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The Effects of Bilingualism on Achievement in Foreign Languages

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THE EFFECTS OF BILINGUALISM ON ACHIEVEMENT IN FOREIGN LANGUAGES

BY

Kathleen A. McGoldrick

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Loyola University 1935
The Thesis "The Effects of Bilingualism on Achievement in Foreign Languages," written by Kathleen Attracta McGoldrick, has been accepted by the Graduate School of Loyola University, with reference to form, and by the readers whose names appear below, with reference to content. It is, therefore, accepted as a partial fulfillment of the requirements for the degree of Master of Arts.

Rev. Austin G. Schmidt, S.J. November 30, 1934

Dr. James A. Fitzgerald December 3, 1934
KATHLEEN A. McGOLDRICK

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CHAPTER I

INTRODUCTION

The purpose of this thesis is to examine the influence of bilingualism on the acquisition of a third language.

Bilingualism means the ability to express one's self with ease in two languages, both being spoken with a fair degree of accuracy, although the two tongues may not be used with an equal amount of skill, nor may they fulfill the same purpose. The one may be the language of the home, and of ordinary intercourse; the other, of business or of the school, for which the first language is inadequate. Bilingualism results (1) when a child is reared in a political or educational environment that demands the use of two languages, (2) when the offspring of a racial intermarriage acquires the language of both parents, (3) when a parent insists upon his child's learning a foreign tongue for the sake of material advantages that he sees in such an acquisition, or (4) when a child is entrusted to the care of a nurse who speaks a foreign language.

The present writer's interest in bilingualism grew out of her associations in a class at Crane Junior College, Chicago, Illinois. It was there that the present writer first observed some facts which appeared to indicate that the students of bilingual achievement - individuals who spoke English and the mother tongue of their parents, such as Polish,
Italian and Jewish - had an advantage over the monoglot English-speaking students in acquiring another language. The problem of whether or not there was really an advantage seemed worthy of investigation, and when opportunity presented itself, the present study was undertaken for the purpose of determining the effects of bilingualism on achievement in foreign languages.

The effects of bilingualism on achievement in foreign languages is of importance to language teachers, psychologists, and educators. Yet these three groups have given little attention to this phase of foreign-language study. The present writer has not failed to make an effort to explore the literature in the field to discover studies made of foreign-language achievement, but the studies reviewed revealed no information of significance to the present problem. They dealt with the relationship between foreign-language parentage and the child's intelligence or his school achievement; and were, almost exclusively, at the elementary-school level.

Among these studies are those of Caldwell and Mowry (5), Friedl (11), Garretson (2), Harris (16), Kaulfers (21), Manuel and Wright (24), Rice (29), Rigg (30), Saer (31), Smith (32), Wang (37), West (38), and Yoshioka (40).

It is a recognized fact that these studies are of dubious value so far as evidence concerning racial differences is concerned. The conclusions given by these investigators indicate that differences - such as environmental, sociological, educational, and psychological - exist, but these differences do not throw any light upon the effects of bilingualism
on achievement in foreign languages.

In our American schools we have pupils who come from foreign homes where the environment is inferior, the social status of living is different, and the opportunities offered for an educational background are limited. We find individual differences of all types prevailing in the foreign-language classroom; and if the achievement of bilinguals in a foreign language is meager, we must be slow to attribute this fact to language disability, for it may be due to one or more other factors, such as a poor physical condition, a low grade of intelligence, or social maladjustment in the classroom.

As there has been almost nothing published relating to the influence of bilingualism on achievement in foreign languages, it will be necessary to make a brief preliminary survey of the nature of language, and of those general laws of learning which apply to the acquisition of a language, a discussion of which follows in Chapter II.

In Chapter III the technique and the results of the present investigation will be described in detail.

In Chapter IV the interpretation of the results, tabulated in Chapter III, will be given.
CHAPTER II

THE PSYCHOLOGY OF LANGUAGE:

GENERAL LAWS

When one considers the important role which language plays in our present school curricula, it is almost incredible that psychologists and educators have neglected the psychological principles governing effective language instruction. Few school subjects involve the interests of more individuals, or are more written about, and with less agreement, than the subject of language study. The truth of this statement will scarcely be doubted by anyone who attempts to find complete and convincing explanations of the problems involved in mastering a language. Methods for learning languages are, indeed, frequently and intelligently discussed; but these discussions are, for the most part, pedagogical rather than psychological. Is the psychologist to blame for the lack of material in the field of language study?

Several reasons may be given in defense of the psychologist to explain his apparent neglect: (1) Modern language teachers make no pretense at agreement as to the objectives to be attained. (2) Teachers do not attempt to diagnose the causes for failure among pupils. (3) They offer no remedial measures to eliminate deficiencies in learning. The main objective of language teachers is to transmit the subject-matter of a
foreign tongue, and to hope for the best results. If the teachers could reach an agreement about the most desirable objectives to be attained in a language, and if they were to diagnose the causes of the failures, the psychologist might be able to give an analysis of the difficulties that arise during the learning process of a retarded pupil, and he might be able to suggest to teachers the most efficient and valuable procedure to adopt in handling remedial cases.

On the other hand, the brain machinery is very complex. A psychologist, to carry on scientific observation, would need to use laboratory experimentation, and this process, if it were accurate, would lead to a very intricate problem; namely, the interpretation of the psychological processes as observed facts. The psychologist, as yet, cannot observe the brain mechanism in actual operation, at least not in any detail. The intrinsic difficulty of this observation may be considered as one of the most outstanding factors that has delayed experimentation in this field.

Despite the fact that there are several obstacles which prevent psychologists from giving an analysis, we are able to obtain sufficient evidence dealing with the process of mastering a language to enable us to offer something of practical value to both the teacher and the student of psychology. In this chapter, then, we will discuss two topics: first, the process of acquiring a language; and secondly, those general laws of learning which apply to the acquisition of material of any type, and which should be kept before the mind if one wishes to analyze the process of acquiring control over a language.
What psychological processes take place in the mind of a very young infant when he first learns to recognize objects is, necessarily, unknown. Undoubtedly, an infant is able to recognize objects long before he is capable of associating the symbol with the object; for example, a child who has been bitten by a dog will shrink when he sees a cat; or a child, if bitten by a poodle, will possibly shrink when he sees any type of furry animal. When playthings or pets are given to the infant, the mother very often pronounces the name of the object or thing as she gives it to her child; for example, a mother holds a bottle of milk in front of her hungry baby and repeats the word bottle to him. Does the child in his own mind link up the name or symbol with the object? We do not know. All we do know is that the baby, when the mother says bottle, keeps on crying until the bottle is placed in his mouth.

At this stage of the infant's development, so far as we know, the child lives in a world of unnamed things. He is not capable of recognizing objects or things by names, but he is capable of showing signs of pleasure when he has satisfying experiences, and of displaying signs of dislike when he experiences annoyance.

After the child has become able to differentiate between pleasant and unpleasant things, he commences to make babbling sounds, probably imitative in character. We find the child gurgling la, da, aghoo, and uttering a variety of sounds at random, before he acquires any control at all over his vocal organs. Often the babble is very loud, noisy, and unpleasant to hear; it sounds like a mass of syllables running together,
which appear to give the infant pleasure. As the baby becomes older, the babble changes in character and becomes more like speech.

Simultaneously with, or very immediately after, this imitative stage, we find the child uttering words without any comprehension of their meaning. He is unable at this stage of development to use words with a knowledge of their significance. He repeats words as a parrot does; for example, a child may hear an adult calling an individual a *monkey*, and upon hearing it spoken, the youngster repeats it, although he does not comprehend its meaning. When the child later greets a caller with the salutation of *monkey*, he says it merely for the pleasure of hearing it; possibly, the adults laugh at him. Of this stage in the child's language development we may certainly affirm that there is a growth in control of the vocal mechanism; it seems probable, also, that there is a dawning consciousness in the child's mind that a vocal utterance possesses a significance for those who hear it.

The time soon comes when the mother finds it possible to get the child to associate a word with its appropriate object. By holding a piece of candy in front of the child and saying *candy* at the same time, the parent causes the visible object to be connected with the name of the object. This procedure enables the child to form a connection between the two, and he is then able to utter the word *candy* whenever he sees the object.

The child, realizing in some inexplicable way what his mother wishes - that is, that she desires him to give the response *candy* when he is shown the object - endeavors to say the word; but, if he fails, he tries
again until finally he is able to pronounce it.

Does the child know when he says candy that he refers to that substance which adults call candy? It is very difficult for us to determine this. The only answer which may be given is that the child probably does not know the complete significance of what he is saying. Many children, having learned a word, will use it indiscriminately for various objects. They are often not able to differentiate; for example, to some children every woman is mama.

Once a child begins to discriminate, he ceases to be parrot-like, and he begins to say words for some other purpose than the mere pleasure of repeating sounds; he uses words purposefully and comprehendingly. His one-word sentences express his reactions to situations, his judgments, his desires, his emotions; through these single terms he manages to convey everything he wishes to communicate. When these one-word sentences do not produce the satisfying results that he is aiming at, he begins to put a word or two more into his expressions to emphasize his wants. As his power over a language increases, he expresses more and more complex ideas, using more and more words.

In the field of language development, there has been a tremendous amount of literature written on the development of a child's vocabulary and sentence structure. The results obtained by investigators have proved most interesting.

Studies made of the vocabularies of children under four years of age show that nouns, verbs, and adjectives occur at this period (3:95-124,
Among the nouns appearing at a very early age are dada, mama, baby. Verbs frequently used are give, go, ask, am, and such shortened expressions as up (for lift up) and down (for put down). The earliest adjectives which are used by the child frequently relate to an experience which has left a vivid impression upon him. Thus we find that the special qualities of food are among the first to be designated and differentiated by such adjectives as nice, sweet, cold, hot, good (26:60).

Among the studies made of the frequency with which these different parts of speech are used by children is that of Boyd (3:95-124), The Development of a Child's Vocabulary. He studied a young girl, living in Glasgow, Scotland, for a period extending from the seventeenth month to the age of five years (3:95). He found that at seventeen months of age the words used by the child were 70% nouns; and that verbs denoting action made up about 19% (3:97-98). The adjectives used at this period were "exceptional in character," and for the most part they were not really adjectives, but an inseparable part of a substantive (3:96-98). The adjectives were often misused for nouns (3:98). This same subject at the age of three years used 918 nouns out of a total of 1,657 words, or a percentage of 55.4; 344 verbs, or a percentage of 20.8; 165 adjectives denoting quality, or a percentage of 10; and 35 other adjectives, or a percentage of 2.1 (3:124). At four years of age she used 1,441 nouns out of a total of 2,598 words, or a percentage of 55.5; 541 verbs, or a percentage of 20.8; and 294 adjectives denoting quality, or a percentage
of 11.3; and 70 other adjectives, or a percentage of 2.7. At all ages nouns were used more freely than any other part of speech; but as the child matured, verbs were employed with greater proportionate frequency (3:124).

The investigation reported by Dorothea A. McCarthy (25:1-74) resulted in data similar to Boyd's. She kept records of the running conversation of 140 subjects, selected at the age levels of 18, 24, 30, 36, 42, and 54 months. The children were classified according to paternal occupation and intelligence (25:25-32). Ten percent of the children in this study heard a foreign language in the home and a special study was made of them (25:65). The analysis made of the parts of speech revealed a large proportion of nouns in the vocabulary of the youngest children; as the subjects grew older they used fewer nouns and more verbs (25:155). The study also showed that bilingualism was not a serious handicap in linguistic development, since the bilingual child needed only average time to make a response (25:66).

Johnson's study, however, shows a more frequent use of verbs. He studied the speech used by seven children from 17 to 33 months of age during the waking time in a nursery school. He found that the number of the various parts of speech varied for different children (20:193-94). He states:

The verb is found more frequently on the average and the noun and the pronoun occur almost as frequently. The pronoun is used more often in contractions than in single words (20:206).
that the different nouns used was 393; the total count of verbs used was 976, and the total number of different verbs used was 393. This study shows that as a child matures in age he uses fewer nouns and more verbs; and that the verbs call for more thought than the nouns. This conclusion agrees with that of Boyd (3:95-124).

Madora E. Smith (33:1-92) recorded the various parts of speech used among eighty-eight children from two to five years of age, twenty-five of whom were observed more than once. The little ones were obtained from the preschool laboratory, the day nursery, and a home for the friendless. All the records were taken by the writer with the exception of two, the two earliest records of a girl five years of age, whose vocabulary was recorded by her mother (33:13-14). When the frequency of the various parts of speech used was tabulated, it was found that at two years of age verbs, nouns, and adverbs are used more frequently than any of the other parts of speech; and at three, four, and five years of age, verbs and pronouns predominate (33:24). Smith's findings for the various parts of speech used by the child seem to be similar to those of Johnson (20:190-226).

Pelsma (27:1-73) reports a study very similar to those of Boyd, Smith, and Johnson. He studied his daughter Elizabeth from the age of twelve months to that of forty-eight months. The ten words used in her vocabulary when she was twelve months old were obtained without much trouble. The words used in her vocabulary at the ages of two, three, and four years were listed with a little more difficulty, and a more definite procedure was followed. Three weeks before her second, third, and fourth
birthdays, a record of her vocabulary was kept (27:5). The methods that were employed to insure getting into the record all the words used in Elizabeth's vocabulary were as follows: (1) The daily conversation used by the child during the three weeks before her birthday was recorded in detail. (2) When it was assumed that she knew the name of an object, action, attribute, or relation, and the word had not appeared in conversation, questions were framed to arouse the desired response. (3) When she was shown an object, she was asked to name it. The question usually was in this form, "What is it?" (4) At three years of age, Elizabeth often spoke of imaginary things, a practice common to children of that age; and the words used under such circumstances were recorded. (5) When the child was four years of age, she was old enough to notice that the words she used were being recorded, and she inquired why this was being done. She was told that her father was interested and proud of her for knowing so many words. This information led the child to come up to her father and say: "I know ... Have you that written down?" (27:6-7).

The parts of speech recorded for Elizabeth Pelsma at twelve months will be given; but her vocabulary at twenty-four, thirty-six, and forty-eight months, respectively, only the first records of the words used will be given on account of the length of the lists. The following is the list of the parts of speech with the specific words arranged alphabetically:

At Twelve Months:

B. Nouns: baby.
D. Nouns: dada (daddy), dog.
D. Adverbs: down.

G. Verbs: go.

I. Nouns: I (water) a few months later this was changed to "Iyah."

K. Nouns: kitty.

M. Nouns: mama, man.

U. Adverbs: uppe (up).

The total parts of speech at 12 months: nouns, 7 or 70%; verbs 1 or 10%; (26:31).

At Twenty-Four Months: [A partial list only, used for illustrative purposes (27:10)].

A. Nouns: alarm-clock, alligator, apple, apron, arm, ashes, aunt.

   Verbs: am, ask.

   Adjectives: all, any.

   Adverbs: almost, along, after, away.

   Conjunctions: and.

   The total parts of speech used at 24 months: nouns, 212 or 56%; verbs, 88 or 23.3; adjectives, 37 or 9.9; adverbs, 21 or 3.6; pronouns, 8 or 2.7; prepositions, 6 or 1.6; conjunctions, 1 or .3; interjections 6 or 1.6 (27:31).

At Thirty-Six Months: [A partial list only, for illustrative purposes (27:14)].

A. Nouns: alarm-clock, alligator, apple, apron, arm, ashes, aunt, automobile, ox.
Verbs: am, aren't, ask.

Adjectives: afraid, all, any.

Adverbs: after, almost, along, away.

Conjunctions: and.

Total parts of speech used at 36 months: nouns, 406 or 59.8; verbs, 147 or 21.4; adjectives, 65 or 9.8; adverbs, 31 or 4.6; conjunctions, 1 or 1; prepositions, 9 or 1.2; interjections, 8 or 1.1; pronouns 14 or 2.0 (27:31).

At 48 Months: [A partial list only, used for illustrative purposes (27:19).

A. Nouns: afternoon, alligator, ankle, anybody, apple, apricot, apron, arm, aunt, automobile.

Verbs: am, aren't, ask.

Adjectives: a, afraid, all, an, another, any, around, awful.

Adverbs: afterwhile, again, alike, along, almost, alone, allright, anywhere, apart, around, away.

Prepositions: across, after, at, around.

Conjunctions: and.

Interjections: "ah."

Total parts of speech used at 48 months: nouns, 730 or 56.6; verbs, 265 or 20.7; adjectives, 135 or 10.6; adverbs 86 or 6.8; prepositions, 19 or 1.6; conjunctions, 5 or .5; interjections, 15 or 1.3; pronouns, 23 or 1.3 (27:31).

Pelsma's findings are similar to those of other investigators. A
child first uses nouns more frequently than verbs, urged thereto by the desire to refer to the many objects around him; but as he matures, he feels the need to use verbs, to tell what action was performed or what he wishes done: for example, Mama goes away. He also begins to use adjectives to tell what quality is possessed by a person or thing; for example, The candy is sweet; The stove is hot.

The child now has a functional knowledge of nouns, verbs, and adjectives. Years will pass before he acquires a formal knowledge of these parts of speech, a knowledge which no one needs to possess in order to speak: for as Herbert Spencer (35:106) has said:

A language is spoken, and poetry written, many years before either a grammar or prosody is even thought of. Men did not wait till Aristotle had constructed his logic, to reason. In short, as grammar was made after language, so ought it to be taught after language: an inference which all who recognize [sic] the relationship between the evolution of the race and of the individual, will see to be unavoidable.


We may summarize the results of McCarthy's study with 140 children of the age levels 18, 24, 30, 36, 42, 54 months as follows:

1. Comprehensible responses increased with the advance in chronological age; and the percentage was much higher for girls than for the boys
at each grade level. The most rapid increase was between 18 and 42 months (25:68).

2. The length of response varied according to the occupation of the father of each child; that is, children of laborers used fewer words than children of professional men (25:68-9).

3. The curve for the mental age constructed in relation to the mean length of responses was analogous to the one for the chronological age (25:69).

4. The children who were constantly in the presence of adults showed a much greater mean length of response than the children who associated chiefly with children (25:69).

5. The children who had heard a foreign language at home were not handicapped in making responses; they were as quick in responding as the others (25:69).

6. The average time for the first ten responses was lower than the average time for the remaining groups of ten responses. The investigator attributed this fact to the overcoming of timidness during the study (25:69).


In classifying the children's responses according to their grammatical structure, Dorothea A. McCarthy (25:109) in her study reported the following important facts:

1. As the child matured in age, the structurally incomplete
responses decreased (25:109).

2. In the beginning, the child used a large number of simple sentences; but as he matured in age, he used simple sentences with phrases (25:109).

3. The use of the compound, the complex, and the "elaborated" sentence increased with the increase in the child's age (25:109).

4. In the beginning, the incomplete responses used were few in number; then there was an increase in their use, followed by a decrease in proportion to the number of complete responses used (25:109).

Miss Smith (33:23, 27, 66) summarized her findings pertaining to sentence structure among eighty-eight children from two to five years of age as follows:

1. As a child increased in age, he used longer and more complete sentences (33:27).

2. Declarative sentences predominated at all ages (33:27).

3. As a child matured, the use of simple sentences decreased; the use of compound and complex sentences increased (33:27).

4. The number of questions increased (33:27).

5. The use of exclamatory sentences decreased (33:27).

6. The repetition of similar sentences decreased with age (33:66).

7. At three and at four years of age, the ratio of complete to incomplete sentences was greater than at two years of age (33:66). Miss Smith says (33:23):

The proportion of simple sentences to complex and compound is another criterion for indicating
improvement in sentence structure. Here
the decrease in proportion from year to
year is not significant, although the de-
crease from two to five years probably is
significant.

We have previously discussed several distinct aspects of linguistic
development for the young monoglot, and each has proved most interesting.
There is still a phase of language study which we have not considered as
yet; namely, the development of the young bilingual.

Does a child acquire two languages simultaneously in the same way as
he does one language? The acquisition is probably similar; but, as the
present writer has been unable to find any serious psychological study
dealing with the bilingual, who apparently has been neglected by the
psychologist, it is unwise to make any positive assertions concerning his
linguistic development. We have said that in acquiring one language the
child establishes a connection between a visible object and the word used
by his parent to represent that object. In acquiring a second language
the child also establishes a connection between the same object and its
different symbol, so that he has to acquire two terms for the same object.
The possible effects of the acquisition of the same meaning for two symbols
or sounds is discussed briefly by Johnson (20):224—25):

The child learns that cup means the object
from which he drinks milk. If it is sometimes
called cup and again tasse he must learn to
make the same response to both sounds. If we
magnify these double symbols for all the ob-
jects and acts in the environment we reduce
the number of symbols to which the child can
react correctly and promptly and we confuse
him through requiring a selection of one or
the other sound when he wishes to use a word
to signify an object. This difficulty is
increased when the child attempts rapid speech to signify a desire. This confusion usually leads to a greater degree of emotion in speech reactions. He may learn to use the words interchangeably but when he talks with other persons who do not know the foreign tongue he is baffled by their responses. It would seem that the only method of teaching two languages to the infant without harmful effects would be to let one language dominate. After a meaning of a word was established and the child used it automatically then the same meaning could be attached to another word without as much interference. If this foreign speech could be used with different persons than those with whom the native tongue is used interference is further reduced by avoidance of the confusion of selection of response.

Johnson (20:224—25) studied only "several" children, and gives no detailed data concerning any of them. He reports that in each case the child's progress was not satisfying in the "function of speech in social adaptation." He states (20:225):

If a child is protected from other children adults may train him in the two speech forms with fairly rapid development in both. The later adjustment to other children is usually difficult if ever adequate and confusion in thinking may persist into adult life.

When one's native tongue has been mastered and functions adequately the acquisition of a new tongue is successfully made though the prized "speech like a native" rarely occurs. To place the onus of two languages upon a child in his first years seems not only undesirable but not productive of the desired ends. After the elements of a language have been mastered there must be frequent use of it or much of it will be forgotten. Though more easily re-learned afterward the amount of learning by a child is of little value in comparison
with concentrated effort after the native tongue has become adequate for ordinary demands.
Summary

We have seen, therefore, that in considering the language development of the young child we are confronted with an activity which increases very rapidly during the preschool period and which is never the same for any two individuals as to the time of its appearance. We find the young child passing through several prelinguistic stages: he merely babbles; he shows a tendency to imitate sounds and words which are incomprehensible to him; simultaneously with, or immediately after, this imitative stage, he utters his first word. After the acquisition of the first word (usually followed by a rapid increase in the vocabulary), the child begins to combine words; generally he uses the noun-verb combination, and thereafter there is a rapid increase in the length of a response. The child's speech becomes more comprehensible with his increase in chronological age. When the child begins to use sentences, he expresses himself in simple sentences; but as he increases in age, he uses a greater number of compound and complex sentences. In the initial period of linguistic development, nouns appear oftener than any other part of speech; later on, verbs occur with a more proportionate frequency; adjectives, adverbs, and the remaining parts of speech are used as the child matures.

It is probable that a bilingual learns two languages simultaneously in a manner similar to that employed by the monoglot in his acquisition of one language, but there is no evidence which the present writer can find to prove this statement.
Before we discuss the acquisition of a foreign tongue by a high-
school pupil, we will explain briefly the factors that enable a child to
become more proficient in learning a language. It is our purpose in this
section of the present chapter to discuss the following laws of learning:
exercise, frequency, recency, and effect, and two laws of association -
those of similarity and contiguity. The discussion on these laws will be
divided into two parts, arranged as follows: a statement of the laws, and
an explanation of each; and an analysis of the laws as applied to the ac-
quision of a language (Latin to be used for illustrative purposes).

We all know that the most simple way for us to improve any skill is
to strengthen the connection formed between the stimulus and response; and
this is accomplished by exercise. The law of exercise defined in terms of
stimulus and response is as follows (39:390):

> When a given stimulus arouses a certain response, the linkage between that stimulus
> and that response is improved by the exercise so obtained, and thereafter the stimulus
> arouses the response more surely, more promptly than before.

If we explain the law of exercise as applicable to the acquisition
of a vocabulary and to the acquisition of pronunciation, we will notice
that the repeating of a word with its meaning will strengthen the linkage
of a word with its meaning. When the situation presents itself again, the
word will be aroused more exactly and definitely. The word that individuals
have the most occasion to use will predominate over the other word reac-
tions which have not been exercised; for example, the word apple will
probably be recalled more easily than the word watermelon because of the
fact that the child uses the word **apple** frequently, while the need for using the word **watermelon** occurs only during the summer months.

Closely related to the law of exercise is the law of frequency, which, one might say, is inseparable from the law of exercise. The law of frequency states (28:84) that

if two or more events have been experienced together with a third one, and if on a subsequent occasion the latter is re-experienced, then, all other factors being constant, of all the associates with that experience, the one that has occurred most frequently will more likely be reinstated than any other.

The child who has acquired the names of three animals - **elephant**, **lion**, and **dog** - will recall the word **dog** before he will recall the word **elephant** or **lion**, because he has had more occasion to use the word **dog**.

If we remember words better because we use them frequently, we must not permit long durations of time to elapse between the occurrences of the stimulus. This law of recency is stated thus (13:209):

> Other things being equal, the more recent the exercise, the stronger the connection between the situation and response.

If a skill is used every day, the connection between the stimulus and the response becomes stronger; for example, if one experiences the repeated necessity for the use of the word **book**, naturally, the connection between the stimulus and the response is gradually strengthened; if on the other hand, one neglects to use the word **book**, or it does not present itself for some time, disuse enters in, and causes some loss of strength in the connection made between the stimulus and the response; the degree
of deterioration will depend on the interval of time that has elapsed since the connection was last exercised.

When we are successful in reaching a desired goal, we usually experience a satisfying sensation; and if we are unsuccessful, we are annoyed. Therefore, in learning it is essential to make the proper response to a stimulus because

\[
\text{the linkage of a response to a stimulus is strengthened when the response is a success, and weakened when the response is a failure (39:392).}
\]

This is called the law of effect.

If we are able to give the response \textbf{book} to the object, it is satisfying, and we establish a firm connection between the stimulus and the response; while, on the other hand, if it takes us several trials to give the correct response \textbf{book}, it is annoying, and the connection we establish between stimulus and response becomes loosely fixated.

We may define these laws of learning as a process of establishing associative connections, by similarity and by contiguity. Woodworth (29:395-96) gives the following explanation of the law of similarity:

To be similar, two things must have something in common, and this common part, being contiguous with the remainder of each of the two things, establishes an indirect contiguity between the two things, a sort of contiguity bridge between them.

In association by similarity, it is not the whole word that arouses recall of a similar word, but some part of the word; for example, the word \textbf{windy} will arouse the recall of the word \textbf{wind}. Even if the child does not
Consciously consider the resemblance, nevertheless, it is the similarity that acts as an effective stimulus for recall.

The law of contiguity endeavors to state the conditions under which these associative connections are established. It may be stated as follows (6:103):

> Whenever two mental events are experienced together or in immediate succession, they thereby become so related that thereafter the presence of one will tend to arouse the other.

However, frequency must be employed if one desires to establish any very effective connection between the two acts. For example, the child sees a piece of candy and at the same time repeats the word candy; these two acts, the seeing and the uttering of the word candy, thereby become connected; and this associative tendency is slowly improved as these two acts are repeated.

All these laws of learning, which function in the acquisition of a first language, are also applicable to the acquisition of other languages.

The law of exercise as it is applied to monoglots and bilinguals in acquiring another language (English will be presumed to be the mother tongue of the monoglot, English and Spanish the languages used by the bilingual, and Latin, the foreign tongue to be acquired by both types of pupils), is as follows:

> When a Latin stimulus arouses the English equivalent, the linkage between the Latin stimulus and the English equivalent is improved by the exercise so obtained; and thereafter, the Latin stimulus arouses the English equivalent more quickly, more definitely, and more vividly than
These same pupils will be able to recall the Latin words and phrases far more readily if they use the Latin words constantly outside of the classroom than if they merely use the words or listen to them being used a few times in class. The more often a Latin word or phrase is used the stronger the connection will be; and in reference to the bilingual, the less chance there will be for the Spanish symbol to arise when the situation calls for a Latin response. We may thus state the law: The more frequently a Latin word is repeated, the more rapid the response will be.

The law of recency is also important in the acquisition of Latin. The more recently the Latin pupil has made use of a Latin word, the stronger will be the linkage between the Latin word and its meaning; if he neglects to use a Latin word, he will find that it takes longer to recall the English equivalent.

We all have a tendency to develop an interest in a skill from which we derive pleasure, and to develop an attitude of indifference towards a subject-matter which is very difficult for us to master. These tendencies are also prevalent in the acquisition of the Latin language. It is also important for the learner to be in a pleasant environment, and to acquire a proper attitude toward the language. The linkage of a response (English equivalent) to a stimulus (Latin word) is strengthened when it takes less mental strain to recall the response, or to give the correct meaning, and is weakened when the response is a failure, or the learner is unable to give a response to the Latin word; for example, a pupil who
is able to give the response girl to the Latin symbol puella, after a few
minutes have elapsed since its acquisition, undoubtedly will recall it
more quickly when it arises again; and vice versa, if he is unable to
recall the meaning of the word.

For the bilingual pupil, the effect is pleasant when he does not have
to overtax his mental faculties by searching for the desired response,
and when he can give the Latin response without its being interfered with
by the Spanish response. As a result of satisfyingness the linkage be-
 tween the Latin stimulus and the English equivalent is strengthened;
while if he encounters interference, annoyingness results, which weakens
the linkage between the Latin stimulus and its meaning.

A pupil, whether he speaks one language or many, may be helped in
recall if he is cognizant of the resemblances between Latin words and
words in the language, or languages, he knows. This type of association
is based upon the law of similarity, which probably functions more readily
for the bilingual, provided there are strong resemblances between the
vocabularies of the languages he knows and the language he is acquiring.

The law of contiguity for the Latin pupil may be illustrated as
follows: Whenever the Latin word and its English equivalent are presented
at the same time, or follow one another in quick succession, the Latin
word and the English word become so related that thereafter, when the
Latin word is presented, it will arouse the English equivalent. The
teacher who uses the indirect method establishes an associative connection
between the perception of the Latin symbol and the English equivalent by
having the pupil give the two interpretations simultaneously. Contiguity is an essential factor in the establishment of an association between a foreign symbol and its meaning; but to be effective and lasting, association will be established only between those mental events that are experienced together with a certain degree of frequency.

These laws do not explain the inner psychological processes that take place in the pupil's mind when he is acquiring a language, yet we may believe that if a normal child puts them into practice, he will more easily acquire one language or several.

How do these laws prevent the bilingual from encountering interference in his learning? We are unable to answer this question because we are not certain as to what goes on in a learner's mind. The bilingual probably has a more difficult task in acquiring two languages simultaneously than does the child who is acquiring one, for the former has to learn two words for every object, while the latter is acquiring but one.

It is commonly surmised that a bilingual person is able to speak with equal facility both the languages he has acquired, because he possesses a working vocabulary for each foreign language that he speaks and uses each with a reasonable degree of fluency and correctness. A person who can speak two languages in this manner will frequently give the impression of perfect mastery to a listener who has not a complete mastery of the languages himself. It is the opinion of Jespersen (18:27-28) that individuals rarely acquire languages fluently enough to avoid difficulties, for he says:
All existing languages swarm with difficulties of pronunciation, spelling, grammar, vocabulary, and especially idiom. It is very seldom that a foreigner succeeds, even after years of study, in learning a language sufficiently well to avoid occasionally making one of those mistakes which instantly betray his origin to the natives; it may be a false stress, or a word employed with an almost imperceptibly different shade of meaning, or placed in a position in a sentence where the native would never place it, or, finally, a phrase which, though logically correct, is nevertheless not permitted by the usage of the language.

We might, perhaps, expect the people of Luxemburg, a state which is flanked by French on one side and German on the other, to be bilingual, to be able to speak perfectly the two languages. The people in this state are able to speak both languages; but they are not able to speak them perfectly (38:58). Jespersen (19:148), in reference to these inhabitants, states:

A native of Luxemburg, where it is usual for children to talk both French and German, says that few Luxemburgers talk both languages perfectly. "Germans often say to us: 'You speak German remarkably well for a Frenchman,' and French people will say, 'They are Germans who speak our language excellently.' Nevertheless, we never speak either language as fluently as the natives. The worst of the system is, that instead of learning things necessary to us we must spend our time and energy in learning to express the same thought in two or three languages at the same time.

In the high school we meet the young monoglot and his classmate, the bilingual, whom we have previously discussed.

It should be clearly kept in mind that we are discussing here what
happens in the typical high-school classroom when a foreign language (Latin to be used for illustrative purposes) is taught by the indirect method, which stresses the association between the foreign symbol and the vernacular one, in contra-distinction to the direct method, which attempts to create a learning situation in which the vernacular symbol is eliminated. We are also restricting ourselves here to the simplest and most fundamental step in the process; that is, the acquisition of a vocabulary.

When a pupil acquires a knowledge of Latin words, he is required to establish in his mind a connection between the Latin word and its English symbol. What the pupil has to do is to learn the Latin symbols which will arouse immediately and certainly their equivalents. For a perfect and complete acquisition of a Latin vocabulary the pupil should be able to give quickly the Latin symbol when the English symbol is presented. This acquisition of a vocabulary is subject to the laws of learning, which we have briefly reviewed in the preceding section of this chapter.

In the typical classroom the pupils by dint of conscious effort develop the ability to give the Latin symbols for the English ones, whenever they are confronted with the stimuli. There are, of course, certain devices and certain methods of learning which may help to lighten the work of the pupil; for example, he may be assisted by learning to interpret prefixes, suffixes, roots, and terminations. If the pupil has learned to be wide-awake in observing similarities, association may also prove of assistance; for example, if he knows that *laudable* means praise-worthy, he will be able to associate the Latin symbol
laudabilis with the English symbol laudable.

In the contextual method as advocated by Chambers (7:50) and Grinstead (14:244-45) the process of establishing a nexus between foreign and vernacular symbol is necessary. We need to practice these symbols either by developing and keeping lists of words as suggested by Florence Book (2:187), or by providing some other devices which will give the pupil frequent contact with foreign words and their vernacular equivalents.

The bilingual child, who has acquired two languages before entering high school (English and Spanish to be used for illustrative purposes), has already formed three bonds: that between the English symbol and its meaning, that between the Spanish symbol and its meaning, and (probably) that between the English symbol and the Spanish symbol. He is now required to build up at least one new nexus: that between the Latin symbol and the English symbol. In this process his knowledge of Spanish may be either a help or a hindrance. He may be helped if there is a resemblance between the Latin word and its Spanish equivalent; for example, pater may be easier for him to master because he already knows the Spanish padre. We need not concern ourselves here with what happens, psychologically, when a student's mind travels from the stimulus word, pater, to padre, from padre to father, and then perceives the identity of meaning between pater and father. Suffice it to say that authorities (Cole 8:166-67, among others) believe that similarities of this type do help the pupil, and that what we know of the law of association makes it seem probable
that such similarities do facilitate the acquisition of a vocabulary.

But, on the other hand, the pupil may be hindered by the fact that he already knows two languages - English and Spanish. His bilingualism will, in all probability, not handicap him during the actual process of memorizing the English meanings of Latin symbols, provided he makes a reasonable effort to avoid distraction; but it may exercise an influence on the process of recalling words previously learned. Having learned, for example, that miles means soldier, but not having established the nexus with absolute perfection, the pupil, required to give the English equivalent of miles, may respond with the Spanish symbol soldado. It is a matter of common knowledge that persons living on the Continent, who are masters of several languages, are sometimes tongue-tied when, after using nothing but their Italian for a long period, they move to Spain and endeavor to express themselves in Spanish, which as a matter of fact they know perfectly. Days may pass before the inhibitions, built up by long-continued use of Italian, are broken down.

If such is the case, there is every reason for believing that bilingualism may create similar difficulties in the classroom when a third language is being learned, but a diligent search of the literature fails to reveal any objective study of the extent of this handicap or of the manner in which it operates.

It must also be remembered that, as Spearman (34:259) says, every individual has a definite and limited amount of mental energy. In addition,
he has a limited amount of time to be applied to the tasks of life. It
is therefore probable that one who scatters his energy over three lan-
guages instead of two will not learn and retain any one of the three so
perfectly as an individual who studies and uses only two languages. This,
again, is a point on which objective evidence is lacking. We find, how-
ever, general statements made on this situation by language teachers that
may be of interest; for example, Smith\textsuperscript{1} (32:273), quoting Hardress O'Grady,
states:

> But are the psychologists quite sure that early bilingualism is an educational asset. I have heard
> powerful arguments against ambidexterity. And for a child learning to attach labels to objects, actions,
> learning to think by means of words, is it really an advantage to have two words, three words, for the
> same thing? ..... Of myself I can say that I have had great difficulties to overcome in matters of
> thought, speech, expression, and that I attribute these difficulties to early bilingualism and the
> constant struggle of two languages for precedence.

Jespersen's (19:148) viewpoint is somewhat similar to Spearman's
(34:259), for he says:

> It is, of course, an advantage for a child to be familiar with two languages; but without doubt the
> advantage may be, and generally is, purchased too dear. First of all the child in question hardly
> learns either of the two languages as perfectly as he would have done if he had limited himself to
> one. It may seem, on the surface, as if he talked just like a native, but he does not really command
> the fine points of the language.

West (38:3) after a study of bilingualism in India, finds that
"there is certainly no advantage in being born in a bilingual country, but
rather a disadvantage." He qualifies this statement by saying that "if
\textsuperscript{1} The work of O'Grady is not available in any of the Chicago libraries.
A child is bilingual in its receptive aspect, but unilingual in its expressive aspect, bilingualism is not necessarily a handicap." He goes on to conclude that bilingualism is in the main a disadvantage, but if there has been a tendency on the one hand to make too much of the supposed advantages, so also are the disadvantages too often exaggerated. It is maintained that bilingualism hampers the progress of children at school, that it causes excessive mental fatigue, that it represses originality, leads to parrot learning. These accusations arise in a large measure from a confusion in thought between bilingualism, and what is by no means a necessary although it is a very frequent concomitant of bilingualism - the foreign medium of instruction (38:68-9).

It is obviously possible to maintain that the Bengali should be bilingual, but yet that the spoken foreign medium of instruction should nowhere be used. The boy would be taught in Bengali (though some of his textbooks might even be in English); and he would answer his examination papers in Bengali. This would not mean that he would be unable to speak or to write English, but that the writing and speaking of English would be treated as a separate subject (38:69).

Hoffman (17:55) investigated the relationship between bilingual background (that is, the ratio of foreign language to English language used in the daily life of the child) and chronological age, grade status, sex, non-language mental test scores, verbal intelligence test scores, and reading achievement. His subjects were children of the ages of ten to fifteen in grades five to eight in the schools of New York City. The Italian and Jewish children were studied as separate groups and children of all other nationalities were taken into consideration as a single
"bilingual" group. His findings were:

1. The children from the ages of ten to fourteen and in grades five to eight showed no tendency of having higher or lower bilingual scores than younger. In other words, the extent of bilingual environment to which a child was subjected had no bearing upon his chronological age (17:65).

2. There was no difference existing between the size of the bilingual scores for either sex (17:65).

3. The correlation coefficient between the Pintner Non-Language Mental Test scores, and the bilingual scores was almost zero for all groups - the Italian, the Jewish, and the combined groups (17:60).

4. The significance of a child's bilingual background was manifested on verbal material, but not with his performance on material of the non-language type (17:66).

5. The fifth- and sixth-grade girls, who were exposed to a highly bilingual surrounding, were handicapped on verbal or language tests, whereas the sixth-grade Jewish girls benefitted on verbal tests by a high degree of bilingual background (17:62-6).

6. The degree of bilingual background showed neither an advantage nor a disadvantage upon the performances of the Italian or Jewish girls on non-language tests (17:62).

We find in Jules Ronjat's careful study of the development of a bilingual child that the two languages acquired by the child were actually equal in efficiency, but they were not "alternative." Jules Ronjat (38:59)
kept a careful record of his child's progress in French and in German. The child was spoken to by his mother exclusively in German, and by his father exclusively in French. Ronjat threw no light upon the mental effects that bilingualism had upon his child's ability to speak either the French or the German language. An inquiry was addressed to Dr. Ronjat as to what happened to the child when he had entered school. His interesting reply quoted by the present writer was not taken from the original study of the investigator, because she is unable to interpret the French language, but it was taken from Michael West's book on Bilingualism, and is a literal translation of the original answer (38:59-60):

Since the publication of my book, my son has carried on his work at a primary and secondary school in French, and hence this language is the more familiar to him as far as the technical terms of grammar, mathematics and physics are concerned.

He would, for instance, I think, find it difficult to express a geometrical theorem in German. But apart from that, his knowledge of and taste for, the German language have been maintained generally on an equality (with French), and his German even takes on a higher place from the point of view of literary composition, and especially poetic composition. He writes in German with a more original turn (of phrase) and he can write verse in German, whereas he does not feel naturally the rhythm and harmony of French verse, and does not write French verse, which is a normal phenomenon among those who have not made a special study of (French) versification which is still founded on the pronunciation of French of more than three centuries ago. In rapid conversation, sometimes, though rarely, he borrows a word or a phrase from the other language, about equally in either direction - an occurrence which is common even among bilingual adults. To sum up, the situation as a whole is normal, and what was to be expected.
Oftentimes, the type of test given to bilinguals is responsible for the scores obtained. An interesting comparison was made between the results obtained by Spanish-American and Anglo-American pupils on the essay-type and objective-type of tests by Floyd F. Caldwell and Mary Davis Mowry (5:696-702). The purpose of their study was to determine whether the use of new-type tests increases or decreases the language handicap of Spanish-speaking pupils (5:696). Each objective test was followed by a test of the essay-type over the same subject-matter; and in each case it was possible for a pupil to score an equal number of points in the two tests (5:697). The pupils were tested in the field of English and history (5:697).

The authors reached the following conclusions:

1. The Spanish-American pupils are handicapped both by the objective-type and essay-type tests (5:702).

2. The Spanish-American pupils experienced a greater handicap with essay-type tests than with objective-type tests. We can readily understand why these pupils would encounter a greater difficulty, since the essay-type examination requires a recall of vocabulary, whereas the objective-type test demands largely a recognition of unfamiliar words. This fact, in all probability, is responsible for the lower scores made on the essay-type of examination (5:702).

3. The Spanish-American pupils made lower scores on the tests in history than on the tests in English (5:702).

The authors gave as an explanation for the superior showing in the
English tests, rather than in the history tests, the following comments (5:702):

This may be due to the fact that the application of English in a situation other than in the field of English might tend to increase the language difficulty. In other words, responding in the field of History [sic] requires a more definite transfer of language information and application. When there are such large differences existing between the results obtained on the objective and the essay types of examination and when evidence points to the fact that this difference is largely due to language handicap, there seems to be a strong probability that the same factor may account for the relatively low standing of Spanish-speaking children on the so-called intelligence tests.

The investigators offered a suggestion which might be advisable for teachers dealing with bilinguals or language-handicapped pupils to consider (5:702):

The fact has been quite firmly established that more learning occurs when practiced with satisfaction. It seems quite reasonable to assume that when the Spanish-speaking child knows that his scores are very inferior to those of other children he is likely to become discouraged and learning will thereby be retarded. This study has indicated that the Spanish-speaking child tests relatively considerably higher on the objective tests than on the essay. Under these circumstances it seems that the teacher should employ the objective type of test frequently to insure for this language handicapped child some measure of satisfaction in accomplishment. Thus she will be employing a more satisfactory and accurate measuring instrument, and be approaching more nearly a true score of the accomplishment. At the same time learning will be facilitated and attitudes of inferiority, sullenness and other undesirable mental products will be far less apt to develop.

Simultaneous with the acquisition of the meanings of foreign words and the entire process of building up a foreign vocabulary is the develop-
ment of a foreign pronunciation. Pupils in their acquisition of foreign sounds probably have to do two things; namely, acquire new sounds, and forget their native sounds while the new pronunciation is being learned (1:91). Growth in ability to pronounce the foreign sounds is, in the typical classroom, brought about by a process of imitation. The pupils hear the teacher pronounce the sounds; they watch the teacher's lips while he is doing the pronunciation, and then they attempt the pronunciation. Thus they are helped to attain the ability to reproduce the foreign sounds.

Many pupils may be helped in a foreign pronunciation by associating a phonetic symbol with the sound. Yet it would seem that further research is needed to establish the psychological value of such a procedure in the case of all learners, for we know that many people can acquire a passable pronunciation without ever seeing a phonetic symbol; and if a child can master a new sound readily by imitation, there would appear to be a sheer waste of time in teaching him to use a phonetic system.

However, we do know that pupils may be helped by correct practice and motivated repetitions of foreign sounds - a procedure which will make it easier for the speech organs to produce the responses desired. In practicing sounds, we must bear in mind the laws of learning: the laws of use, effect, readiness, and exercise. We all without doubt will admit that the oftener a word is pronounced with a satisfying effect, the more automatic and correct the response will be; but we sometimes have to adopt the process of trial and error, or accidental success, to make the
Is there any difference, so far as the acquisition of correct pronunciation is concerned, between the monoglot and the bilingual? Probably the bilingual acquires the pronunciation in a manner similar to that followed by the monoglot. It may be that the bilingual will have an advantage over the monoglot in so far as he has had practice in pronouncing Spanish sounds before he came to high school to acquire the Latin language. As a result of practice his vocal cords may have become more flexible so that he is able to have better motor control over sounds than the monoglot; or on the other hand, his vocal cords may have become so accustomed to certain sounds that they do not readily adapt themselves to the new sounds which he must acquire. Pupils who have acquired other languages to any degree of perfection may apply the same type of pronunciation for similar consonants and vowels in another language. Moreover, the pupil who has acquired two pronunciations, English and Spanish, before he came to high school to take Latin may be at a disadvantage. For example, he has learned in Spanish that the consonant $h$ is silent. Now, when he is confronted with a Latin word with the $h$ in it, he may be unable to pronounce the sound of $h$ regardless of his efforts. He may also experience this difficulty when he attempts to pronounce an English word that contains an $h$. Bilingualism will in all probability not have an influence upon the actual process of learning to pronounce the Latin sounds (or for that matter any foreign sounds), provided the pupil is in earnest; but it may color his pronunciation when
he is attempting to reproduce the Latin sound. This probability may also be applicable to any other foreign sounds or foreign words. If this is true, it would seem possible that bilingualism may have an ill effect upon pronunciation; but the present writer has been unable to find any studies available on this phase of language.

After a few weeks of practice with these foreign words and sounds, the pupil has developed a certain amount of mastery over specific language usage. By this time he has acquired a large number of language experiences and habits, and is ready to learn grammar.

Why must one learn the grammar of a foreign language? Crawford (9:187) explains the reason very thoroughly, when he says:

Grammar is the basic science or theory of a language. It consists of the principles and laws which govern the use of the various parts of speech. The study of grammar is, therefore, largely an intellectual pursuit as contrasted with a pursuit for the development of skills. Memory and thinking are considerably more evident in grammar study than in motor activity or emotional expression.

But we may raise the question as to the procedure necessary for the pupil in acquiring a knowledge of grammar. Many authorities believe that the pupil will find it better to learn grammar inductively rather than deductively. Crawford (9:193) states:

It is better to learn grammar in the same way as is recommended for the learning of natural science, namely, by first observing a number of cases, and speculating, theorizing, and generalizing regarding their relationships afterwards. A number of examples or illustrations should be given to precede a rule, and then the rule should be learned as a summarization of these examples.
Under the inductive method the pupil begins with language itself, rather than with rules concerning language. He is encouraged to examine sentences which contain certain constructions, to formulate questions on the point involved, to observe the use of specific forms and constructions. If his questions are well formed and asked in the proper order, they will not only enable him, but also compel him, to express his observations in the form of a rule. In following this procedure, the pupil has observed, compared, and analyzed language until he has found a definite principle which seems to be responsible for a certain expression. Advocates of the inductive method maintain that a learner should begin the grammar of a foreign language in a similar manner that a beginner in English begins his study of English grammar; namely, by beginning with material falling within the range of his own experience. This process of induction or generalization will eventually enable the pupil to differentiate between when do you say? and why do you say? The rule should grow out of examples of actual use rather than precede them.

The pupil thus taught is slowly led to solve his problem. He will not state the rule so clearly or correctly as a grammarian, but his solution will be original. He will, no doubt, have been doing some reflective thinking; he will at least be interested in giving a generalized explanation, which will be retained in his mind as long as any other solution that he has found through his own initiative (15:441).

The value that is obtained by such a method lies in the establishment of an intimate interrelation between the living language and its abstract
laws. No isolated rule is memorized for the construction of language. "Language has become the basis of the rule, and the student has had the valuable experience of seeing that the rule is a mere derivation of language, that language is the master and the rule its servant" (15:442).

This inductive method is applicable to all aspects of language study, the mastery of which should result from contact with meaningful sentences rather than from mere rote memorization.

However, we must bear in mind that induction in foreign-language teaching is not advocated with the idea that the pupil is to work out the entire grammar by his own efforts, but as a means which will help the pupil to comprehend the reason for a usage and to acquire greater mastery over it, for as Hagboldt (15:443) says:

Inductive presentation is not a re-discovery of grammar on the part of the student. It is nothing but a systematic attempt to put the student's mind to work on problems which are not beyond the intellectual grasp of a pupil in second year high school. Its immense advantage lies in the fact that it heeds a very basic and deeply significant tenet of sound instruction: "Do not state what the student, if properly led, can find out for himself," or expressed positively, Wherever possible, make the student work out the problem through his own thinking.

Just how the pupil is led to the place whereby he formulates a rule may be summarized briefly as follows (15:444-45):

1. The pupil observes and collects certain facts.

2. He then proceeds to consider these facts, and compares them with a series of other facts observed in other situations.
3. As a result of comparison he begins to abstract certain essential qualities from the facts observed.

4. Finally, he begins to formulate a general law which seems to be responsible for the various facts he has observed and compared and whose essential qualities he has abstracted.

After the pupil has completed the process of inductive reasoning, the "linguistic law" is found, and the deductive phase of the lesson commences; namely, the application of the law through a series of drills.

These four phases do not always take place consecutively; nor are they always grasped as clearly and quickly as Hagboldt (15:444—45) has described them; they often overlap to some extent (15:445).

Although the inductive method, if we can trust authorities, is an excellent method for comprehending grammar, it calls for a tremendous amount of effort on the part of the teacher, who carefully couches the examples from which the rule arises, who asks the questions which will lead to the forming of a generalization, and who encourages and leads the pupil to think for himself.

The pupil's task is described by Hagboldt (15:445) in the following quotation:

Our problem is like life itself, not simple and ready-made for easy enjoyment, but problematic and elusive . . . What we need is intensive mental activity. Like the hero in a drama by Kleist we must struggle through confusion to light, for it is in this struggle for clarity that we receive our deepest and most permanent impressions.
It would be largely a waste of time for the high-school pupil to acquire the previously discussed phases of language - vocabulary, pronunciation, grammar - if he did not intend to make use of them later on in his study. The most important need for the acquisition of the above named skills arises from the fact that they are of vital significance for the translation of a language.

What are the essential elements in translation? First of all, in translating the foreign language we must interpret the meaning of foreign words by reference to English words (we are referring to the indirect method.) Likewise, in our first attempts to use the foreign language we must think in English, and try to find the foreign equivalents with which to express our thoughts. Both these processes consist in turning one language into another - that is, translation.

In translation the pupil must avoid the procedure of changing foreign words into English, word for word. Translation must be a recasting of the foreign thought into that of the English equivalent thought. Thus we may say that translation is a creative process, a building up of a phrase of sentence again, by replacing idiom for idiom, and thought group for thought group. The pupils should grasp the meaning of the entire sentence in the foreign order before attempting any translation. Crawford (9:178) says:

Translation should never be mere transcribing word for word. It should, on the contrary, be a process of finding parallel thoughts and expressing these in whatever English words may be required to raise the nearest possible approximation to the author's original idea in the mind of the reader.
We usually find both monoglots and bilinguals experiencing difficulty in translating an English sentence into a foreign language. To offset the difficulty, the beginner should first of all try to comprehend the general idea of the sentence; he should observe how each thought is associated with each other. After he has associated the general idea in his mind, he should begin to analyze each thought; finally, he should select or reason out the most correct form of expression.

We are unable to say whether the bilingual who has acquired the English and Spanish languages before he commenced the study of Latin finds it especially difficult to translate an English sentence into Latin. He is probably assisted by the mental set, which is, one might say, an inner response to the context; and which determines which of the several acquired meanings of a word will actually be called to mind, when the word is read.

The translation of ideas or statements or arguments conveyed in one language into the approximate equivalents of another speech involves a whole set of useful mental gymnastics (22:81).

The teacher assists the pupil in his work of translating one language into another by encouraging the pupil to appreciate the perfect vernacular and by insisting that the pupil express "thoughts," not "words" in translation (10:513).

After the teacher has finished her share in the training, the pupil may aid himself to translate well by the procedure which Mabel Daggett (10:513-16) calls, the ABC method. This process is described for the translation of French into English in the following way (10:513):
A. The French sentence read in French.

B. 'Frenchy' English (word for word).

C. Idiomatic English.

This A B C method separates the process of translation into three specific steps: (a) reading, (b) literal translation (word for word), and (c) the final idiomatic English version. In translating from the vernacular into a foreign tongue, the A B C method is also valuable, but we reverse the letters and call this, the C B A process. Process B must take place before process C, but that only process C is to be presented in class (10:516).

Florence Book (2:187), also, explains how a pupil may learn to take in the thought of each word group as it appears. She suggests the following objectives:

1. By the correct perception of the foreign words, the pupil is able to get accurately and quickly the meaning, which a particular arrangement of words present.

2. The above principle, if practiced, will develop for the pupil "higher-order reading habits."

3. Drill in the recognition of a variety of sentence forms, and practice on the more fundamental grammatical constructions used in sentences will aid pupils to recognize and comprehend language forms, more rapidly and more correctly.

4. If the pupil watches for "key words" in sentences, and as he progresses in reading for "key sentences" in a paragraph he will develop correct perceptual habits.
Summary

We have asserted that a monoglot or a bilingual high-school pupil acquires all the phases of a foreign language more efficiently if he puts into practice the laws of learning: exercise, frequency, recency, and effect. In order that a high-school pupil may acquire a language, he must possess a working vocabulary; he must acquire a correct pronunciation, which is taught usually by the process of imitation; he must know the grammar of that language; he must be able to translate readily and smoothly. There have been no serious studies concerning the bilingual in his attempts to learn a third language; whether or not the bilingual has an advantage over the monoglot has not as yet been investigated; whether or not the bilingual encounters difficulties that do not face the monoglot is equally unknown.
CHAPTER III

THE PRESENT STUDY

The Purpose of the Study

The purpose of the present investigation was to determine the effects of bilingualism on the acquisition of a foreign language. Stated in a general way, the study was to ascertain whether there was an advantage or disadvantage in being a bilingual when confronted with the learning of another language.

The Subjects of the Study

The subjects were 1,131 pupils studying Latin, German, Spanish and French (638 monoglots and 493 bilinguals), in six Chicago high schools, five of which were public schools; the other, a Catholic girls' academy. The schools participating were as follows:

<table>
<thead>
<tr>
<th>School</th>
<th>Foreign Language</th>
<th>Number of Pupils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crane Evening High School</td>
<td>German</td>
<td>69</td>
</tr>
<tr>
<td>Crane Evening High School</td>
<td>French</td>
<td>64</td>
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<td>Good Counsel Academy</td>
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<td>French</td>
<td>39</td>
</tr>
<tr>
<td>Lindblom High School</td>
<td>Latin</td>
<td>87</td>
</tr>
<tr>
<td>School</td>
<td>Foreign Language</td>
<td>Number of Pupils</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Roosevelt High School</td>
<td>Spanish</td>
<td>414</td>
</tr>
<tr>
<td>Schurz High School</td>
<td>Spanish</td>
<td>215</td>
</tr>
<tr>
<td>Tilden Technical High School</td>
<td>German</td>
<td>152</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1,131</strong></td>
</tr>
</tbody>
</table>

The pupils were first-year, second-year, third-year, and fourth-year pupils. The first-semester pupils had never studied Latin, French, German, or Spanish before coming to high school. All the pupils were taught by a combination of the direct and indirect methods of language instruction. Of the 1,131 subjects, 1,001 were public-school pupils; the remaining 131 were pupils from a private academy. The nationalities represented were Polish, Jewish, Bohemian, Swedish, Danish, Lithuanian, Italian, and German. The ages of the subjects ranged from twelve years to fifty-one years. The mature pupils were from the Evening High School. The pupils in this study appear to represent a fair sampling of the pupils enrolled in Chicago high schools.

The Procedure

The method of procedure adopted was as follows:

A. Questionnaire blanks containing the following preliminary questions were distributed by the classroom teachers, one-half of whom were instructed personally by the writer, while the other half were dependent upon the writer's written instructions:

1. What language as a little child, before you came to school, did you learn to speak first: Polish, Italian, French, Jewish, Swedish,
English, German, Russian, Bohemian?

2. What language do you speak most frequently to your parents at home?

3. How many hours during the week do you speak the English language at home? (25 hours, 50 hours, 100 hours, etc.)

4. How many hours during the week do you speak the foreign language at home? (25 hours, 50 hours, 100 hours, etc.)

5. Do you read story books written in Polish, German, Russian, Bohemian, Jewish, French, Spanish?

6. What language was the first story book you ever read written in: Polish, German, Bohemian, Jewish, Swedish, Italian, Russian, etc.?

7. Can you read newspapers written in Polish, Bohemian, Jewish, Russian, Italian, German?

8. Do you write letters to friends or relatives in Polish, Bohemian, French, German, Italian, Swedish, Lithuanian, Russian?

9. Did you ever study Polish, German, French, Swedish, Italian, Russian, Lithuanian, Jewish, from any school, church, or teacher?

10. Did you ever study Latin, French, German, Spanish, or Hebrew in high school?

11. Are the services in the church you attend spoken in Polish, Jewish, Russian, Italian, Bohemian, German, Swedish, English, Lithuanian?

12. Write down the names of all the languages you learned to speak without studying them at school. By "speaking a language" we mean that you can say everything you want in it (From the twelfth statement it was
possible to secure the information as to what extent each was bilingual.)

The directions provided for the use of the experimenters were as follows:

1. Read each statement first before asking pupils to answer it.
2. Tell pupils to underline each answer.
3. Have pupils answer each statement at the same time.
4. If pupils are of any other nationality not listed in the blank, tell the pupils to write the name in.
5. Tell pupils to put down his or her age.
6. Write down the semester grade received in the foreign language.

(The grade received was written down by the pupils, under the experimenters supervision. The grades in these various foreign language classes were obtained from the semester grade ending in February, 1933, of each pupil.)

B. Before the pupils answered the questions on the blanks, they were given an oral explanation of their purpose. The explanation was as follows: "If you are of a foreign parentage, or if you have learned foreign languages before you commenced to study the present language, state the language you know. The writer promises that no one will see the blanks other than herself and her sole purpose is to secure data for a study she desires to make." The motive that suggested this explanation was that experience has indicated that some pupils are more or less reluctant to admit that a foreign language is spoken at home.

C. The blanks were then filled out. The necessity of pupils' asking explanations about each statement was avoided by having all the pupils
underline each statement at the same time.

D. The answers were tabulated and conclusions were made by the writer.

Since there have been very few experiments bearing on the problem of determining the relative value of being a bilingual in learning a foreign language, and since all the data relating to this point as derived from the study are only of meager importance, the investigator thinks it necessary to make it distinctly clear that these data are to be interpreted only within the limits of this study, which is based on the achievement scores obtained from the pupils' semester grades. Achievement as measured by marks is a variable made up of a large number of other variables - for example, the reaction of the instructors and the system of grading. While the scores cannot be considered as valid and scientific, because they were made at different places under different auspices, the prohibitive expense of language tests for the entire groups made it necessary to use teachers' marks rather than objective tests.

The results of this study can be classified under two heads, numerical and introspectional. All the co-operating schools used systems of letter grades. These letter grades were commuted into numerical values according to the scales in use in the schools. On the following pages will be found tables showing the pupils' scores tabulated in the several ways which appear to possess significance from the standpoint of the present study.

The statistical facts derived from the present data for the bilingual and monoglot groups were as follows:
1. The mean for the bilingual group was 83.1.
2. The probable error of the mean was .25.
3. The standard deviation of the bilingual group was 8.33.
4. The probable error of the standard deviation was .18.
5. The mean for the monoglot group was 84.7.
6. The probable error of the mean was .21.
7. The standard deviation for the monoglot group was 7.8.
8. The probable error of the standard deviation was .15.
9. The probable error of the difference between the mean of the monoglots and the mean of the bilinguals was .33. The chances are 4.85 to 1 that the true difference between the monoglot and bilingual groups is more than .33, which is the P.E. difference of the two means. The chances are 99.95 in 100 that the true difference between the two groups is greater than zero. The chances are .05 in 100 (or almost zero) that the true difference between the two groups is less than zero. The chances are 1,850 to 1 that there really is a superiority of the monoglot group over the bilingual group, and that the true mean of the monoglot is above the true mean of the bilingual group (36:149).

Since the general rule is that a difference, or a statistical constant of any sort, is not significant unless it is at least four times its probable error, it appears from the difference observed in the study between the means of the monoglot and bilingual groups that the difference is significant.
As the cases in this study are numerous and seem to have low variability between the two groups of measures, it would seem possible to generalize that the statistical evidence is reliable at least from the data gathered from the present study. It would not seem to be stretching the results too far to say the probabilities are that the monoglots would be expected to be slightly superior to the bilinguals, if we were to examine and observe an infinite number of cases.

While exact knowledge of the relationship between monoglots and bilinguals in respect to learning a foreign vocabulary, grammar, and reading ability will have to wait upon future researches, the results herein presented, suggest interesting possibilities from the standpoint of many factors, such as semesters of study and nationalities. From these factors the following theoretical assertions may be made:

1. Monoglot pupils make better progress than bilingual pupils.

So far from bilingualism being an intellectual advantage, it seems to be exactly the reverse.

2. The probabilities are that bilinguals encounter some type of interference which takes place during the process of recall as a result of the knowledge of other foreign languages.

3. Pupils who have learned a foreign language as a child, but speak the English language most frequently at home have less difficulty in learning foreign languages than those pupils who speak a foreign language most frequently at home.

4. Pupils who have learned one foreign language show a superiority
over those pupils who have learned two or three languages without study.

The present writer concludes from the statistical evidence that, if the grades of each group were fairly representative and if the assumption that the subjects in both groups were of average intelligence is correct, the study would indicate that bilingualism is a slight disadvantage in the acquisition of another language. The degree of difference may not be totally attributed to language disability, but the deviation may be due to some other unobserved factor. It is important to point out that these conclusions cannot be assumed to apply to bilinguals in every phase of language learning, nor to apply universally to all bilingual children. It appears at least possible that what the study actually shows is that a boy or a girl born with English as his or her mother tongue has a better opportunity to receive higher grades in a foreign language than one who is born with a foreign language as his or her mother tongue.
Tables I to XII indicate the statistical findings of this thesis; for example, Table I gives a comparison of the grades obtained in foreign language by 493 bilinguals and 638 monoglots; the remaining tables are self-explanatory.

The symbols written at the bottom of each table, namely, $N$, $M_n$, A.D., S.D., Md., $Q_1$, $Q_3$, and $Q$, respectively possess the following significance relative to the interpretation of the data gathered in the present study: $N$ represents the number of cases in each group; $M_n$ (mean), a measure of central tendency, the score which is generally known as the arithmetic average; A.D. (average deviation) is a statistical quantity which is simply the average of the deviations from the mean; S.D. (standard deviation), a statistical quantity of variability which indicates how far we must go in terms of score in either direction from the mean before we include approximately two-thirds of the distribution; Md. (median) is the middle score or technically, the point above and below which the number of scores is equal; $Q_1$ (first quartile) is the point in the distribution which divides the lowest one-fourth from the other three-fourths of the frequencies; $Q_3$ (third quartile) is that point in the distribution which divides the lower three-fourths from the upper one-fourth of the frequencies; $Q$ (quartile deviation or semi-inter-quartile range) is one-half of the distance between the first ($Q_1$) and the third ($Q_3$) quartiles, it gives information about the variability of the distribution.
TABLE I

Grades in Foreign Language of 493 Bilinguals and 638 Monoglots

<table>
<thead>
<tr>
<th>Interval</th>
<th>Frequency</th>
<th>Interval</th>
<th>Frequency</th>
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<td>100</td>
<td>1</td>
</tr>
<tr>
<td>95-99</td>
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<td>95-99</td>
<td>58</td>
</tr>
<tr>
<td>90-94</td>
<td>75</td>
<td>90-94</td>
<td>109</td>
</tr>
<tr>
<td>85-89</td>
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<td>162</td>
</tr>
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<td>85</td>
<td>80-84</td>
<td>122</td>
</tr>
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<td>75-79</td>
<td>83</td>
<td>75-79</td>
<td>135</td>
</tr>
<tr>
<td>70-74</td>
<td>15</td>
<td>70-74</td>
<td>16</td>
</tr>
<tr>
<td>65-69</td>
<td>20</td>
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<td>32</td>
</tr>
<tr>
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<td>8</td>
<td>60-64</td>
<td>2</td>
</tr>
<tr>
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<td>0</td>
</tr>
<tr>
<td>50-54</td>
<td>1</td>
<td>50-54</td>
<td>1</td>
</tr>
</tbody>
</table>

MN = 83.1
AD = 6.83
SD = 8.33

N = 493

MN = 84.7
AD = 6.39
SD = 7.8
TABLE II

Grades of Pupils Who Learned One Foreign Language and English, Two Foreign Languages and English, and Three Foreign Languages and English

<table>
<thead>
<tr>
<th>Score</th>
<th>One Foreign Language and English Frequency</th>
<th>Two Foreign Languages and English Frequency</th>
<th>Three Foreign Languages and English-Frequency</th>
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<td>75-79</td>
<td>79</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>70-74</td>
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<td>No. of Cases: 451</td>
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<td>79.27</td>
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<td>Q</td>
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<td>9.54</td>
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TABLE III

Grades of 482 Bilinguals in Foreign Languages and the Language Spoken Most Frequently at Home

<table>
<thead>
<tr>
<th>Score</th>
<th>Learned English as a Child and Speak it Most Frequently at Home</th>
<th>Freq.</th>
<th>Learned Foreign Language as a Child and Speak it Most Frequently at Home</th>
<th>Freq.</th>
<th>Learned English as a Child and Speak it Most Frequently at Home</th>
<th>Freq.</th>
<th>Learned Foreign Language as a Child and Speak it Most Frequently at Home</th>
<th>Freq.</th>
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<tr>
<td>Q</td>
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<td>5.71‡</td>
<td>8.13</td>
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### TABLE IV

Grades of 113 Bilinguals and 54 Monoglot Learning Latin

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<th>3B</th>
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<th>1A</th>
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</table>

**No. of Cases**: 57 9 21 26

**Median**: 87.76 86.88

**Q1**: 83.12 78.75 81.25 66.5

**Q3**: 91.51 89.68 93.95 79.5

**Q**: 4.194 5.46 6.35 6.5

**No. of Cases**: 38 16

**Median**: 87.63 87.14

**Q1**: 85.13 74

**Q3**: 90.36 85

**Q**: 2.614 5.5
# TABLE V

Grades of 183 Bilinguals and 435 Monoglot Learning Spanish

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Grades of 85 Bilinguals and 13 Monoglots Learning French

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Q3: 85 88.12 96.25
Q2: 2.81 4.68 9.37

## TABLE VII

Grades of 105 Bilinguals and 107 Monoglots Learning German

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Grades in Latin and Nationality

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No. Cases: 53, 102, 12, 11, 26, 8, 39, 182, 25

Median: 86.38, 85.35, 85, 90.84, 86.81, 93.83, 86.5, 80.5, 85.35

Q1: 75.69, 80.3, 76.66, 87.18, 82.5, 85.7, 79.21, 78.16, 79.38

Q3: 89.68, 88.01, 93.75, 90.41, 89.77, 95.1, 89.75, 89.7, 89.82

Q: 6.99, 3.85, 8.54, 1.61, 3.63, 5, 5.27, 5.77, 5.22
Figure 1. Grades of 493 Bilingual and 638 Monoglot Pupils
Summary

A total of 1,131 pupils, boys, girls, and adults in Chicago high schools, answered the questionnaire blanks to give information as to what extent he or she was bilingual. The foreign languages studied by these pupils were French, German, Latin and Spanish. The pupils were first-, second-, third-, and fourth-year pupils.

On examining the 1,131 scores, we note that the scores of bilinguals as compared with the monoglots give evidence of some conflict interfering with achievement. It is possible, however, that conflict could have been due only to chance or to some other indefinable factor. The results of the study are applicable only to the present situation and do not apply to achievement made by bilinguals and monoglots on standardized language tests. So far from bilingualism being an advantage, it seems to be exactly the reverse, at least under the present evidence shown by the semester grades of both groups.
CHAPTER IV

CONCLUSIONS

It was in the hope of testing the assertion that bilinguals are superior to monoglots in the learning of foreign languages that the present procedure for collecting data was adopted. The study as it presented itself was to ascertain whether there was any marked superiority in the same schools, where the two groups, bilinguals and monoglots, worked side by side, in the same class, and under the same conditions.

The present study has the following limitations:

1. language tests were not given by the present experimenter;
2. the subjects were not under the investigator's observation;
3. the intelligence quotients of the subjects were not obtained;
4. from a theoretical standpoint, the study fails to answer several questions that individuals who are interested in the study of bilingualism might be concerned with, such as:

1. What are the mental processes of the bilingual?
2. How do the different languages which the bilingual speaks react toward each other?
3. Does the previously acquired language help in the acquisition of a second language, or on the contrary does each tend to inhibit the other?
The mental processes of the bilingual in his acquisition of foreign languages were not examined, nor the reactions that took place in the pupil's mind recorded while he was learning the new language, because such a task was too intricate for the present writer to undertake. No psychologist, as yet, has watched, to any great extent, the mechanism of the mind in actual operation.

The present investigation made possible a comparison of achievement records of the bilinguals and monoglots working together in the same school system. The results of the data collected on the present study led to the following conclusions:

1. Monoglot pupils are slightly superior to bilingual pupils, as shown from the grades given to both groups. Bilingualism does not appear to be an advantage; it seems to be a slight disadvantage to the bilinguals in their acquisition of French, German, Latin, and Spanish.

2. It would seem at least possible from a study of the grades received by both groups that there exists some cause for the slightly, but consistently, lower achievement records of the bilinguals.

3. Pupils who have acquired foreign bonds along with the English bonds as children, but who speak the English language most frequently at home, are superior to those pupils who have acquired foreign bonds along with the English bonds as children, but who speak a foreign language most frequently at home.

The monoglot group was so slightly superior to the bilingual group that the present investigator is more or less hesitant in attributing the
difference to interference caused by bilingualism. The interpretation of
the results is given with warranted caution; although the data can in no
sense be interpreted as indicating an intellectual advantage in bilingual
training for a child. It is essentially important to point out that these
conclusions cannot be assumed to apply universally to all bilinguals or
monoglots; nor to bilingual pupils or to monoglot pupils in every phase of
language-study.

What the study actually shows is that a boy or a girl born with
English as his or her mother tongue has a better opportunity to receive
higher grades than one who is born with a foreign language as his or her
mother tongue.

It would seem advisable to suggest that future investigators, in
order to carry on a scientific piece of research in the field of bilingual-
ism, study the pupils from every point of view - ancestry, mental training
and development, social status, mental attitudes, health, etc. When they
have made such an intensive observation of these factors, and shall have
considered the various types of individual differences prevailing in a
typical foreign-language classroom, they shall be better qualified to
formulate a more definite conclusion concerning the effects of bilingualism
on the acquisition of a third language.
BIBLIOGRAPHY


The thesis, "The Effects of Bilingualism on Achievement in Foreign Languages," written by Kathleen Attracta McGoldrick, has been approved by the Graduate School of Loyola University, with reference to form, and by the readers whose names appear below, with reference to content. It is, therefore, accepted as a partial fulfilment of the requirements for the degree of Master of Arts.

Rev. Austin G. Schmidt, S.J. November 30, 1934

Dr. James A. Fitzgerald December 3, 1934