

Current Comments

English vs. Spanish vs. French vs.... The Problem of Bilingualism

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Most *Current Contents*[®] readers are well aware of my interest in philology, linguistics, and other language study.¹⁻³ So it should come as no surprise that I was interested in the uproar among educators in this country caused by Terrel H. Bell's recent announcement that the federal government was dropping some proposed bilingual education rules.^{4,5} Bell is the US Secretary of Education.

As originally stated, the proposal would have affected all schools with 25 or more non-English-speaking students with the same background. Such schools would have had to instruct those students in their native language for up to five years. The proposal stemmed from a six-year-old Supreme Court ruling in which the Court declared that schools were required to make instruction "meaningful" to students who do not speak English. But the original ruling never specified how the schools were to do that.⁴ The proposal sought to remedy that by specifying exactly what form bilingual education should take. Since it has been dropped, advocates of bilingual education claim that the government is turning its back on minority, non-English-speaking peoples. However, critics of the previously proposed rules are delighted by Bell's move. Among the latter were many administrators in schools that already have bilingual education programs. Presumably, they prefer to continue their now established methods.⁶

Such controversy over bilingualism is not limited to the US. English-French

bilingualism is the subject of debate in Canada; Flemish-French in Belgium. In India, the government of West Bengal recently decided to stop teaching English to primary school students.⁷ Yet English-speaking countries are well-known for their large percentage of monolingual speakers. The "ugly American" is a standard stereotype.

Increasing numbers of non-English-speaking immigrants in this country, especially Hispanics, have revitalized the bilingual education issue. But the issue of bilingual education is actually not new to the US, according to Alan Pifer, president, Carnegie Corporation. In the nineteenth century, American schools regularly offered instruction in such languages as German, Swedish, and French. Large numbers of immigrant children who spoke only those languages made such programs necessary. Nationalistic spirit, enhanced by World War I, however, made it unpatriotic not to speak English. So instruction in foreign languages in US schools declined.⁸

The basic issues involved in bilingual education are apparently clear-cut and agreed upon by most people. Most knowledgeable people are aware that large numbers of foreign-language speaking children are not being adequately integrated into our English-language society. They are, presumably, often hampered in making progress in school because of language difficulties. Consequently, many people feel that something should be done. That something is some sort of bilingual

education. The problem surrounds just exactly what form bilingual education should take. The controversy usually centers around what language school instruction should be in—whether the child's native or parent language, or the country's national language, the child's nonnative tongue. Many people believe that both languages should be used, but again, debates rage over just how this should be done. It is surprising how emotional the controversy on these questions can be.

Most bilingual programs in use take two forms, according to psychologist Eugene Garcia, University of California, Santa Barbara. In the first type, or immersion programs, children are taught exclusively in their nonnative tongue. The second type, or non-immersion programs, "use both the native language and the second language in the curriculum." Garcia explains, "Most often, instruction begins in the native language and is faded over a number of years into the second language. Both languages are generally valued, although the specific quantity and quality of bilingual instruction may differ dramatically in these programs."⁹ Non-immersion programs often offer regular instruction in English and the amount of time devoted to each language differs greatly from program to program.

The results from these two approaches have been varied, so it is difficult for anyone to say which is "best." Educators continue to disagree on how to provide bilingual education. In an attempt to offer some new insight into the problem, we decided to review the literature on bilingualism. I feel that if educators are aware of what is known about second language acquisition, they will be better able to make decisions regarding the best types of bilingual education.

Despite the fact that it touches so many ancillary subjects, the literature on bilingualism is relatively small. It is characterized, however, by a great deal of diversity and controversy, making a

general review difficult. As a result, I've tried to concentrate on how bilingualism affects cognitive development and IQ, and the process of second language learning. I feel these areas have the most relevance for bilingual education. I've also reviewed some of the bilingual education programs currently in use.

I am also interested in trying to help parents who want their children to learn their native tongue while living in another country. Many scholars, for example, face this problem while working abroad. I am particularly concerned that the early introduction of two languages may pose psychological problems for children in such families. Unfortunately, we were unable to find much literature on this topic. The most comprehensive work on the topic is *Bilingualism in Early Childhood*,¹⁰ edited by William Mackey and Theodore Andersson. Several essays in this volume deal with preschool bilingualism. Much of this work, however, is largely based on the personal observations of bilingual parents, and, as such, can only be used as general guidelines. For example, Ilonka Schmidt-Mackey, writing about her experiences as both a bilingual child and parent, suggests that it is not the age at which a second language is introduced that is important. Rather, she feels that the vital factor in successful second language acquisition is that the second language be used in a constant environment, or with specific persons. In other words, the goal is to establish an association with that language, so that in certain places or with certain people the child will revert automatically to that language. These natural associations create natural language learning.¹¹ Anyone interested in this aspect of bilingualism might also be able to find some solutions to his problem from the bilingualism research presented in this essay.

A major difficulty surrounding the bilingualism issue is that researchers do not agree on a working definition of the word *bilingual*. Martin Albert and Lor-

raine Opler, Boston University Medical School, offer one of the clearest definitions. They say a *bilingual* is someone who uses two languages alternately. That may seem, at first glance, self-evident. But then they identify three types of bilinguals: the "balanced bilingual," who has "native proficiency in both languages"; the "dominant bilingual," who is more fluent in one language than the other; and the second language learners, "the subgroup who are somehow actively involved in improving their second language skills." These differences are based on fluency or proficiency, they say, which is measured in four skills: speaking, listening, reading, and writing. Fluency may not be equal in all.¹²

Upon considering this definition, it soon becomes clear that a wide range of people can come under the heading "bilingual." Furthermore, their bilingual skills may vary drastically. This, in fact, has been one of the traditional problems facing bilingualism researchers. A bilingual may be someone who has grown up speaking two languages, someone who emigrated as an adult and learned the language of his new homeland, or a third-year college French major. Researchers have dealt with all these types of bilinguals, sometimes specifying these characteristics, sometimes not. As it seems reasonable to suspect that there may be differences among these groups in their respective abilities in their two languages, as well as the ways in which the languages were acquired, the diversity of subjects has left the research literature cloudy.

Some studies on the process of second language acquisition have sought to tackle exactly this problem. They attempt to determine the differences, if any, between bilinguals who learn a second language as children and those who learn a second language as adults. Much of this research was stimulated by a theory proposed by E. Lenneberg, Harvard Medical School, in 1967.¹³ Lenneberg suggested that the brains of children are

predisposed to language learning. Consequently, children learn languages easier, faster, and better than adults. Lenneberg based his "critical period" theory on the observation that children who suffer speech losses due to brain damage are often able to regain their speech. Adults with similar losses do not.¹³ Stephen Krashen, University of Southern California, in his 1975 survey of the literature on the critical period hypothesis, found that the evidence "in general supports the existence of the critical period" both in first and second language acquisition.¹⁴ Other researchers take a different view. Catherine Snow and Marian Hoefnagel-Höhle, Harvard University, for example, feel, instead, that the studies prompted by this idea have produced "conflicting results." For example, some of the studies have "found better pronunciation in older subjects," while others "found a negative effect." In their own research, Snow and Hoefnagel-Höhle studied the acquisition of Dutch by 80 English speakers of varying ages. Tests over a period of a year showed that the subjects aged 12 to 15 and adults made the fastest progress early in the year. The eight to ten and 12 to 15 year-olds performed best after a year. The three to five year-old group performed worst on all tests.¹⁵ According to Lenneberg's theory they should have done best.

Another focus of second language learning research concerns children who learn two languages simultaneously. Studies on simultaneous language acquisition were made as early as the late-1800s. But the first major work was Werner Leopold's classic series, *Speech Development of a Bilingual Child*.¹⁶ Leopold was at Northwestern University when he wrote this four volume work, published from 1939 to 1949. In it, he detailed the language learning efforts of his daughter Hildegard, born in 1930. Leopold kept a detailed diary of her utterances. He discussed her speech development from the phonological, syntactic, and semantic points of view.

Leopold originally intended to simply study the language learning process. But since his daughter learned both German and English (Leopold spoke only German to her, and the mother only English), its significance in bilingualism research is understandable.

Much of Leopold's work deals with the purely bilingual features of Hildegard's language acquisition. There was a period, for example, early in Hildegard's language learning process, in which she mixed English and German. By the age of three, however, she showed a nearly complete separation of the two language systems. Although some mixing continued for several years, Hildegard had no apparent difficulty in comprehending and maintaining such distinctions.¹⁶

The same process has been noted by other researchers among children learning various combinations of language.¹² Natela V. Imedadze, D. Uznadze Institute of Psychology, Tbilisi, USSR, for example, reported the same phenomenon in a child learning Russian and Georgian simultaneously.¹⁷

Leopold also noted that at various stages in his daughter's learning process, her ability in one language would move ahead of her ability in the other. This was, he believed, brought on by a change in environment. For example, when the family spent several months in Germany when Hildegard was four and one-half years old, her German improved dramatically. When the family first returned to America, Hildegard's English was much poorer than her German, but after a few months, her English became superior. The English-speaking environment in which she remained most of the time played a major role in Hildegard's language acquisition. Although she developed normal mastery of English, she did not achieve native-like control of German. Leopold noted that by the age of 16 Hildegard was reluctant to speak German, although she understood it perfectly. Other parents of bilingual children have noted the same phenomenon.^{12, 18} But it

is not at all clear how much depends upon the relationship between the parent and the child. It also depends upon peer pressure or other outside influences like teachers.

Perhaps the most important of Leopold's findings was that children learning two languages simultaneously do so at about the same rate as children learning only one language. Again, other observers of bilingual children report the same finding.¹²

Somewhat different from the study of simultaneous acquisition is the study of how children learn a second language after having achieved fluency in their first. Researchers are interested in determining whether or not second language learning is like first language learning, and how the two processes may differ. Much of the research in this area is based upon first language acquisition research. Some of this, in turn, has been based on the theories of linguist Noam Chomsky.¹⁹ According to Chomsky's ideas, language is comprised of a set of rules through which a speaker transforms words into meaningful phrases. In their review of the history of second language acquisition research, Kenji Hakuta and Herlinda Cancino, Graduate School of Education, Harvard University, note that once they were published, researchers immediately seized upon Chomsky's ideas. Researchers "began reporting the regularities in the speech of young children and showed that these regularities could be characterized by a set of rules...." Controversy over whether or not language acquisition was a process of imitation, or a learning of rules, began. This controversy has carried over into second language research.²⁰ Heidi Dulay and Marina Burt, Bloomsbury West, San Francisco, have produced a series of studies in this area.²¹⁻²³ Of particular concern to them is the idea of "first language interference" vs. "creative construction." In the interference process, explain Dulay and Burt, "children will tend to use (transfer) the structures of their first language when

trying to speak the second, and therefore, will make mistakes when the structures of the two languages differ." A child learning a second language with a large amount of interference from the first would, theoretically, produce many interference errors.

The theory of creative construction, on the other hand, postulates that children learning a second language, "say, English, create rules similar to those created by native learners of English. This process would yield different types of errors than those that would be caused by native language interference." Dulay and Burt have drawn on this idea of differing errors to determine how children learn a second language. In one study, for example, they analyzed the types of errors made by children in the process of learning a second language. They found that only 4.7 percent of the children's errors were due to interference, while 87.1 percent were attributable to developmental strategies. These results indicate that second language learning is much like first language learning. Dulay and Burt further try to relate their finding to bilingual education. They conclude "that less explicit teaching of ESL (English as a Second Language) syntax to children may produce better learning."²¹

In later studies, Dulay and Burt continued their attempt to apply research data to educational programs. One such study, for example, established some guidelines for educators in determining students' language skills, and discussed how such knowledge can be used to place students in appropriate school environments.²⁴ Dulay and Burt have also been instrumental in establishing bilingual education research priorities for the National Institute of Education.²⁵

Some researchers have supported Dulay and Burt's work,^{26,27} while others caution against relying too heavily on such results. Hakuta and Cancino, for example, note that Dulay and Burt's classification of errors was subjective, and thus not totally reliable.²⁰ The difficulties of using error analysis in lan-

guage studies have been discussed by other researchers as well.²⁸⁻³⁰

Taking a different approach, neuroscientists have attempted to determine how languages are stored in the brain, and how the brain works in producing language. Evidence accumulated from monolingual speakers indicates that some language is handled according to its physical form. A recent *Psychology Today* article noted that researchers at Tokyo Medical and Dental University "found that right-handed Westerners and Chinese process vowels on the left if they occur along with consonants and on the right if they occur alone. Right-handed Japanese and Polynesians, however, process all vowels on the left."³¹ In general, however, it appears that most language functions are dealt with by the left side of the brain in monolingual speakers. In contrast, research on bilinguals suggests that the right side of the brain may play a large part in the storage and function of the second language.³¹ Neurosurgeon George Ojemann, University of Washington, and psychologist Harry Whitaker, University of Rochester, used word tests combined with electrical stimulation to map the areas in the brain responsible for language in two bilingual subjects. They found that in certain brain sites both languages were represented, while other, peripheral spots were devoted exclusively to one or the other of the languages.³²

Other researchers have noted that for many bilinguals, more brain space seems to be devoted to the second language than the first.³¹ Wallace Lambert and Jyotsna Vaid, McGill University, have further suggested that bilinguals who learned their second language in infancy process the second language differently than bilinguals who learned their second language after the age of ten. Their 1979 study indicated that later bilinguals rely more heavily on the right hemisphere than do early bilinguals.³³ Researchers feel that this could be potentially significant, as the brain's two hemispheres are thought to be re-

sponsible for two entirely different types of functions. While such conclusions are necessarily tentative, they are nonetheless intriguing, and warrant further research.

Scientists have also investigated how second language learning affects cognitive development and IQ. As with other bilingualism research, the evidence is varied, inconclusive, and controversial. Early IQ-cognitive development/bilingual research indicated that bilinguals suffered intellectually from their acquisition of two languages. In 1923, D. J. Saer studied Welsh children. He found that bilingual Welsh-English children fared significantly poorer on IQ tests than their monolingual English counterparts.³⁴ Other early studies reported similar findings.

Later researchers have argued, however, that Saer's findings were probably more the result of socioeconomic class and attitude than a bilingual-caused deficiency. According to Tracy Gray, Center for Applied Linguistics, Washington, DC,³⁵ Elizabeth Peal and Lambert, McGill University, were the first to draw upon these ideas in discussing work such as Saer's. They pointed out that although Saer translated his tests into the Welsh language for the native speakers, the tests were not "standardized in the Welsh culture." They further noted that Saer's results held only for rural children—he found no differences between urban mono- and bilingual children. They suggested the differences were actually a result of socioeconomic class.³⁶

Basing their work on these ideas, Peal and Lambert determined that the variables of "socioeconomic class, sex, degree of bilinguality, age, and the actual tests used," must be controlled carefully in any bilingual IQ studies.³⁶

For example, Peal and Lambert gave ten-year-old children in Montreal French schools verbal and nonverbal tests to measure intelligence. They carefully monitored socioeconomic class and student attitudes toward the French and English communities. They also

studied such variables as parents' attitudes and language abilities. They found that "bilinguals performed significantly better than monolinguals on both verbal and non-verbal tests." In discussing these results, they suggested—in direct contrast to Saer's findings—that perhaps bilinguals may actually benefit from their second language. They theorized that bilinguals have a "language asset"—that they have a greater mental flexibility. This flexibility theoretically derives from the bilingual's early separation of the sound of a word from its meaning.³⁶

The idea of flexibility was suggested first by Leopold, who noted it in his daughter, and has been furthered by later researchers. For example, Anita D. Ianco-Worrall, Rand Afrikaans University, Johannesburg, South Africa, tested 60 Afrikaans and English monolinguals and 30 Afrikaans-English bilinguals in an effort to discover if there is actually an earlier separation of word sound from word meaning in bilingual children. Her subjects ranged in age from four to nine. In the bilingual group aged four to six, nearly half showed separation, while only one of the monolingual children in the same age group displayed separation. In one of her tests, for example, subjects were given three words, such as "cap, can, and hat" and asked to pick the two which were most alike. The bilingual children consistently picked pairs on the basis of semantic similarity, or meaning, while monolingual children picked pairs on the basis of phonological, or sound, similarity.³⁷

In a more recent review, Lambert notes that mental flexibility studies have generally supported the results of his earlier study with Peal.³⁸ Some researchers, however, disagree. G. L. MacNab, for example, in reviewing the bilingual/cognitive development work done during the 1960s and 1970s, contends that the relationship between cognitive development and bilingualism may actually be quite different from what most researchers have asserted.

According to MacNab, it may be that children with enhanced cognitive abilities are better able to learn language than those with less ability, thus accounting for the apparently superior development of bilinguals.³⁹

Still another point of view has been suggested by John Bergan and Elena Parra, University of Arizona. They tested nearly 100 bilingual Spanish/English and monolingual children, both in Spanish and English. They discovered that the bilingual children tested in both Spanish and English performed better than monolingual children tested in their own language. In their tests, the children were asked each question in both languages. They then answered in the language of their choice. Bergan and Parra hypothesize that the children knew different things in each language and were able to pool their knowledge in the tests.⁴⁰

The results obtained to date in bilingualism education programs have been mixed. Canadian schools, for example, have been experimenting with several forms of bilingual education for several years. Merrill Swain, Ontario Institute for Studies in Education, recently reviewed three types of French immersion programs currently in use in Canada for English-speaking students. In the early total immersion program, the first grades are taught in French, with a gradual introduction of instruction in English in later years. In partial immersion programs, students are taught half in English and half in French, while in the late immersion programs, French is not introduced until the eighth grade, at which time about 70 percent of instruction is in French. This follows a year of intensive French language instruction. Students in all three types of programs developed a good command of French language skills. Students in the total immersion program did especially well, developing native-like proficiency by the sixth grade. Students in this program also performed as well or better than students in traditional programs in areas other than language. Students in the

other two immersion programs showed evidence of slight lags in the other subject areas.⁴¹

Lambert and G. Richard Tucker, McGill University, reporting on another French total immersion program in Montreal, found that after seven years, the children in the immersion classes had attained nearly native-like fluency in French. They also performed as well or better than students in traditional English classes in subjects such as science and mathematics.⁴² This is interesting considering my own view and that of others that science and math should be regarded as a form of language.⁴³

Similar programs in American schools have met with similar success. Since 1974, Cincinnati has conducted programs in eight elementary schools in which some of the class work is taught in French, Spanish, or German.⁴⁴ In Culver City, California, English-speaking children can enroll in a Spanish immersion program. In this program, kindergarten and first grade are taught entirely in Spanish, with a gradual introduction of English in the second grade (about 20 percent). By sixth grade, instruction is half in English, half in Spanish. Students in the program have performed well in all subjects, gained proficiency in Spanish, and developed positive attitudes toward the Spanish community.⁴⁵

Despite the success of these programs, the fact remains that minority students in the US taught primarily in English have traditionally done poorly. Pifer points out, as an example, that only about 30 percent of Hispanic children in the US complete high school.⁸ In comparison, in 1978, 62.5 percent of the US population over age 25 had completed high school. Eighty-four percent of those aged 25 to 34 had completed high school.⁴⁶

One explanation for this discrepancy hinges on attitude. Canadian and American English-speaking students in bilingual programs are often highly-motivated middle- and upper-class children from well-educated families. Their families

are generally supportive of their second language studies. American minority students, on the other hand, often come from lower-class, less-educated families, who view English with distrust and are not supportive of their second language studies. Many researchers feel that the difference in attitude accounts for the difference in performance. Lambert, Gardner, and others at McGill University,^{47,48} and A. Z. Guiora and colleagues, University of Michigan,⁴⁹ for example, all reported that students who were highly motivated toward the second language and who felt a high degree of empathy for the native speakers of that language made faster and superior progress in their acquisition of it.

It should be clear by now that bilingualism is a complex subject about which we really know little. This point is emphasized by Barry McLaughlin, University of California, Santa Cruz, in his 1977 review of the literature. McLaughlin cautions that most of the commonly-held ideas about second language learning are just that—ideas, and have yet to be proved.⁵⁰ Elaine Tarone, Seattle Central Community College, Swain, and Ann Fathman, Stanford University, express the same concern. "Second language acquisition research is still in its infancy." So "hasty pedagogical applications should not be made on the basis of this finding."⁵¹

This essay has only touched the proverbial tip of the iceberg in its coverage of bilingualism research. However, as I noted earlier, that research is so diverse that it is very difficult to categorize much of it, and even more difficult to try to report on it all. Nonetheless, I think I've covered much of what is note-

worthy, and the articles mentioned will certainly lead the interested reader to anything I might have missed. Many of the papers cited here were retrieved through our research data bases in which co-citation clustering is used to identify papers in emerging research fronts. Figure 1, which follows this essay, shows the co-citation clusters that we used for this essay. Figures 2 and 3 show papers that were retrieved from them.

I should further point out that bilingual researchers publish in a variety of journals, including language, education, and psychology journals. In particular, the journals *Language Learning*, *TESOL (Teachers of English to Speakers of Other Languages) Quarterly*, and *International Review of Applied Linguistics* carry a good deal of bilingualism work. All three are covered in *Current Contents/Social & Behavioral Sciences*, and the *Social Sciences Citation Index® (SSCI®)*.

Interested readers can contact the National Association for Bilingual Education (NABE), 1201 16th Street, NW, Room 405, Washington, DC 20036. A nonprofit organization, NABE is devoted to "recognizing, promoting, and publicizing excellence in bilingual education." Toward that end, NABE sponsors a yearly international conference, organizes special interest groups among members, and publishes a professional journal—*NABE Journal*—about bilingual education.

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Figure 1: Co-citation clusters on second language learning.

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