the bottom 20% were assigned to his monolingual control group. Because all pupils evaluated attended the same two New York City schools and had their homes in the same

neighborhood, Arsenian believed he had reduced the ethnic and racial variables to near zero. He also factored out the socioeconomic factor using a system of weighted scoring of all questions about homelife and social class status. In this study Arsenian was concerned mainly with the native-born Italian and Jewish children, 1,152 and 1,196 in number, respectively. They form the main groups who participated in the study. Arsenian concluded that he found no significant cause-and-effect relationship between bilingualism and I.Q. Yet, it is worth mentioning that according to the Pinter Nonlanguage Test, in the Italian group, the average age-grade status of the bilinguals is noticeably lower, indicating a possible handicap that they may have in their progress. As the author pointed out, the results should be interpreted strictly in terms of the specific population under investigation. Moreover, he noted that effective elements are inseparably merged with any language and their influence most probably bears relation to bilingualism and its concomitant behaviors.

It is interesting that one of the well-planned studies done on the relationship between bilingualism and intelligence has led to contradictory findings, as had Darcy's study (1946). She conducted a series of research experiments on 212 children of preschool age ($2\frac{1}{2}$ - $4\frac{1}{2}$) in 10 nursery schools in Brooklyn, N.Y. The experimental group of 106 bilinguals (Italian in home - English outside) and the control group of 106 monoglots (English in and out of home) were divided into 4 age levels of 6 months each and, at each age level, matched in number, gender, and father's socioeconomic status. She used the 1937 Stanford-Binet, Form L (verbal) and the Atkins Object-Fitting Test (nonverbal). The tests were administered with an interval of less than 36 hours, while the order of test administration was balanced. On the Stanford-Binet, the monoglot (control) group showed a significantly higher performance than that of the bilingual (experimental) group. Gender difference was nonsignificant in both groups. On the other hand, the experimental group showed a significantly higher performance on the Atkins Test than did the control group. Here again the gender difference was nonsignificant. The observed tendency for the monoglots to be superior to the bilinguals on the Stanford-Binet but inferior on the Atkins was consistently observed in each age and gender group both in terms of I.Q. and M.A. When the correlation between the Stanford-Binet and the Atkins was computed it was found to be 61 for the bilinguals and 62 for the monoglots. These values are too low to warrant the substitution of one scale for the other, but they are statistically significant, thus suggesting that the two scales are measuring the same functions to a large extent. As a result of such contradictory findings, Darcy drew the cautious conclusion that although these bilinguals probably had as great an intellectual capacity as the monolinguals, they probably suffered from 'a language handicap' that affected their verbal responses. In her view, however, such a disability at so early an age was unlikely to persist after elementary school.

By the turn of the decade, Darcy (1953) reviewed about 40 bilingual studies. Of these only two showed a positive correlation between fluency in two languages and intelligence (Davis & Hughes, 1927; Stark, 1940). It is noteworthy that the first of these studies was judged worthless because the researchers had neglected to control such important variables as socioeconomic status and degree of bilingualism. The second study was not without flaws in the samples and the norms.

Studies like Darcy's (1946) seem to suggest that not only are verbal intelligence measurements intrinsically unfair to bilinguals, but also some kind of performance test is a more satisfactory means for evaluating preschool youngsters. In either case, more controlled experiments are needed before any educator could be certain he or she is doing the right things by recommending a bilingual program.

"Most studies which relate bilingualism to language handicaps do not define intelligence this carefully. In fact, most studies which try to determine the consequence of language handicap are only correlational, so even without bilingualism as complicating factor, it is difficult to determine causation", (Ben - zeev, 1984:56).

In general, findings supporting the superiority of the monoglots outweigh those supporting the superiority of the bilinguals or even the no-difference data. The picture was still as dim as ever for those supporting bilingual education. Yet the contradictory results led to questioning the instruments and the experimental designs which was a healthy sign that boosted more scientific research.

Bilingualism have shown some vocabulary deficit regardless of their language-processing level (Ben - zeev, 1975; Rosenblum & Pinker, 1983). Word references may be less for a bilingual child than a monolingual one; if this is accredited to be the case, bilingualism can then be considered crucial in determining such deficit. Yet vocabulary deficit can be due to different reasons which differ according to the state of the child. Being bilingual is different from being linguistically disabled. Moreover, results from most studies indicating such deficit can be easily discounted for lack of essential controls. (Ben - Zeev, 1984).

Bilingualism and emotional development. Does the state of being bilingual have an effect on the emotional adjustment of the person in the society? Do bilinguals assume different personalities when they speak their two languages? Some researchers have been concerned with the effect of being bilingual on one's emotional development

Earlier research shows a deep underlying home maladjustment and feelings of social inferiority on the part of the bilingual child. Nevertheless, suggestions from these studies show that emotional maladjustment of bilingual students seems to be due more to cultural conflict rather than to the fact that they were brought up in a two-language environment

Spoerl (1943) studied various aspects of emotional adjustment at college level as functions of the experience of having been brought up through childhood in a bilingual environment. Her subjects were 101 bilingual (experimental) and 101 monolingual (control) students enrolled at the American International College during the fall semesters of 1939, 1940 and 1941. Of her subjects 69 bilinguals and 96 monolinguals were of the survey group, while the rest of them, 32 bilinguals and 32 monolinguals, were of the Intensive Study group. In the Survey group, the two parties were

matched on the result of Henmon-Nelson Test, age, and gender, but not for socioeconomic status, but the subgroups of the Intensive Study group were matched on all these factors. Studying the emotional adjustment in the Survey group revealed a possible emotional maladjustment as the most important differentiating factor between the bilingual and the control group. This was shown by their answers on the Bell Adjustment Inventory. Spoerl turned to the Intensive Study group and administered four tests; these are the Allport-Vernon Study of Values, The Bogardus Test of Social Distance, the modified Kent-Rosanoff Association Test, and the Morgan-Murray Thematic Apperception Test (TAT). The results showed the more intensive family conflicts were among the bilinguals rather than among the monoglots. Although Spoerl's data are not conclusive, her concept of cultural conflicts as the major source of difficulty is quite palusible if we can keep the fact that the tests were administered in the second language in the background of our picture.

Bentahila (1983) reviewed studies of bilingualism in North Africa. He concluded that it is difficult to determine whether bilingualism is primarily a source of enrichment or a source of psychological problems. In a rather comprehensive study, results have shown that the use of both French and Arabic in Moroccan society is accompanied by "a complex network of associations involving the images of the two languages and of thier users, the material presented through them, and the cultures they are felt to represent. These attitudes cannot be expected to remain static" ; (Bentahila, 1983: 167). In another review of research studies on the effect of immersion programmes, Genesee (1973) suggested that results raise doubts regarding the meaningfulness of main effect. Other variables, mostly attitudinal or social, interact with the experience of being subjected to immersion programmes. Such contention has been propagated for remedial procedure intended for bilingual language - disordered children. "Certainly, it would be a shame, if having found answers, the favourable social - political atmosphere for the achievement of remedial objectives did not exit"; (Miller & Abudarham, 1984: 198).

An extensive report issued by ALESCO in Tunisia July, 1983 reviewed various studies related to the impact of learning a second language on the development of the first one, in different cultures. Major findings supported Cunmins' hypothesis indicating that: (a). individuals, success in L2 depends on the level they attain in L1; and (b). the level reached in mastering the two languages determines the effect of bilingualism on intellectual and academic aspects. The report also stated that findings of various studies in different Arab Countries have revealed the presence of "problems" leading to underachievement in mother tongue. It has been suggested that different variables - none is linguistic - contribute to such findings. These variables are either pertaining to research methods, teaching methods or social, political, attitudinal ones, (Al - Maamuri, et al, 1984).

In short, the previous study reveals a rather pessimistic look toward bilingualism, This look is based on the results of administering tests to two groups; one monolingual and the other bilingual, after trying to match them on all possible factors, but many relevant factors have been ignored either because of the inability to control

them or as a result of poor design. Moreover, most of the bilinguals studied were immigrant children, who had diverse languages as their mother tongues. These children may have been undergoing economic and emotional instability associated with changes in their environment and language.

Issues Behind the Unfavorable Effect of Bilingualism

The previously mentioned studies have dealt with the effect of bilingualism through an attempt to equate the monolingual and the bilingual groups on all factors but bilingualism, which they considered the differentiating factor between their responses. Researchers have tried to substantiate these conclusions by suggesting reasons for that unfavorable effect of bilingualism such as the "Brain effort", "Linguistic interference", "Time", and "sociological factors".

Jeperson (1922) speaks of the "Brain effort" as if it were a constant that is adequate for learning one language and cannot be as adequate for learning two, a point that seems incorrect from Penfield and Roberts' findings (1959). They suggest that the mechanism that is developed in the brain is the same whether one, two, or more languages are learned. Judgments that were made about patients who suffered from brain injury and used only one language after recovery do not imply different areas for the two languages. Penfield attributes this either to inadequate conclusion or if really present to psychological reasons.

Researchers attribute that unfavorable effect of bilingualism to what called "Linguistic interference". (Aziz, 1974 a,b; Boseiri, 1966, Dannan, 1984; Qandil, 1969; Weinreich, 1953). Bilinguals sometimes have to fight a tendency for the phonological lexical and syntactic systems of one language to intrude on those of another. Verbs of a particular language are not mere words of actions, they tend to incorporate within them syntactic elements pertaining only to this language. Thus it is not suitable to assume that a verb in a certain language will not associate such syntactic elements to its counterpart in the second language; (Talmy, 1984).

According to Weinreich (1953), the more numerous the mutually exclusive forms and patterns in each, the greater is the learning problem and the potential area of interference". (p.1) This statement has been rejected by Taylor (1976) as not helpful. When she considered Japanese and English, she found that the types and amount of interference were not symmetrical between the two languages. Macnamara (1967) reviewed reports of linguistic interference and concluded that the causes of language interference were a 'puzzle' that needed further research before taking it as a basis for any inferences.

Cummins (1979) has advocated a threshold theory of bilingualism effect indicating that the trend of such effect (positive, negative, or neutral) depends on the extent to which the bilingual has achieved understanding of his/her language as a system. Various variables intervene in determining such extent and specifying its level.

Another cause behind the inferiority of the bilinguals to the monolinguals in the previous studies has been suggested by some researchers as sociological and cultural factors (Ervin & Miller, 1963; Jakobovitz, 1970; Picke 1969; Spolsky, 1969). The focus of research in this trend is on the study of language in its social context and more attention is paid to the role of discourse in language acquisition. These researchers throw more weight on the cultural variability, the availability of non-availability or references, the psychological realities of the linguistic structures, the attitude of the learner and the motivation orienting him/her to learn the second language, and the attitude of the communicating persons, than on the linguistic differences.

Macnamara (1963) suggests the 'time' factor, stating that bilingual children were so often found inferior to monoglots because bilinguals must divide between two languages the time monoglots devote to one language.

As for the emotional effect of introducing a second language. Cohen (1975) suggests that the first language and self-esteem of the child are so tied together that they cannot be separated. If you replace the native language of the child with English (which very often happens) you are saying to her/him that her/his language is not as good, less important, or not useful. Because language is an integral part of the personality, any affront to this language is a blow to the person's self-esteem.

Thus a review of the early literature on the consequences of becoming a bilingual reveals a generally pessimistic outlook on the effects of bilingualism. What seems to have happened is that researchers obtained results which supported their expectations. They generally expected to find all sorts of troubles, and they usually did: bilingual children, relative to monolinguals, were behind in school, retarded in measured intelligence, and socially adrift. In most of these early studies, researchers did not take due care to check out all the essentials before comparing monolinguals and bilinguals. Factors such as social class background and educational opportunities were not controlled, nor was much attention given to determining how bilingual or monolingual the comparison groups actually were. Other sociological and psychological factors such as the attitude of the bilingual group toward the second language and its culture were ignored. But even though there were grounds for worrying about the adequacy of many of these studies, the results, nonetheless, were remarkably clear: the largest portion of these investigations concluded that bilingualism has a detrimental effect on intellectual functioning; a small number found little or no relation between bilingualism and intelligence.

The Optimistic Outlook

The notion that bilingualism is causing an intellectual inferiority has not been a pleasant one for many educators. They see a large proportion of the world's population is, by the exigencies of life, bound to be bilingual, and it is their responsibility to see what they can do to help them become so. New attempts have been made to pinpoint whatever intellectual components of that bilingual deficit might be in order to develop compensatory strategies. Forewarned about the innumerable psychological and linguistic pitfalls awaiting any researcher in the bilingual field, investigators tried

to overcome most of the shortcomings noted in the earlier research. the results were surprisingly in favor of bilingualism. In the following section, studies showing a favorable effect of bilingualism on the intellectual and emotional development of the bilingual child are reviewed.

Bilingualism and the intellectual functioning.

The new outlook on the effect of bilingualism on intellectual development gained much light in the post World War II era as the number of studies favorable to bilingual education showed proportional increase. Yet, the turning point in bilingual research may have passed unnoticed with the publication of Spoerl's work in 1944. Spoerl (1944) conducted an investigation in order to determine the effect of being bilingual upon the measurement of intelligence and upon the academic achievement of selected groups of students at The American International College, in the fall of 1939, and in the fall of 1940. A "Survey group" of 69 bilingual students and an "Intensive study group" of 32 bilingual students were matched with corresponding numbers of monolingual students with respect to gender, age, socioeconomic status, and intelligence as measure by the Herman-Nelson Test of Mental Ability. The experimental and control groups were then given the 1937 revision of the Stanford-Binet Intelligence Examination, Form I, and the Purdue Placement Test in English. Records of the subjects' academic achievement throughout their school careers were also studied. Spoerl found no significant difference between the performance of the two groups on these scales; but a study of the records of academic achievement revealed that the bilingual students were found to do consistently better academic work throughout both semesters of their first college year. This means that even if there were a bilingual handicap in childhood functioning in either academic or verbal adjustments, it has certainly become stabilized by the first year of college. However, it must be remembered that the investigator had previously matched the two groups on the basis of scores achieved in the Herman-Nelson Test of Mental Ability.

Thus for the first time and under approved testing procedure, bilingualism was recognized as a possible contributory factor to higher academic achievement. Gradually as more sophisticated methods were introduced, the number of studies advocating this optimistic outlook showed a proportional increase. Leopold (1949), as Ronjat had a full generation earlier (1913), used his own child as a subject. He credited bilingual training for having helped his little girl separate the sound of a word from its referent; as she heard the same things referred to by different words. The same notion has been recorded by Evans (1953), who welcomed bilingualism because learning two languages simultaneously "frees the mind from the tyranny of words" (p.3).

Leopold's contention that bilinguals separate word sound from word meaning earlier than do monolinguals has been tested by Ianco Worrall (1970). She used a semantic and phonetic preference test, a two choice test in which similarity between words could be interpreted on the basis of shared meaning or shared sounds. A test item might be: "I have three words - 'cap', 'can' and 'hat', which of 'can' and 'hat' is

more like 'cap'?" She compared 30 African-English bilinguals aged 4 - 6 and 7 - 9 to two control groups: one monolingual English and another monolingual African. The bilingual subjects excelled over unilinguals not only in separating word sound from word meaning; but also where the question was whether names were arbitrarily assigned to things, an ability that develops later than the ability to separate the qualities of objects from their names.

Another evidence that bilinguals may analyze language more intensively than monolinguals comes from two other studies made by Ben-Zeev; one on Hebrew-English bilinguals (1972) and the other on Spanish-English bilinguals (1975). She had 98 and 188 participants, respectively. Her criterion for selection was performance on a translation test, in which the child must translate sentences from each language into the other language, where word-for-word translation is impossible. The Hebrew-English study findings replicate Worrall's results. Hebrew-English bilinguals were found capable at an earlier age than other children of separating the meaning of a word from its sound and of playing with words; an ability that results from an increased analysis of language. The Spanish-English bilinguals, despite not showing superiority in performing this type of work; a deficiency that probably can be attributed to the lower socioeconomic level of the sample, made significantly fewer errors of a global primitive type.

In both studies of Ben-Zeev, the superiority of the bilinguals on the symbol substitution task is contrasted with their inferiority in vocabulary performance on the Peabody Picture Vocabulary Test, when compared with monolinguals. This deficiency has been attributed to the lack of experience. For the Spanish-English study, samples of the child's storytelling were taken and analyzed for grammatical mistakes on all the measures; however, their sentences were as complex as those of the monolinguals as measured by percentage of clausal sentences.

Another persuasive study dealing with the possible effects that becoming bilingual might have on the cognitive development of children was completed by Sheridan Scott (1973) on French-English bilinguals in Montreal. Her data were collected over a seven years period from two groups of English Canadian children, one that attended a French-immersion program and another that followed a conventional English language education program. Her result show the superiority of the bilingual group to the control group in 'divergent thinking' and this led her to suggest a causal link between bilingualism and cognitive flexibility. Many long-term, systemic studies on bilingualism have been carried out in Canada. In collaboration with co-workers on the McGill University faculty, Wallace Lambert has sought to dispel some of the misconceptions surrounding bilingual education by organizing an entirely bilingual curriculum at the St. Lambert School in Montreal. This program, which started in 1965, has been thoroughly examined and has served as a model for similar programs in different localities. In a clear reversal of earlier case histories, the Canadian team found that bilinguals, as a group, performed better than monolinguals on verbal and nonverbal intelligence tests (Peal & Lambert, 1962). Lambert and his associates (Bruck, Lambert, & Tucker, 1973) compared the I.Q. and academic progress of

children in the French-immersion program from year to year for seven years against that of two control groups. One control group consisted of English-speaking children following the traditional English language program, the other of French-speaking children following the conventional French language program. These two control groups were similar to the immersion group in social class and intelligence. Their findings revealed that the immersion group performed as well as or better than the controls.

Other Canadian studies on French - English bilinguals (Barik & Swain, 1972, Edwards & Caserly, 1973, Lambert & Tucker, 1972) have concluded that, in general, there is no retardation found when intelligence and achievement of French-immersion group was measured by standardized tests in both languages. Edwards and Caserly (1973) concluded that, apart from reading and spelling, "increased working exposure by basically Anglophone children to a second language benefits not only the acquisition of the second language but also the development of the mother tongue" (P.94)

In other localities involving other pairs of language malherbe (1969) found favorable effects using English as a medium of teaching for African - speaking children in south Africa. In the United States, Cohen (1974) and Richardson (1968) report success stories involving Spanish and English confirmation from other setting and from studies different approaches has started to emerge from carefully conducted research around the world. From Singapore (Torrance, Gowan, Wa & Aliotti, 1970), and Switzerland (Balkan, 1970).

Studies with dissimilar languages suggest that bilingual education is a good thing in itself not just as a bridge to competence in native tongue - though it may be useful for such a purpose - but as an enhancing factor in cognitive development, (Ben Zeev) 1972, 1975, 1977, Eassa, 1978). Results from the previously mentioned studies reveal a favorable effect of bilingualism on the development of the native tongue and the academic achievement of the bilinguals.

Bilingualism and the emotional development.

The issue of the effect of being bilingual on the emotional stability of the bilingual children has been considered in recent research, but there are only a few studies to draw on. In the investigation conducted by Lambert and Tucker (1972) concerning the English-Canadian children who took the majority of their elementary schooling in French, and who after grades 5 and 6 had become functionally bilingual, the authors report that by the fifth grade important affective changes have occurred during the course of the project regarding the attitudes of the immersion group toward themselves and toward French speakers. Their self-views were favorable, as optimistic and healthy as those of the control groups. They considered themselves to be both English and French-Canadians without psychological conflict. Their identification with French people - those from Canada and those from Europe - raises the question of biculturalism which is still vague. Nevertheless, a persuasive point has come to

the attention of researchers; that is the end of the story in the effect of bilingualism on the individual's emotional stability is determined by the prestige accorded to the languages and to the ethnolinguistic groups involved (Gaader, 1970).

In conclusion, most bilingual education carried out in recent times in Canada, South Africa and the U.S.A. seems to be successful in the sense that children mastered two languages adequately, and their academic achievements did not suffer because of bilingual education, nor did their emotional development.

Issues Behind the Favorable Effect of Bilingualism

The positive attitude toward bilingualism is new and one feature of the studies just reviewed merits special attention: all the cases reported (those in Singapore, South Africa, Switzerland, Israel, New York, Montreal) dealt with bilinguals for whom the two languages involved have social value and respect in each of the settings. Lambert considers this form of bilingualism an "additive" form and contrasts it with a "Subtractive" form in which the learning of the second language would portend the slow replacement of it for the home or the other language. Yet, the results reported have enough weight to change the course of events. Researchers started questioning the issues behind the notion of the unfavorable effect of bilingualism. The 'interference theory' has been questioned by Tulving and Madigan (1970) and Jakobovitz (1970). Richards (1971) found that the predictable errors that are made due to "interference" during the learning process seem to be phonological errors but not necessarily syntactic errors. Lambert and Tucker (1972) suggests that a positive transfer of skills occurs between the two languages. Macnamara (1970) rejects the notion that bilingualism is directly related to intelligence in the form tested previously, since no analysis of I.Q.'s, however sophisticated or however comprehensive, could ever reveal what intelligence is. The difficulties generated by the looseness of the language of bilingual research and the deficiencies in the research instruments have suggested that there is no reason to believe that bilingualism in itself should affect school progress in any way, adversely or beneficially. But since learning a second language means access to a whole new world of people, literature and ideas, so bilingualism can be an enormous advantage.

Early phases of language development witness limited linguistic manipulation. Overgeneralization is manifest in monolinguals speech, so its presence in bilinguals' overlap can be justified. AS children grow older, linguistic systems are clearer and more canalized, thus bilinguals are engaged in defining points of interference as well as points of negotiation between the two systems. Such engagement helps the bilingual to achieve a higher level of metalinguistic understanding. Empirical evidence appear to support this contention; (Ben - zeev. 1977).

In short, the effect of bilingualism on cognitive and emotional development will not necessarily be a main effect but rather it may interact with social variables, such as the dominance relationship of the two languages, or the prestige value of each

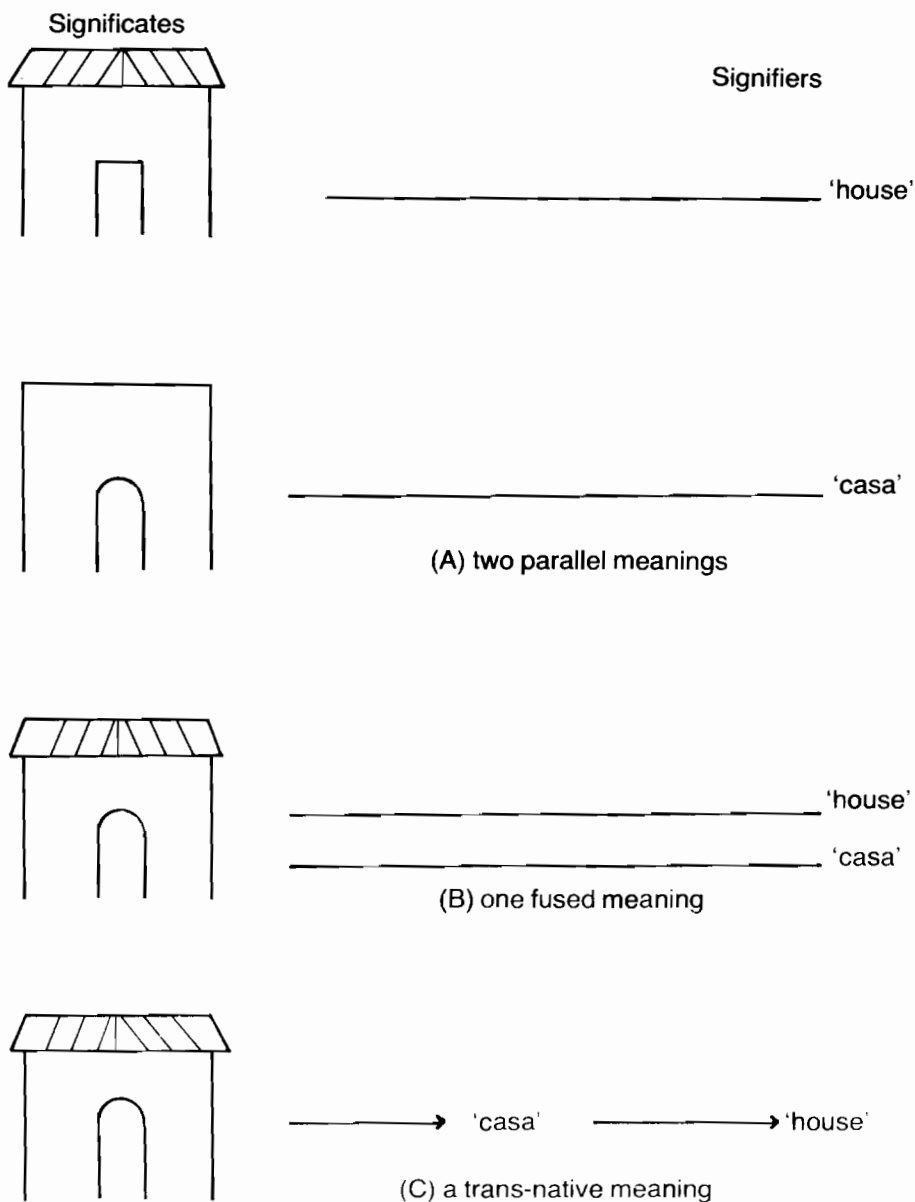
language. Bilingualism can be seen as a point along a continuum of language of life experiences which influence cognitive and emotional development.

The Cognitive Functioning of the Bilingual Child

Researchers seem to agree that bilingualism is not detrimental to a child's intellectual, linguistic, or emotional development; but when it comes to data indicating superior performance by bilingual children, they can only speculate on the reason. As for the relationship between bilingualism and these aspects of human development. They seem content with considering the two sets of language and context as great assets whether or not they increase cognitive flexibility and verbal intelligence. The focus of their concern has shifted to examining the practical problems bilinguals face in learning and using a second language. Alternately using two languages, how does a bilingual store and retrieve linguistic information? How does one keep one's two languages apart? How and when do two languages interfere with each other? What strategies does the bilingual use to resolve the interference between the two languages?

Until recently, research on storage and processing of bilingual information has at its basis Weinreich's consideration of coordinate and compound bilingualism (Weinreich, 1953). The distinction between the two types was examined by many researchers (Ervin & Osgood, 1954; Lambert, Havelka, & Crosby, 1958; Lambert & Rawlings 1969; Manamara, 1970). These studies started with a sharp distinction between coordinate and compound bilingualism, but in the end it looked neither clear-cut nor useful. Weinreich (1953) tentatively suggests that on semantic grounds, bilinguals seem to fall into three types. "Coordinate bilinguals" are those for whom the corresponding pair of terms in two languages signify a single 'semanteme' (significate). "Compound" bilinguals are those for whom corresponding terms signify a single 'semanteme'. "Subordinate" bilinguals are those for whom a term in the second language signifies first a term in the first language and signifies a semanteme only indirectly (see Figure 1). Thus, different language acquisition contexts were seen as responsible for this dichotomy. Coordinate bilinguals keep the meanings of translation-equivalents different in their two languages. For compound bilinguals, the meanings of translation-equivalents are similar. As for the subordinate bilingual, a term in the second language signifies first a term in the first language and signifies the object only indirectly.

Figure 1. The relationship between significates (semantemes) and signifiers (terms) in (A) coordinate bilingualism, (B) compound bilingualism, (C) subordinate bilingualism



Ervin and Osgood (1954) subsumed the "subordinate" type into the compound one and gave criteria for judging to which of the two remaining types does a bilingual belong. Lambert and his associates (1958) had difficulty in classifying some of their 32 subjects as one type of bilingual or the other. This added somewhat to the confusion surrounding the false dichotomy between coordinate and compound bilingualism to one between early and late bilingualism. Compound bilinguals are those who have learned their two languages fluently before age 6; i.e., the two languages were learned within the same geographical-cultural context; coordinate bilinguals are those who began to learn their second language after school age; i.e., their two languages are associated with two distinct geographical-cultural settings, both in acquisition and usage. Macnamara (1970) sees the distinction between coordinate and compound bilingualism as "a veiled version" of Whorfian relativism. It puts the coordinate bilinguals with their two sets representational mediation processes for the two languages in plight.

Briefly speaking, the dichotomy between coordinate and compound bilingualism seems to be inadequate. The human language user must be visualized as a far more dynamic agent in her/his approach to speech than either Whorf or bilingual theory builders seem to imagine. This very dynamism is the reason that the bilingual does not end up with any of the impasses to which the Whorfian relativism and the coordinate-compound distinction seem inevitably to lead.

If the distinction between coordinate and compound bilingualism raises more problems than it solves, researchers have tried to reach an agreeable contention over the bilingual's ability to keep the two languages apart. Penfield and Roberts (1959) hypothesized that "although the cortico-thelamic speech mechanism serves all three languages (in this case French, German, and English) and there is no evidence of anatomical separation, nevertheless, there is a curiously effective automatic switch that allows each individual to turn from one language to another" (p. 253). In this way, the new logical systems underlying the two languages of a bilingual are functionally separated in such a way that when one is on, the other must be off. Penfield suggests that such a switch would be similar to a conditioned reflex: given a signal for L1, a bilingual will respond in that language. This implies that linguistic interference does not occur. Such a leak-proof switch is not a plausible idea for some researchers. Taylor (1971) says that this switch, if it exists, is "leaky"; many instances of linguistic interference indicate that it is not on or off completely. A study by Preston (1965) invalidated the Penfield and Roberts' theory. This study found that when the subject sets herself/himself to respond in one language, interference from stimuli in the other language does occur. This pushed the need for a model to explain language switching.

Macnamara and Kushnir (1971) propose a two-switch model. One for the input and one for the output. The switching time can be calculated as the difference between reading a unilingual passage and a mixed-language passage. A point that can be raised against this hypothesis is that the authors indicate that the output switching is voluntary, while various environmental contexts really govern such

switching. Until some satisfactory explanation for the problem of linguistic independence and language switching is offered, the field work of Kolers (1966, 1968) may serve as a basis for future research of this type. Kolers (1966, 1968) tried to determine the accuracy of considering bilinguals as having either a single storage capacity or a multiple but unrelated set of storage capacities. The matter of characterization is related to the distinction between the coordinate and the compound bilinguals, yet the question now is not so much acquisition as how linguistic information is stored. To use his metaphor, does the bilingual have one large tank-like capacity with two taps for responding to the two languages; or two separate storage capacities with two separate taps, corresponding to the two languages? In other words, is linguistic information of such a nature that it is shared or separate in the bilingual's mental and intellectual processes? Results from his studies on bilinguals indicate that neither assumption is valid. He found that some information is acquired, coded, maintained, and retrieved only within the confines of one linguistic system, while fairly elusive concepts such as abstract tables and culturally determined concepts and experiences would fit into this latter category of distinction. On the other hand, certain objects and physical experiences can be easily coded or equated in both of the languages. The opinion held by these researchers revolves around the notion that interference is unlikely to occur under normal circumstances.

Linguistic interference has always been recognized as a negative effect of bilingualism, but the interesting point is that this interference stimulates the individual's acts of thought to resolve such a problem. This leads to strategies or processes which develop in the bilingual child, as he/she struggles to overcome interlingual interference operating on the structural level of language.

Peck (1980) analysed child to child discourse in language-play and found that children acquiring a second language engage in such a process as well as develop language from it. Evidence of this active manipulation and of strategies employed by the L2 learner came from other studies, (Keller, Cohn, 1981), Ben Zeev (1977) proposes four different mechanisms to describe the means by which the bilingual child attempts to resolve the interference between the two languages; 1) language analysis; 2) sensitivity to feedback cues indicating correctness or incorrectness of present language orientation; 3) maximization of structural differences between languages; 4) neutralization of structure within a language.

Language analysis. This hypothesizes that the bilingual child sometimes resolves the interlingual interference, by means of awareness of the two different ways in which the two languages process a given paradigm. Research has provided enough evidence that bilinguals may analyse language more intensively than monolinguals (Ben-Zeev, 1972, 1975; Lanco-Worrall, 1972; Worrall, 1970).

Sensitivity to feedback cues. This involves active scanning efforts to spot cues indicating correctness or incorrectness of present language orientation which then trigger reorganization efforts. The cues may come from aspects of language

structure such as syntactic and phonetic linguistic cues, or from details of the environmental setting such as type of interlocutor, place, topic. This strategy may be motivated by cognitive and emotional forces. As for the cognitive forces, it has been seen that language switching is difficult (Kolers, 1966; Macnamara, 1967), so it would be useful for the bilingual child to develop special monitoring processes which pick up cues to warn her/him when switching will be required. The bilingual situation which forces one to be able to switch when required and at the same time resists interference. This indicates that the bilingual child must be sensitive both to cues indicating the need to reorganize and switch to the other language structure and to cues indicating successful presentation of a given framework. This sensitivity increases as the predictability of the environmental setting decreases. As for emotional forces, the uncertainty of a situation may increase sensitivity to feedback. In short, various kinds of cues such as those coming from aspects of language structure, perpetual indication of error, and particular interpersonal conditions, make bilinguals more sensitive to language structure.

Maximization of structural differences between languages. Bilinguals, in an attempt to keep their two languages from mutual interference, try to maximize the differences between the two languages by overgeneralizing the regularity and superparadigmatic consistency of rules within each language in cases where these rules differ between language (Selinker, Swain, & Dumas, 1975). This overgeneralization makes the language seem more consistent than it is and contributes to an unusually deep understanding of language structure.

Neutralization of structure. This strategy is presumed to be a simplification process tied to the previous strategy. It is used by bilingual children to prevent structural interference for some particular aspect of structure which is formed differently between languages by simplifying structure within one of the languages, such as the use of the infinitive form of the verb (Pfaff, 1976; Selinker, Swain, & Dumas, 1975).

These psychological mechanisms are used by bilinguals to maintain both languages as separate structures by counteracting interlingual interference. Yet, we cannot bare the possibility of interference from the dominant culture language.

To sum up, new insights have been developed in the field of the effect of bilingualism on cognition. These have had great impact on studies about the cognitive functioning of the bilingual child. The studies have been dealing with how a bilingual keeps the two languages apart. If learning two languages in a common context leads to compound bilingualism, and in separate contexts, to coordinate bilingualism, regardless of how the two languages are acquired, what really happens in the bilingual mind? The distinction between the coordinate and compound bilingualism proved to be fruitless and inadequate. There is language switching, but it is determined by many factors, internal and external. Switching is not always complete, so that a bilingual experiences intrusions of the dominant language into the weaker language. A bilingual must have a complex semantic system, storing some concepts uniquely according to each of the two languages and other concepts in common for both lan-

guages, depending on the concepts, The permeability of boundaries between the linguistic systems in the bilingual's mind allows for linguistic interference, and the bilingual attempts to resolve this interference by using four mechanism stimulated by the acts of thought accompanying these attempts. These are language analysis, sensitivity to feedback cues, maximization of structural differences between languages, neutralization of structure within a language. This indicates that the bilingual is not only engaging in a more complex task than the monolingual, but also benefiting from this task.

Conclusion and recommendations:

The impact of being bilingual on the individuals's language development cannot be undermined. Special linguistic difficulties would arise in bilingual settings such as unaccepted code - mixing, possible interlanguage interference, semilingualism and probably first language impairment, Nevertheless, such difficulties may enhance cognitive manipulation of stimulate presented by these settings, thus providing for acceleration of cognitive development which in turn will have repercussions in language development, mono or dual.

Most differences between monolinguals and bilinguals would appear to center round non-linguistic criteria as well as linguistic ones. As such the current state of knowledge does not offer definitive answers to the many questions raised by the subject. Defining problems related to the measurement of these differences is not an easy task. Sociocultural considerations, time and method of the onset of L2 learning, the level and extent of L2 introduction, the degree of similarity or dissimilarity between the two languages are very important. Alongside with these considerations, we have other methodological ones regarding definitions of concepts, methods of assessment and research designs generating less errors and providing for more control over intervening variables and most of all free from prejudices. Most of the interpretations provided have been empirically determined rather than theoretically motivated. Using cognitive functions as axiom in studying the issue may provide for what is missed. At present, recommendations can be made pending advances and confirmations for this view through future investigation.

The results of this study concerning the effects of bilingualism on the language development of the bilingual suggest that such development is not impaired and may be possibly enhanced. However, more research is needed to broaden our picture of the language development of the bilingual: evidence concerning the semantic and the phonological aspects of the language. Longitudinal studies are needed to tell us if any intellectual gains associated with bilingualism have important consequences for future cognitive development or if they are relatively unimportant temporary accelerations in development.

As for the significance of this study in relation to bilingual education, the results give support to this type of education, even if two dissimilar languages, such as Arabic and English, are involved. The results can also be frustrating to those who

use the linguistic factor as an excuse for the unproductivity of their bilingual programs. Moreover, operating strategies used by children for understanding the second language, and which presumably have their origin in the cognition of the child, can be used for curriculum planning of other subject matters.

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