

DOCUMENT RESUME

ED 049 876

80

RC 005 261

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Title: An Overview of Research on Bilingualism.  
Institution: California State Dept. of Education, Sacramento.  
Office of Education (OEA), Washington, D.C.  
Date: 70.  
Notes:

Descriptors: Bilingual Education, Bilingualism, \*English (Second Language), \*Language Ability, Language Instruction, \*Mexican Americans, \*Second Language Learning, Self Actualization, \*Socioeconomic Status.

Abstract

The research presented in this document "relates to many questions about bilingualism which educators need to explore." First, a degree of bilingualism are listed which refer to levels of proficiency: (1) the immigrant learns English via his second tongue and English is used infrequently; (2) the immigrant speaks both his native tongue and English and his second tongue is still dominant; (3) the languages function independently of each other; and (4) English replaces the other tongue in all but the most private domains. As noted, a synthesis of previous research done on related factors points to language attitude as being a combination of many skills. Strong personal motivation appears to be required for any individual to acquire a second language. Verbal IQ and motivation seem to be the most important factors in predicting success in learning a foreign language. While the new methods of teaching languages do not show the advantages often claimed, they are no worse than the old method; however, some research supports the hypothesis that Spanish-speaking pupils are better able to learn when they use their native language and have systematic instruction in English as a second language. A 66-item reference list is included. (EEO)

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# An Overview of Research on Bilingualism

Prepared for the  
Mexican-American Education Research Project  
California State Department of Education

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This publication was funded under provisions of the Elementary  
and Secondary Education Act, Title V, and published by the  
California State Department of Education, 721 Capitol Mall,  
Sacramento, California 95814.  
1970

## PREFACE

The issue of bilingualism has become a prominent one within the state of California. There now exists an amendment to the Education Code which allows non-English-speaking children to be taught in their native language during the time in which they are learning English as a second language. This legislation will allow a sizable number of children the opportunity to develop bilingually and, hopefully, biculturally.

Future legislation in the state of California will hopefully relate to developing bilingualism and biculturalism for the monolingual, monocultural, English-speaking child.

The research presented in this document relates to many of the questions about bilingualism that educators need to explore. Our shrinking world demands that the schools take a close look at the issues of internationalism that will confront the present and future generations.

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## Definition of Bilingualism and Background to Research in This Area

The term "bilingualism" has a variety of definitions. Some of these definitions are as follows: "Bilingualism means simply the use of two languages by the same person or group." (46)<sup>1</sup> "Bilingualism is the practice of alternately using two languages." (54) "Bilingualism is the habitual use of two languages and the ability of being bilingual." (56)

The term "bilingual" has been defined as "a person able to speak one's native language and another with approximately equal facility." (56)

To the investigator, bilingualism refers not only to two distinct patterns of "linguistic habits" but also to distinct patterns of "cultural habits" in all of their anthropological meaning.

Learning a second language to the point where it can be used effectively is a difficult process unless it is learned in ordinary social contacts as the first was learned. A long-recognized handicap of foreign-language instruction is the difficulty of giving practice outside the classroom. (46)

Bilingual children, as such, have been studied since the early 1920s. The literature reporting these studies falls into five general categories: (1) bilingualism and intelligence; (2) bilingualism and emotional stability; (3) bilingualism and language development; (4) bilingualism and educational achievement; and (5) reviews of the literature.

However, it was not until the late 1950s and early 1960s that broadly based studies with large samples began to appear in the literature, and inferences about bilingual children as a group could be drawn. (32)

## Types of Bilinguals

There are essentially two types of bilinguals, which can be defined as follows: (1) compound bilingual (thinks in one language and then translates into the other language); and (2) coordinate bilingual (thinks in whichever language he is using at the moment). (53)

It appears that the coordinate systems are more desirable and that second language learning should be organized to produce coordinate rather than compound bilingualism. This would then be an argument for a "direct method" in which the use of the learner's native language would be minimized or avoided altogether. (24)

Another way of looking at the difference between compound and coordinate bilinguals is to view the processes of immigrant acculturation as they relate to bilingual functioning. The following is a view of these processes: (53)

Bilingual functioning type: Compound (fused)

### *Nonoverlapping domains:*

(1) First stage - the immigrant learns English via his mother tongue. English is used only in few domains in which the mother tongue cannot be used. Minimal interference.

### *Overlapping domains:*

(2) Second stage - more immigrants know more English and therefore speak to each other in either mother tongue or English in several domains of behavior. Mother tongue is dominant. Increased interference.

<sup>1</sup>Numbers in parentheses refer to entries in the list of "Selected References" at the end of this report.

Bilingual functioning type: Coordinate (independent)

*Overlapping domains:*

(3) Third stage - the languages function independently of each other. The number of bilinguals is at a maximum. Domain overlap is at its maximum for the second generation during childhood. Stabilized interference.

*Nonoverlapping domains:*

(4) Fourth stage - English has displaced the mother tongue from all but the most private domains. Interference declines. Both languages function independently or mother tongue is mediated by English.

It can then be seen that there are degrees of bilingualism. Not all bilinguals are proficient to the same extent in the two languages used. In such cases we usually speak of "linguistic accents." They are due to various forms of interference between the patterned habits of the mother tongue and those of the second language, with results of distortion, substitution or omission of speech sounds, or grammatical structure or both. (56)

It might also be noted that we may also speak of "cultural accents."

### Research Related to the Intelligence of Bilinguals vs. Monolinguals

Psychologists and linguists have wondered whether bilingualism affects intellectual functioning since as early as the 1920s when Saer (1923) and Smith (1923) reported research on the topic. Numerous studies since then have attempted to determine whether monolingual and bilingual young people differ in intelligence as measured by standard tests. A large proportion of investigators have concluded from their studies that bilingualism has a detrimental effect on intellectual functioning. A smaller proportion of the investigations have found little or no influence of bilingualism on intelligence in that no significant difference between bilinguals and monolinguals on tests of intelligence was apparent. Only three empirical studies were encountered which suggest that bilingualism may have favorable intellectual consequences.

In attempting to understand the seemingly contradictory findings of these studies it is necessary to evaluate how well other relevant variables were controlled.

In the design typically used, where two groups of subjects are being compared on intelligence, it is necessary to match the groups on as many features known or suspected to correlate with intelligence as possible so that the difference between the groups, if any, may be attributed to linguality itself. Socioeconomic status has been repeatedly found to be related to intelligence and linguistic development. From past research it is well established that girls are more advanced than boys in language development, especially in the early years. Furthermore, groups should also be matched for age. The educational background of children may affect their performance on standardized tests of intelligence. Also, the tests should be given in the language in which the bilinguals are most proficient. (50)

The research on the intelligence of monolinguals versus bilinguals will be discussed under three topics: (1) studies supporting the detrimental effects of bilingualism on intelligence; (2) studies supporting the favorable effects of bilingualism on intelligence; and (3) studies supporting both the detrimental and the favorable effects.

Studies supporting the detrimental effects:

1. Saer Study (1923). A total of 1,400 children in Wales were tested. Saer reported a statistically significant inferiority of rural bilingual children when compared with rural monolingual children on

the Stanford-Binet scale. Sear attempted to explain this trend in terms of the "mental confusion" encountered by the bilingual children. When urban children only were compared he found no significant difference between monolinguals and bilinguals. It should be noted that socioeconomic class was not controlled in this research and that a Welsh translation of the Stanford-Binet test was used. (50)

2. **Pintner Study (1932).** The Pintner Language and Nonlanguage tests were administered to monolingual and bilingual groups in each of three schools in New York City. The results obtained are inconclusive in the sense that in one school monolinguals were superior on both tests while in another they were inferior, and in the third school there was no difference between the groups. There was no control for socioeconomic class in this study and bilingualism was determined by looking at the child's name. (50)

3. **Jones and Stewart Study (1951).** A verbal test and a nonverbal test were given to monolingual and bilingual groups in rural districts of Wales. Ages were between 10.6 and 11.6 years. The monolinguals were found to score significantly higher on both types of tests. The two groups were equated statistically, by the analysis of covariance, on nonverbal IQ, and the differences were then noted. "It was therefore concluded that the bilingual children were significantly inferior to the monolingual children, even after full allowance has been made for the initial difference in the nonverbal intelligence tests." After further investigations, Jones conceded that the significant difference in nonverbal test scores observed in all his studies may have arisen from occupational rather than linguistic variations between the groups. (50)

4. **Graham Study (1925); Mead Study (1927); Rigg Study (1928); Wang Study (1926).** Several studies have found that monolingual American groups performed better than children with various foreign backgrounds on intelligence tests. All these studies lacked controls for age and socioeconomic class, and in some, bilingualism was not adequately measured. (50)

#### Studies supporting the favorable effects:

1. **Davies and Hughes Study (1927).** This study was conducted in London, England. The researchers reported the superiority of Jewish over non-Jewish children in arithmetic, English, and general intelligence. No measure of bilingualism was used and the Jewish children were assumed to be bilingual. Other controls such as age, sex, and social class were absent. (50)

2. **Stark Study (1940).** Stark found that at ten and eleven years of age bilinguals were superior to monolinguals on one form of a test. At a later age this trend was reversed, but the measurement was made on a different form of the test. (50)

3. **Lambert and Peal Study (1961).** The study was one of the most thorough studies conducted to date on the intelligence of monolinguals versus bilinguals. The details of this study will be outlined in full due to the comprehensiveness and importance of the findings.

*Problem:* "The research was designed to examine more extensively the effects of bilingualism on the intellectual functioning of children and to explore the relations between bilingualism, school achievement, and students' attitudes to the second language community."

*Subjects:* Ten-year-old students from Montreal, Canada. Total sample was 110 students.

#### *Instruments Used:*

##### 1. Measures of Intelligence

- a. Lavoie-Laurendeau (1960) Group Test of General Intelligence
- b. Raven (1956) Progressive Matrices Test
- c. Thurstone (1954) Primary Mental Abilities

##### 2. Measures of Attitude

- a. Attitude-to-English Scale; Attitude-to-French Scale
- b. Parents' Attitude to English Canadians; Parents' Attitude to French Canadians
- c. Evaluation of Me
- d. Voice Study

##### 3. Achievement Measures Teacher Ratings

*Results:* Bilinguals performed better than monolinguals on verbal and nonverbal intelligence tests. A possible explanation may be that intellectually the French-English bilingual in Montreal's experience with two language systems seems to have left him with a mental flexibility, a superiority in concept information, and a more diversified set of mental abilities. In contrast, the monolingual appears to have a more unitary structure of intelligence which he must use for all types of intellectual tasks.

It was also found that bilingual children were also further ahead in school than the monolinguals and they achieved significantly better than their classmates in English study and in school work in general.

Finally, the pattern of attitudes that emerges for the two groups is distinctively different and these attitude differences might be expected to influence performance on intelligence tests, but this is not the case. There were no significant correlations between attitude and intelligence for either group.

*Conclusion:* "Thus a picture emerges of monolingual and bilingual children as representatives of two distinct groups, differing in intellectual structure, attitude patterns, achievement in school, and achievement in languages." (50)

Studies supporting both the detrimental and favorable effects:

1. Seidl Study (1937). Seidl found that monolinguals were superior to bilinguals on all verbal tests, but bilinguals were superior to monolinguals on performance measures. The 1916 Stanford-Binet scale and the Arthur Point Scale of Performance were the tests used. The two groups were matched on sex and age but not on socioeconomic class, which may partly account for the results. (50)

2. Pintner and Keller Study (1922). The Stanford-Binet and Pintner Nonlanguage Group Test were used on two groups. It was found that bilinguals received lower scores on the Stanford-Binet than on tests in which a minimum of English was required. No measures of bilingualism were used and no mention was made of the social status of the children's families. (50)

3. Darcy Study (1946). Darcy reported on research carried out with 212 American preschool children of Italian parentage. In this study, the relevant variables were quite well controlled. The Stanford-Binet (1937 revision) was used as the verbal measure, and the Atkins Object-Fitting Test as the nonverbal test. Darcy found that the monolingual group scored significantly higher than the bilingual on the Stanford-Binet, but lower on the Atkins Test. The subjects were so young (from 2.6 years to 4.6 years) that it would not be advisable to draw any general conclusions from this study. (50)

4. Johnson Study (1953). Johnson used the Reaction Time Test, which is a measure of linguistic balance obtained by dividing the number of words produced in English in five minutes. The subjects for his experiment were Spanish-English bilingual boys in the United States between the ages of nine and twelve years. The Goodenough IQ for these children was about average for the total population, but the Otis IQ was considerably below average. The more bilingual the subjects were the better they did on a performance test and the poorer on a verbal test. (50)

5. Levinson Study (1959). Levinson tested American-born Jewish preschool monolingual and bilingual children of similar socioeconomic level and found them to perform alike on the Goodenough Test and most subscales of the WISC. However, on the Stanford-Binet and the WISC Arithmetic Vocabulary and Picture Arrangement subtests, the monolinguals scored higher. (50)

In reviewing the research of literature related to the various findings of detrimental or favorable effects of bilingualism on intellectual development, one clearly gets the picture that, to date, not enough is known about the structure of the intellect and the effects of bilingualism upon this development. More research in this area is certainly greatly needed.

Many theoretical considerations concerning the effects of bilingualism upon intellectual development have been discussed by researchers.

Arsenian in 1937 hypothesized that language and intelligence are not identical. In line with this hypothesis, he maintained that "... the influence of bilingualism, whatever for the moment we may suppose it to be, does not extend to the whole area of thinking or intelligence, but to that particular section where linguistic symbolism and schemata are involved in the thinking process." (8)

Several writers, assuming a lack of identity between language and thought, suggest that the learning of two languages from childhood has favorable effects on the thinking process. Two writers in particular have made this point. Leopold, after extensive observations of the mental development of his own child, felt that the bilingual child learns early to separate the sound of a word from its referent. S. J. Evans of Wales also upholds Leopold's theory.

O'Doherty suggests that it is necessary in any consideration of the influence of bilingualism on intelligence to distinguish between two types of bilinguals for whom the effects may differ -- the pseudo-bilingual and the genuine bilingual. O'Doherty's writings lend additional support to the notion that "genuine" bilingualism may be an asset.

Weinreich makes the point that any individual who speaks two or more languages will experience interference due to the contact between them. The extent of the interference in any particular case will depend in part on certain linguistic differences between the two language systems. The language handicap reported for bilinguals could thus be attributed to interlingual interference. (63)

### Bilingualism and Biculturalism

Sofietti draws our attention to the situations which should be taken into consideration in any research dealing with aspects of bilingualism. The four basic types of situations he outlines as follows: (1) bicultural-bilingual (usually considered as the true bilingual, participates in two cultures); (2) bicultural-monolingual (this can be characterized by the child of an immigrant family who has given up his native tongue but not the native customs and beliefs); (3) monocultural-bilingual (the person who participates in one culture but has learned to use a second language); and (4) monocultural-monolingual (the most common situation in the United States). (56)

In studying the effects of bilingualism on the intellectual and social development of the child, one would find most of the difficulties and retardations due to the bicultural aspects of the situation. It is not a conflict between ways of life, beliefs, customs, and value systems and not necessarily one between language systems. (56)

### Levels Involved in Acquiring Bilingual Proficiency

The "route" leading to bilingualism has been defined as including the following levels: (1) acquisition of vocabulary and grammatical skills; (2) experience to the extent that the student can react automatically in the second language; and (3) surmounting of a "cultural" barrier where the student thinks in terms of culturally appropriate concepts and must acquire a native-like accent. (40)

Lambert studied the above developmental aspects of second language learning and found the following:

Vocabulary barrier was easiest to overcome as experience with a second language progressed, but the culture barrier, as evidenced in the results of the tests on word order, stereotypy of response, associational form and content, and pronunciation, was resistant even in the case of the graduate group. To put it another way, the process of linguistic enculturation seemed to be the most advanced stage of language skill and took a long time to acquire. (9)

Regarding the measuring of each of the above levels of proficiency, Saporta reports that there is no generally recognized scale in existence for measuring accomplishment in language. In his book on psycholinguistics he suggests three possible ways to approach the measuring of these levels:

1. His proficiency in each language may be measured independently, and then compared with that of monolinguals in each, or with that of other bilinguals like himself;
2. The measures in each language may be compared and a bilingual quotient derived;
3. The amount of interference may also be measured, together with the control of switching, to determine the extent to which the speaker has mastered the special problems of bilingualism. (54)

Saporta goes on to say:

It has been observed that one of the characteristics of efficient language users is the automaticity of their responses, which is assumed to be measurable in terms of speed of reaction.

Besides measuring speed of reaction in responding, psychologists use the association test. The hypotheses behind the use of this test is that greater language skill would bring more responses in general, more to abstract stimulus words, less stereotyped responses, etc. (54)

Ervin used a Thematic Apperception Test (TAT) and found that the associations of bilinguals are often significantly different in their two languages. (54)

It should be mentioned that the mastery of the written form of the language is a separate problem, not commensurate with the others. Distinct tests should be set up for comprehension and production (decoding and encoding) on each of the levels of phonemics, grammar, and basic lexicon. (54)

### Research into Possible Factors Related to Language Achievement

There has been much speculation as to which factor or factors contribute to successful second language acquisition. This speculation has predominated in place of controlled research. Several factors will be reviewed, presenting the published findings to date.

#### Age of the Learner

A crucial factor in the kind and extent of bilingualism is the age at which the second language is learned. Saporta states the following:

We can speak of infant, childhood, adolescent, and adult bilingualism.

Infant bilingualism means essentially the simultaneous learning of two languages.

Childhood bilingualism usually means the establishment of a second language during the early school years, after the first has been learned in the family. There is a general opinion throughout the literature that this is a favorable period, because the second language will not compete directly with the first and the learner has not yet lost his mental plasticity. One American neurophysiologist reports discoveries made in operating on the brains of epileptics, tending to show that as people grow older, the language learning centers in the brain harden. There is certainly also a psycho-social factor involved in this receptivity of the child—what Ervin has referred to as the child's dependence on models, resulting from its identification with the people who satisfy its needs. The greater readiness of children than of older persons to learn the language of their environment is associated with their craving for membership in the group of their contemporaries.

Puberty, with its passage into adolescence, leads to a consolidation of personality which to some extent inhibits the kind of submission to a new norm that language learning requires.

Adolescent and adult bilingualism both have the characteristic of emphasis on the content of the language and neglect of the formal system. The adult can solve intellectual problems more rapidly than the child, but he has less taste for rote memorization of the kind that is inevitable and even enjoyable in childhood. (54)

Loge and Mayans conducted a study in 1954 and came to the conclusion that when the language milieu is favorable, children will readily learn second languages in school settings, particularly when they have an opportunity to converse with children who have already mastered the language.

Dimitrijevic states that the evidence seems clear that the earlier the child is introduced to a foreign language, the better his pronunciation will be, other things being equal. (24)

According to Dunkel and Pillet, children also vary in their aptitude for learning a second language. They state that some 10 percent to 20 percent of the children who show normal or superior progress in most school subjects appear to have a distinct lack of ability in foreign languages. These children cannot readily be helped by extra drill or special attention. (25)

Popular opinion seems to hold that it is increasingly difficult to learn a foreign language as an adult grows older. Carroll's studies suggest that there is a slight negative correlation between age and success in learning a foreign language. These data are for a group with a mean age of thirty-four. (40)

W. Penfield conducted research in the area of neurophysiological mechanisms of speech in young children. His findings led him to stress the importance of beginning a second language in childhood if ability to speak a foreign language is to be acquired readily. (35)

#### Sex of the Learner

No data on the relation between sex and foreign language learning have been systematically collected and examined for this purpose.

Data from the manual of the Modern Language Aptitude Test show that girls have higher scores on the test and also tend to get higher marks in language courses in school, particularly in the upper grades.

#### Prior Language Training

The question is often asked as to whether the study of one language transfers to the learning of another language. At this time the results of many studies still show only inconclusive results. (24)

#### Other Factors

R. C. Gardner conducted a study in 1960 to measure factors related to French achievement. The results of his study revealed two independent factors, which were aptitude and intelligence plus a sympathetic orientation toward the French community. Gardner states that "students with an integrative disposition to learn French had parents who also were integrative and sympathetic to the French community." (40)

McGill University carried out a series of studies concerned with language learning. A social-psychological theory of language learning was one of the important outcomes of these studies:

This theory, in brief, holds that an individual successfully acquiring a second language gradually adopts various aspects of behavior which characterize members of another linguistic-cultural group. The learner's ethnocentric tendencies and his attitudes toward the other group are believed to determine his success in learning the new language. His motivation to learn is thought to be determined by his attitudes and by his orientation toward learning a second language. (40)

A study was conducted by Lambert, Gardner, Alton, and Tunstall in various regional settings in the United States. The attitudinal disposition of American students toward linguistic minority groups in their immediate environment was studied. Also the general attitudes of members of the cultural minority group toward the general American culture were studied:

In this study we were interested in comparing the importance, in the language learning process, of intellectual ability, and language learning aptitude, on the one hand, and social attitudes toward the "other" language group and motivation to learn the language on the other hand. (40)

The results of this study indicate that two independent factors underlie the development of skill in learning a second language: an intellectual capacity and an appropriate attitudinal orientation toward the other language group coupled with a determined motivation to learn the language. (40)

A study done by Johnson explored the relationship existing between the bilingual background of Spanish-surname subjects and the attitude of the sample Spanish at the chosen age levels toward the Anglo ethnic group. Two instruments were used – the Projective Test of Racial Attitudes and the Hoffman Bilingual Schedule. The results showed a reversing of attitudes from age four to age twelve. At the four-year-old level a profound knowledge of the Anglo culture or no knowledge of it yielded the least bias toward it. At the twelve-year-old level the opposite was true – a profound knowledge of the Anglo culture or no knowledge of it yielded the most bias. This may indicate that, with much knowledge of the Anglo culture, the Spanish-surname subject recognizes prejudices toward him and realizes that lack of knowledge is related to a frustrated feeling that he is unable to compete with the greater Anglo culture. (34)

Weinreich has pointed out another aspect of language skill that may show individual difference; namely, the language switching facility. (54)

A psychoanalyst even suggests that the ability to learn to speak foreign languages may be dependent on unconscious feelings that are under the control of the superego. (54)

Hall remarks that in his experience extroverts have more difficulty than do introverts in learning foreign languages. (54)

An Air Force project for selecting language students found that a four-day trial course in the language reduced the incidence of failure from 50 percent to 18 percent. (54)

Morgan used a psychological approach and gave the students a battery of verbal tests, to which he added a careful study of each student's personal history. The results proved to be over 90 percent predictive. (54)

W. Kaulfers directly answered several questions concerning language learning asked by laymen. They were as follows:

1. Is there a language talent? No, not apart from general intelligence.
2. Does one have to be especially intelligent to learn a second language? Good intelligence helps, but interest fortified by a will to learn works wonders.
3. Do children learn languages more readily than adults? They seem to develop a good accent more readily than adults and are less self-conscious in oral expression, but have no demonstrable advantages over them otherwise.
4. How early can a child safely begin learning a second language? After age four, provided that he can hold his own with his peers in his native tongue. (35)

P. Milner studied the neurophysiological aspects of language facility and theorizes that there appears to be a mechanism of neural inhibition which helps account for the bilingual's control over interlingual interference. Milner indicates that certain adjacent neural structures function in a reciprocal manner so that when structure "x" is activated the adjacent structure "y" is automatically made inactive and unable to be stimulated. This mechanism may turn out to be an explanation of how bilinguals can keep their languages functionally segregated in usage, especially in the case of "coordinate" bilinguals. (39)

## Summary

Research on factors related to language achievement can be summed up by saying that there is some doubt whether one can point to any single language-learning skill. At any given moment in his life, a person is influenced by so many previous experiences that whatever aptitude in language is contained in his genes has been obscured by later training. Present research points to language aptitude as a combination of several skills.

## Motivation and Language Learning

The motivation for learning a second language can be classified into four categories: communication; emotional involvement; religious value; and literary-culture value. (54)

1. **Communication** Interviews with third generation Norwegians very frequently pointed to the presence of a non-English-speaking grandparent in the household as an important factor in promoting the learning of the language by the child. The passing of the grandparents often led to the use of the immigrant language.

2. **Emotional involvement** The emotional involvement of most people with the language first learned is associated with the deep impression of the child's first experiences of the world, which are verbalized for him in the mother tongue. The language loyalty which is founded in this way usually supersedes all others, but it is often upset in immigrants and in speakers of substandard languages, who are required to learn some other language dominant in their area.

3. **Religion** - Another important motivation for language learning is the religious one. The learning of Latin among Catholics, of Hebrew among Jews, or of German among Mennonites, and of immigrant languages in general, has been most powerfully supported by religious sentiments.

4. Literary-cultural - For a much smaller group the literary-cultural value has had its effect among immigrant groups in a somewhat lesser degree than among the colonial ones, where culture was dominant in each area. (54)

Carroll conducted a study related to motivational factors in learning a foreign language and found that whether a person likes foreign language study is not related significantly either to aptitude or to achievement. It could be inferred that as long as learners remain cooperative and actively engage in learning, whether they want to or not, motivational differences will not make much difference in achievement. (24)

Gardner and Lambert stress that the student's attitude toward language study and toward the speakers of the language he is studying can have profound influences over and above those of aptitude. (24)

In Politzer's study he observed a correlation between number of hours spent in voluntary language laboratory periods and performance in course examinations. Politzer's data also showed that the amount of time spent in doing homework in a more traditional course had a curvilinear relation to grades: those getting A's tended to do least homework. (24)

### Summary

It appears that the individual who acquires a second language must have strong motivations for the considerable effort that goes into it, no matter what the age. While these are usually social in origin, language being an instrument of communication, the individual must also accept them as valid for himself.

Even when bilingualism has been established, its continuance depends to some extent on the individual's attitude toward the two languages.

### Phonological Problems

The phonological problems related to learning a foreign language fall into four categories:

1. Problem of discrimination - i.e., hearing the differences between phonemes which are not distinguished or used in one's native language.
2. Problem of articulation - i.e., learning to make the motor movements adequate to proper production of the foreign phonemes.
3. Problem of integration - i.e., learning to assemble the phonemes of a connected discourse with the proper allophonic variations and "smearing."
4. Problem of automaticity - i.e., making correct production so habitual that it does not need to be attended to in the process of speaking. (24)

### Prediction of Success in Language Learning

Carroll carried out several studies to determine whether prediction of success in intensive language courses was possible. He came to the following conclusions:

1. Facility in learning to speak and understand a foreign language is a fairly specialized talent . . . relatively independent of those traits ordinarily included under "intelligence" . . .
2. It is possible to predict success in intensive language courses with high validity by means of certain tests.
3. Data from tables of norms and from expectancy tables showing the probabilities of success in intensive language courses for given levels of measured aptitude suggest that a relatively small fraction of the general population, perhaps one-third to one-half, has a good chance of success in these courses.
4. Language aptitude as measured by tests seems to consist of at least four identifiable abilities: (a) phonetic coding - the ability to "code" auditory phonetic material in such a way that this material can be recognized and remembered; (b) grammatical sensitivity - the ability to recognize the grammatical functions of words in sentence context; (c) rote memorization ability - the ability to learn a large number of associations in a relatively

short time; and (d) inductive language learning ability – the ability to infer linguistic forms, rules, and patterns from new linguistic content itself with a minimum of supervision or guidance.

5. The traditional “verbal” or vocabulary knowledge factor is not of great importance in predicting success in elementary language training where audiolingual skills are stressed.

6. Phonetic discrimination ability does not seem to be susceptible to reliable measurement and is probably not a useful predictor of success over and above tests of “phonetic coding” ability.

7. Foreign language aptitude is not specific to particular languages or particular groups of languages; the same battery of tests predicts success in languages as diverse as German and Chinese with approximately the same degree of validity.

8. Some evidence indicates that a battery of language aptitude tests can provide information useful in forecasting and diagnosing particular types of learning difficulties.

The Modern Language Aptitude Test (MLAT) was developed by John Carroll and Stanley Sapon. It is a test which may prove to be of great value in predicting probable success in learning a foreign language.

Pimsleur, Stockwell, and Comrey studied 410 college students enrolled in a second semester French course. The purpose of the study was to determine factors which relate to foreign language ability. They found that verbal IQ and motivation appear to be the most important factors in predicting success in learning a foreign language. Reasoning, word fluency, and pitch discrimination also contribute to success. (39)

### Teaching Methods

Traditional procedures of language instruction in American schools in the nineteenth and early twentieth centuries often used a “grammar-translation” method in the sense that they sought primarily to teach the student to translate passages in the written language. This was done by teaching the student “rules” of grammar and lists of vocabulary items paired with what were indicated as their English “equivalents.”

Language study research was more or less at a standstill until, in 1953, the Modern Language Association of America through its foreign language program gave it new impetus by appraising existing conditions from the elementary through the graduate school, by extensive surveys of the need of foreign language study in the United States, and by conferences and reports on directions to be taken in the future. (9)

Methodology for teaching foreign languages falls roughly into three categories: the direct method; the indirect method; and the linguistic method, which includes the oral-aural approaches to language teaching. (27)

1. Direct method. This method has had a long history of use. It is the presentation of all aspects of the foreign language without recourse to the native language of the learner. A variant of this method is the “graded direct” approach developed by Richard and Gibson in 1945. It places emphasis upon the careful grading of the materials to be learned and upon presentation of these materials in meaningful contrastive contexts.

2. Indirect method. In this method the native language of the learner is used to explain grammar.

3. Linguistic method. This method is based on a descriptive analysis of both the sound system and structural items of English and of the native language of the learner. Preparation of these materials has been guided by scientific analyses of the language to be learned – in particular, its phonology and grammar. The oral-aural instruction stresses practice in hearing and imitating speech and analysis of the structure of the language. (2)

Contemporary methods of teaching a foreign language encompass four approaches:

1. Items are normally presented and learned in their spoken form before they are presented in their written form. This is often called the audiolingual or aural-oral approach.

2. Contemporary teaching methods are making increasing use of the results of scientific analysis of the contrasts between the learner’s language and the target language. To a considerable extent,

the typical learner's difficulties can be identified and predicted in advance on the basis of this "contrastive structure analysis."

3. Contemporary doctrines stress the need for overlearning of language patterns by a special type of drill known as "pattern practice."

4. Use of the student's native language is minimized. The desirability or even the necessity of learning to make responses in situations which simulate "real life" communication situations as clearly as possible is emphasized.

Several studies have been conducted to compare the traditional methods against the new oral-aural methods.

Hamilton and Haden conducted a study at the University of Texas which compared these two methods. Their results showed the following: (14)

1. The differences between traditional and oral-aural methods are slight, in terms of student achievement, but the latter have many features that are worthwhile adjuncts to language teaching.

2. It makes little difference in student achievement on cooperative tests whether grammar is emphasized in the traditional manner or is taught inductively.

3. Instruction in articulatory phonetics definitely aids in developing pronunciation skills.

Hohlfeld conducted a study in which an experimental group emphasized oral-aural skills and a control group emphasized the use of textbooks, grammatical analysis, reading, and translation. His findings showed the following:

1. Nonsignificant results for the experimental group were obtained on parts of the Cooperative Spanish Test.

2. Almost significant results favoring the experimental group were yielded by an aural comprehension test and a test on Spanish life and culture.

3. Overwhelmingly significant results for the experimental group were shown on a phonetic accuracy test and an oral reading test. (14)

Altho, Dunkel, and Agard investigated the traditional and new-type methods (aural-oral) and found the following:

1. Traditional methods produced slightly better knowledge of the written language.

2. The new-type methods showed a slight edge in producing a command of the spoken language.

The investigators concluded that "the new-type methods did not seem to show the advantages which had often been claimed for them -- but there were no dramatic failures demonstrated in the new-type methods." (14)

Studies have also tended to show no significant differences between groups using prepared tapes and those taught by an instructor.

### Results of Experimental Instructional Programs

Chiang conducted a remedial English program for third-grade bilingual students. The length of the program was six months and included experimental and control groups totaling 246 subjects. The students were given 20-minute daily lessons in remedial English which were primarily oral lessons. The results showed significant gains in reading and language ability. (20)

Patterson and Johnson conducted a study with Mexican-American children in Santa Barbara. They used two methods to teach reading-experience-activity chart and textbook methods. The results showed that the children learned more words from their own charts than from the textbooks and ready-made materials. (20)

Stone conducted a survey of Mexican-American and Italian children in California and found that the experience-activity method of teaching reading gave the children a poor start in reading. (20) These results conflict with the Patterson-Johnson study cited above.

Fuller conducted a four-year study in San Jose in which special language training was given to Mexican-American kindergarten pupils. The experimental group was given one year of speech training while the control group received no special training. The results showed that those in the experimental class had fewer failures in first grade and made better reading scores after three years of schooling. (20)

The San Jose Experimental School in New Mexico conducted an eight-year study of 2,312 students with Spanish-speaking backgrounds (grades one through eight). Experimental and control groups were used. The experimental group received a special program with emphasis on reading and oral English with the teaching of minute-vocabulary lists before instruction. The results showed significant gains of the experimental group by the Gates Reading Test. (20)

Herr conducted a study with pre-first grade pupils. The experimental group of five-year-olds attended school and received special training directed towards vocabulary, auditory perception, and visual perception. The control group did not attend any pre-first grade sessions. The results showed that at the end of first grade those in the experimental group had a reading achievement score of 2.1 and over. The control group scored at 1.5 and below. (20)

J. Cayce Morrison conducted the Puerto Rican Study in New York City. Grades one, four, and seven were used. The experimental classes had one-half hour of English instruction daily which emphasized vocabulary, language pattern, and experience. Morrison concluded that "the three variants had differential strengths, and all variants were weak in promoting the development of English reading skills. The strength of an experiential emphasis is in improving the pupil's ability both to speak and to write English. The strength of a structural emphasis is in improving the pupil's ability to write English." (20)

Probably the most extensive program in bilingual instruction being conducted to date is the Marysville experimental program in bilingual education.(66) The results reported for the second year of operation tend to support the hypothesis that Spanish-speaking pupils are better able to learn when they use their native language and have systematic instruction in English as a second language. They report that the essential features of their experimental curriculum were as follows: "... (1) to provide wider contact with the environment; (2) to improve oral Spanish; (3) to develop literacy in Spanish; (4) to achieve mastery of oral English; (5) to become literate in English; (6) to acquire skills and knowledge in the content areas of the curriculum through the use of Spanish to mediate meaning." (66 and 45)

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