

AN EXPERIMENTAL STUDY OF TWO METHODS  
OF TEACHING ORAL FRENCH

by

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We accept this thesis as conforming to the  
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## AN ABSTRACT OF THE THESIS:

AN EXPERIMENTAL STUDY OF TWO METHODS OF TEACHING  
ORAL FRENCH.

This study is an examination of the effectiveness of a method of teaching French phonics at the junior high school level and its effect in reducing the dangers of using the printed word from the beginning of language study.

Fifty-two grade IX students with no previous experience of French were taught a specially written ten week course using the mimicry-memorization method of learning sentence patterns in French. One group, the "two impression" group, studied this material with only oral-auditory stimuli, seeing only the English equivalent of the French they were expected to know. The other group, the "four impression" group, learned the same material by the oral, auditory, visual and kinesthetic stimuli since from the first lesson they saw and copied the French spelling after doing oral auditory drill. Special care was taken in drilling the latter group in the French orthographic system and in its phonetic basis. Students were expected in this way to "overlearn" the unit on French phonics in an attempt to reduce the English-type mispronunciation that could be expected.

From the two groups were selected matched pairs using the following criteria for purposes of matching:

First, I.Q; secondly, the current year's grades on the June examinations in English language, Science, Mathematics and Social Studies; and lastly musical aptitude. Groups had equal number of boys and girls. Tests were administered in auditory comprehension, in oral translation from English into French, and in pronunciation of French.

A comparison of the means at the end of the ten week course showed a slight difference in favour of the two impression group in auditory comprehension and in favour of the four impression group in oral translation and pronunciation. None of these differences was significant at the 5% level. The analysis of type and number of errors in the pronunciation test showed that those who saw the French had slightly more errors of pronunciation which seemed to be caused by interference from the English orthographic system. There were twice as many errors of this type in the four impression group as in the two impression group. These mistakes represented only six per cent of the total number of mistakes made. It was noted that those who had seen no French spelling still tended to mispronounce some French words in an English way.

It is concluded that the overlearning of French phonics appeared to have overcome what disadvantage might be expected to accrue from the teaching of French

using the written word from the beginning.

We accept this thesis as conforming to the required standards:

(Chairman)

## ACKNOWLEDGMENT

For the many valuable pieces of advice and for inspiration over a long period of time I wish to thank my teacher and supervisor, Professor S.M.. Boyles. I must also acknowledge the whole-hearted cooperation of my friend and principal, Mr. J.S. Michell in making time-table adjustments to permit this experiment to be conducted and in taking a much greater burden of work during the summer so that the final stages of the analysis of data and reporting of results could be completed.

Finally, I owe thanks to the British Columbia Teachers' Federation which has contributed directly in money, and indirectly through the experience I have gained while an elected officer and member of the Research Committee of that organization.

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## CHAPTER I

### INTRODUCTION

#### General Problem Area.

In the very limited time allowed by the school programmes for the study of modern languages the teacher and the administrator are faced with the problem of bringing the student to the degree of proficiency in understanding and in using the spoken language which will justify the place of languages on the curriculum. Supported by the opinions of neurological experts, educational leaders have instituted an increasing number of oral language programmes for elementary and junior high school grades. New methods of teaching the oral-auditory skills are being developed but few have been thoroughly appraised. Not all elements in these methods are equally in need of such study. Some can be adopted on the basis of logic. This study attempts to compare two methods between which an intelligent choice cannot be made without experimentation.

#### Specific Problem.

All teachers of French have experienced frustration and annoyance at the extent to which students mispronounce French words. Why these mistakes are made and what can be done to reduce them are questions which

should be answered before beginning courses can be soundly planned. The body of theory to which one can refer is as yet limited. Only in recent years has there developed a realization of the need for thorough study and only recently has the money for the work been allotted.

One generally held belief is that the problem of mispronunciation is better solved by postponing the sight of the written words for a few weeks, a few months or even a few years. Some internationally known teachers, however, recommend the use of the written word from the start as a support for the oral-auditory impressions in the belief that learning will be facilitated and retention improved.

In this study an attempt is made to discover if a certain method of teaching phonics can overcome the tendency for students to respond in an English way to the French spelling. Will the students who are thus fortified against the expected "spelling" pronunciation errors show better achievement than those who have only the auditory and oral impressions as aids to memory.

#### Allied Questions

Besides illuminating the main problem it is hoped that the experiment will assist in exploring the way for further studies. Since so little is known of those traits which are related to oral language ability, the correlations between I.Q., previous year's grades in major subjects,

current year's grades in the same subjects, scores on a test of musical aptitude, and three achievement tests will be computed. The relationships between auditory comprehension, oral translation and pronunciation will also be examined. Tests of musical aptitude were included in an attempt to test a popularly assumed relationship to pronunciation ability.

It was thought at the beginning of the study that difficulty in testing techniques would be a handicap. However, with the use of a battery of tape recorders many of the difficulties were overcome. The methods used and the measure of reliability of the three tests will be discussed and should be of assistance to others doing similar work. Although it was not possible to try out the instruments beforehand, they did prove adequate and with certain refinements may be useful as models for Government Examinations at a higher level.

#### Assumptions and Limitations

One of the primary assumptions made is that the sample of fifty-two students divided into two groups of twenty-six is representative of some larger population. Because of the small sample and the method of selection it will be more appropriate to consider that it represents Grade IX University Programme students of a small B.C. village than that it represents all French students of a similar age

anywhere. How far beyond the actual school these results can be applied will be best discovered by repetitions of the study.

Of the criteria used for equating the groups none was shown to be closely related to the pronunciation achievement test, although satisfactory correlations between equating criteria and the auditory comprehension and the oral translation were found. This may mean that, in the most important matter of aptitude for learning to pronounce accurately, the two groups were poorly matched. It is hoped that the number of students involved would make it fairly probable that a reasonable equivalence was achieved.

One weakness which must be noted concerns the matter of matching pairs. Certain criteria had to be selected for this purpose. Because of the small number of students from which a choice could be made, the criterion of sex was compromised. It is unlikely that this compromise seriously affected the results since there remained equal numbers of boys and girls in each group. However the possibility must be admitted here.

The second warning is directed to those who might wish to repeat the experiment or even to apply the results. Any variation in the use of the written word might be expected to give different results, and for this reason detailed notes on the methodology have been given. To

omit the phonics or to fail to have the student "overlearn" the French reaction to the spelling patterns would be to change the method in a very important respect.

### Definition of Terms

Oral skills. The conveying of ideas and emotions by the utterance of sounds will be referred to as oral speech and the skill sought will be increasing fluency and accuracy of the utterance. The aim will be not so much to make the student sound like a native as to eliminate those sounds which act as an impediment to easy comprehension by a native.

Oral practice. Oral practice refers to the practising by the student of the sounds, word groups and sentences. In the classroom this can hardly be divorced from some practice in auditory comprehension skills by those listening.

Auditory skills. Often referred to as aural skills, they refer to the correct hearing and association of sounds.

Auditory comprehension. Auditory comprehension includes the association of the sounds one step further into the field of ideas and emotions. The sounds correctly heard through the auditory skills take on meaning, thus constituting auditory comprehension.

Oral reading. Oral reading as such does not imply understanding, but merely the utterance of the correct sounds under the stimulus of the printed words.

Oral reading comprehension. The sound of the words

under the stimulus of the printed material linked with the comprehension of those words will be referred to as oral reading comprehension.

Reading comprehension. Reading comprehension will refer to understanding the printed word without the utterance of sound.

Phonics. This word is used to indicate the study and practice in relationship between the units in French orthography and the sounds they represent.

Four impression group. That group of twenty-six students who were taught using the following sequence of stimuli: auditory, oral, visual, and kinesthetic.

Two impression group. The other group of twenty-six students who were taught using the following sequence of stimuli: auditory and oral.

## CHAPTER II

### A SURVEY OF THE LITERATURE

#### Previous Experimentation on the Specific Problem.

Richard and Appel used a control group which followed a short-term, oral written course in Spanish and an experimental group which received an entirely oral course. On the final tests the oral group showed superior fluency and pronunciation.<sup>1</sup> Differences in other factors, such as comprehension and vocabulary, were negligible, although they were in favour of the experimental group. The groups used were small, fourteen college students in each group, and were matched on the basis of I.Q., sex, age, grade level, and years of foreign language study. There was also a pretest of linguistic aptitude which did not correlate significantly with the posttests of aural comprehension, vocabulary, oral reproduction and pronunciation. The course was very short being no more than five hours in duration. The author is reticent to claim that the results, although statistically significant at the four per cent and three per cent level, were valid, and expresses some doubt as to the matching device particularly as far as articulatory speed is

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<sup>1</sup>Richard, Sumner E., and Joan E. Appel, "Effects of Written Words in Beginning Spanish", Modern Language Journal, XL (March 1956) 129-33.



concerned.

In a later experiment about fifty fourth grade students were taught Spanish for two twenty minute periods per week for seven weeks. Half the number were taught by oral-auditory methods while the other half also saw the written words. It was concluded that those who saw the written word did not perform as well on experimenters' oral tests.<sup>2</sup> The students, however, were not beginners. They had been learning Spanish without seeing the written word for some weeks previously. One point of interest is that neither group suffered any loss in retention of auditory comprehension over the Christmas vacation, but in the vocabulary tests the drop in the retention by the auditory-oral group brought them down to the level of the auditory-oral-written group, who did not show any loss in retention. The pronunciation test was somewhat suspect in that it tested the students' ability to mimic the sound of a person saying certain words in Spanish. It might be contended that one could do well on such a test without any knowledge of Spanish at all. The authors recognize that the pronunciation test might be criticized for testing oral acuity and might be considerably

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<sup>2</sup>Foster, Dorothy P., and Clarence M. Williams. "Aural-Oral-Written versus Aural-Oral in teaching Spanish to Fourth Graders." Modern Language Journal XLIV (April. 1960) 153-57.

affected by nervousness. Certainly the coefficients of reliability between the two forms of the comprehension test (.39) and between the two forms of the vocabulary (.31) are very low. The marking of the pronunciation test by three judges showed considerable discrepancy. Finally, it seemed that the auditory-oral group for reasons other than the controlled variable, had better rapport with the teacher. In conclusion, the authors note a tendency in the data that might indicate that the auditory-oral-written approach might prove better for retention in the long run.

These are the only two studies found to bear directly on the specific problem. Both studies grapple with the obvious difficulties in slightly different ways and use tests of different types each with its attendant weaknesses in the absence of thoroughly reliable instruments so urgently needed in the field of pronunciation and fluency.

#### Traits Related to Oral-auditory Achievement.

Angiolillo, experimenting with teaching French to girls with I.Q's of 40-75, reported that the elementary stage of achieving aural-oral fluency is not a highly intellectual function.<sup>3</sup> However, another study using a sample of 545

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<sup>3</sup>Angiolillo, P.F., "French for Feeble Minded: An Experiment," "Modern Language Journal," 25, 1942, pp 266-271.

cases, shows a relationship between scores made on a French-accent rating scale (not oral fluency) and an intelligence test to have been represented by a correlation coefficient of .59.<sup>4</sup> Dunkel claims a high relationship between speaking ability and intelligence when speaking ability is measured by the production of longer units of the spoken language.<sup>5</sup>

In French as in most subjects at the elementary and junior high school levels, girls can be expected to do better than boys. Among many others, Dawson makes this point with particular reference to oral work.<sup>6</sup> Curry notes that girls do on the average achieve higher standards in language learning than do boys who have the same mental ability.<sup>7</sup>

Von Wittich, in attempting to predict student achievement in second languages, tried using school grades in various subjects.<sup>8</sup> She found that a combination of scores on all subjects plus the I.Q. was the best predictor, (.73) and that the school subjects without I.Q. was the

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<sup>4</sup>Dunkel H.B., Second Language Learning, Ginn and Co., 1948.

<sup>5</sup>Ibid

<sup>6</sup>Dawson, Mildred, Teaching Languages in the Grades, New York: World Book Co., 1951.

<sup>7</sup>Curry, K.V., Doctor's Dissertation, University of Pittsburgh, 1959.

<sup>8</sup>Von Wittich, Barbara, "Prediction of Success in Foreign Language Study", Modern Language Journal, XLVI, (May 1962) No. 5. 208-12.

second best predictor, (.66). This of course is for the traditional school language teaching. How these variables are related to oral-auditory skills is not known.

Pritchard found a surprisingly high relationship (.72) between oral fluency and certain personality traits, notably sociability.<sup>9</sup> Information on this subject came too late for the strict time schedule of equating classes for this study. It is recommended that in future experiments this variable be investigated.

After the experimental part of this study had been completed, it was discovered that the type of motivation might have considerable significance for oral work. A group of investigators found that students who genuinely wished to learn the language were divided into two main groups. Those who wished to learn in order to communicate with those of the other language group did much better in the perfecting of accent and in the attaining of fluency than those who simply wished to learn French to claim another language as a sign of increased sophistication or to obtain a better position.<sup>10</sup>

Closely related to this evidence on the importance of attitudes is the observation over several years'

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<sup>9</sup>Pritchard, D.F., "An Investigation into the Relationship of Personality Traits and Ability in Modern Language," British Journal of Psychology, 22, 1952, 147-48

<sup>10</sup>Lambert, W.E., R.C. Gardner, R. Olton and K.A. Tunstall, "A Study of the Roles and Motivation in Second Language Learning," McGill University, (Mimeo, 1960).

teaching French that students who are by nature talkative or sociable are among those who seem consistently to attain a higher oral standard than that of their more taciturn peers..

It appears to be accepted that not all individuals memorize most efficiently in the same way. Valentine found surprisingly low correlations of .20 to .30 between performance in auditory rote memorization and visual memorization.<sup>11</sup> De Saúzé attempts to estimate average equivalents of the impressions of the different senses for purposes of memorization.<sup>12</sup>

One of our experiments showed that it takes an average child with his auditory and visual senses equally developed one hundred "seeings" of an abstract word before he has an automatic recognition of its written form, while twenty "hearings" plus five "seeings" are sufficient to imprint the same word in a deep groove upon the memory cells and to make it available for purposes both of reading and conversing.

Yet to try to tie the equivalent values of different impressions to an average figure should only serve to remind the teacher that for each student the ratio will be different. It seems clear that in the ideal language school there might be different programmes for each

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<sup>11</sup>Valentine, C.W., Psychology and Its Bearing on Education, London, Methuen and Co., 1950.

<sup>12</sup>De Saúzé, E.B., The Cleveland Plan for the Teaching of Modern Languages, Philadelphia, John Winston Co., 1929.

of the main groups.<sup>13</sup>

No literature has so far been found of an experimental attempt to find the relationship of musical ability or achievement with success in oral language. The inclusion in this study of a test of musical aptitude and the rough matching of pairs on this criterion is based on a commonly made assumption of a relationship and on an intense curiosity on the subject.

It is unwise to ignore the opinions of Penfield on neurological aspects of language learning. He says that up to the age of ten to twelve years the mind of the child is receptive of new codes of language.<sup>14</sup> He further states that there is a gradual change until about the age of sixteen, after which age any new language sounds must be based on the patterns already assimilated. Resultant difficulty in fluency and good accent is to be expected. This experiment uses Grade IX students, (the lowest grade available) who, with an average age of fourteen years, are still in that transition period.

In addition to this evidence, it is relevant to cite the conclusions of a study quoted by Kaulfers, on

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<sup>13</sup>Carroll, J.B., The Study of Languages.  
Harvard University, 1953.

<sup>14</sup>Penfield, W., "A consideration of the Neurological Mechanisms of Speech and Some Educational Consequences," Proceedings of the American Academy of Arts and Science, 82 1953, 201-14.

the difference in language learning abilities at different age groups. This study showed that the younger the learner the greater are the gains in oral attainment.<sup>15</sup> He also claims that in grammar, vocabulary and reading adults with less than half the time spent on language study attain twice the growth. From this evidence, the danger of applying conclusions from one experiment to students of a different age group becomes clear.

#### Elements Common to Both Methods Used in This Experiment

In this section we must consider the psychological basis of language learning. Attacking the theorists of the Associationist school, Lipsky says:

Language pedagogues of this school have labored under the delusion that it is possible to construct a language from the parts into which it has been analysed.....<sup>16</sup>

He claims that language must be taught in Gestalts:

There are Gestalts in linguistic pedagogy of different orders. The essential requirements are that the Gestalt be a complete figure, a closed circuit.

Following this idea to its logical conclusion the course was taught to the students in whole phrases treated as

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<sup>15</sup>Kaulfers W.V., Modern Languages for Modern Schools, McGraw-Hill, 1942.

Lipsky, A., "Gestalt in Language Pedagogy," High Points, XIV, November, 1932 pp 18-23.

entities. The students became aware of sentence patterns and then secondly appreciated that each pattern was made up of parts which might be substituted.

By insistence on substitution, on the other hand, it was hoped to diminish the danger of lack of flexibility which was inherent in many of the American Army A.S.T.P. experiments during World War II. Agard and Dunkel state in an evaluation of this programme:

We saw few exhibitions of what could honestly be called spontaneously fluent speech. While many students could participate in memorized conversations speedily and effortlessly hardly any could produce at length fluent variations from the basic material, and none could talk on unrehearsed topics without constant and painful hesitation. The main contributory factor seems to have been slow vocabulary recall and difficulty in manipulating grammatical forms.<sup>17</sup>

While the foregoing considerations were borne in mind, the actual detailed construction of the drills followed the principles emphasised by Pimsleur: single emphasis, immediate reinforcement, and use of English for instruction.<sup>18</sup>

In support of using English and of using a particular form of teaching idioms Asher may be cited.<sup>19</sup> He states

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<sup>17</sup>Agard, F.B. and Dunkel, H.B., An Investigation of Second Language Teaching. Ginn & Co, 1948.

<sup>18</sup>Pimsleur, P., "Pattern Drills in French" The French Review XXXIII, no. 6, May 1960.

<sup>19</sup>Asher, James J., "The High Velocity Process of Logic in Verbal Training," Paper read at the California Research Association, Palo Alto, California, March 1961.



that classic studies of interference effects in verbal learning tend to conclude that "noise" or interference, is maximum when one tries to learn new responses to old stimuli. This generalization was modified by Asher. He predicted that noise would decrease as the logical relationship between the old and new responses was increased. With nonsense syllables as the learning task and college graduates as subjects, the experiment confirmed the hypothesis.

If this idea is sound, then teaching should emphasize the logical connection with the first language. Following this approach, all idioms were given first in their literal meaning and drilled in that meaning, with the idiomatic meaning added second. For instance, "qu'avez-vous?" was drilled as "what have you?" before the idiomatic "what's the matter with you?" and "what's wrong with you?" were introduced. This method seemed to eliminate many mistakes which are so very apparent from textbook linking of, for example, "hier soir": last night. Students can almost be excused for believing that "last week" must therefore be "hier semaine" unless the logical connection with English is made very clear when the phrase is first introduced.

Method of Learning Vocabulary. Several studies have been made recently to investigate efficiency in vocabulary learning. For instance, an experiment by Kale constitutes

a justification of "context-learning" with visual representation.<sup>20</sup> Words were more efficiently learned and retained when they were directly associated with the objects, actions or movements they represented. This is opposed to the practice of pairing the foreign language word with the native language word. For this reason the concrete nouns were taught in this experiment by diagrams rather than by English equivalents.

Elements Differing Between the Two Methods Used in This Experiment.

The authorities recommending a period of oral-auditory work before introducing reading and the visual form of the word are too numerous to name in detail here. It will be sufficient to say that this is the recommended practice in British Columbia schools not only where elementary French is being taught but also in the new French 8 course. A typical spokesman for this group of teachers is Andersson who says:

The theory that the ear and the tongue should be thoroughly trained before written symbols are introduced is unquestionably sound<sup>21</sup>

But can the ear and tongue not be trained at the

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<sup>20</sup>Kale, Shrikrishna V., "Learning and Retention of English-Russian Vocabulary under Different conditions of Motion-Picture Representation." University Park, Pennsylvania, " Pennsylvania State University 1953.

<sup>21</sup>Andersson, T., The Teaching of Foreign Languages in the Elementary School, Boston: D.C. Heath and Co., 1953.

same time as the spelling of the words is introduced? Certain authorities appear to believe so. Brady used the "hear-say-see-say-read-write" method. By teaching her pupils how to pronounce letters and symbols she hoped to enable them to pronounce correctly anything they ever saw.<sup>22</sup> Borst, at the University of Wisconsin, does not feel that reading should be forbidden in grades three to six.<sup>23</sup> The third and last authority to be quoted is MacRae who advises that children should know the printed word:

The wise use of easy reading materials can serve to consolidate the aural-oral gains and to focus them in such way as to promote further growth in the power to speak and comprehend.<sup>24</sup>

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<sup>22</sup>Brady, A., Syllabus for the Teaching of Spanish in the Grade School, Lawrence, Kansas: The Allen Press 1956.

<sup>23</sup>Borst, R., Teacher's Guide: Spanish in Action for the Elementary School, Malison, Wisconsin, University of Wisconsin Extension Division 1956.

<sup>24</sup>MacRae, M., Teaching Spanish in the Grades, Boston: Houghton Mifflin Co., 1957.

## CHAPTER III

### THE DESIGN OF THE EXPERIMENT

#### The Hypothesis

It is intended to test the hypothesis that a method using the overlearning of French phonics followed by joint application of auditory, oral and visual impressions followed closely by the kinesthetic (limited) impression will be as effective as the method which uses only the oral and auditory impressions.

More specifically, the hypothesis may be divided into three parts: that the difference in the means between the two groups will not differ significantly (at the five per cent level) in tests of (a) auditory comprehension (b) oral translation and (c) pronunciation.

#### Allied Problems

Further subsidiary hypotheses will be tested:

(a) that there is a high positive relationship between subtests of the Seashore Measures of Musical Talents and (i) the test of auditory comprehension and (ii) the test of pronunciation accuracy.

It is hoped to draw some conclusions on the suitability of the tests of oral translation and pronunciation for more widespread use in routine testing programmes.

By presenting in tabular form the coefficients of correlation between the different variables measured

it is hoped to supply others doing similar work with additional insight into the abilities that are related to oral-auditory skills.

### The Level of Significance

An explanation is required of the decision to adopt .05 as the required level of significance. The eventual choice of teaching method will depend on the effectiveness and on the ease of application as well as on other benefits not measured in this experiment. From subjective observation it has been noticed that the four impression method is less exhausting for the teacher, more conducive to thorough review habits on the part of the student, as well as more effective in providing early introduction to reading and a preparation for later written work. For these reasons, if the effectiveness of the two methods is not significantly different, then there is no reason why the Four Impression method should not be used in preference to the method which does not have these additional advantages.

For this reason the .05 level of confidence will be used to establish whether or not the differences are significant instead of the more stringent .01 level.

### Equating the Groups

Because of the lack of an easily measurable variable clearly related to French oral efficiency the whole groups from which the matched pairs would later be taken

were initially equated on the basis of I.Q., and the previous year's grades in English, social studies, mathematics and science<sup>1</sup>. All three classes taking Grade IX University Programme French in the J.L. Jackson Junior Secondary School were used and were taught by the same teacher. One of these classes was taught by the four impression method and the other two classes by the two impression method. It became apparent that the three classes although roughly equated on paper were slightly different from each other in terms of class tone and of teacher student interaction. It appeared that in terms of performance in other school subjects the three classes were slightly unequal in their attitudes to school work. Of the two impression classes one was perceptively better and one was perceptively worse in attitude than the four impression class. This is not to exaggerate the difference since all three were good classes, but this perceptible difference should be noted. Inasmuch as it affects matching of groups, it indicates a possible weakness in the experiment.

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<sup>1</sup>See previous chapter for rationale of selection of these criteria.

To further refine the equating of the groups it was decided to use the matched pairs method for the statistical analysis. In the matching, the number of students taken from the better two impression group was approximately equal to that from the poorer two impression class.

This second more detailed matching was done on the basis of I.Q., the current year's grades - presumably even more related to this year's work in French than the previous year's grades<sup>2</sup>- and musical aptitude scores. This last criterion was least rigidly equated since any relevant relationship was still based on conjecture. The two groups contained equal numbers of boys and girls.

Although it was hoped to have a larger number of students in the groups, because of absence from school at crucial times and because a number were found to have some background of French in previous years the number matched in pairs was eventually reduced to twenty-six in each group, giving a total of fifty-two.

The I.Q. rating of each student was taken from the Otis Beta Test which had been administered one

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<sup>2</sup>This assumption was partly justified by the figures given in table II page 26.

year previously. The number rating of the year's grades was found by allowing five points for an A, four for a B, three for a C plus, two for a C, and one for a C- on the June report. Finally, to test the musical aptitude the Seashore Measures of Musical Talents 1939 revision, Form A was used.

The Test Manual has this to say on the appropriateness for our purposes:

They are the standard measures used in anthropology for comparison of natural capacities in different races and culture-levels, for analysis of types of achievement, inheritance of talent, speech disorders and technical auditory skills. They may be used extensively as class experiments in general psychology, music, and phonetics. They are convenient measuring tools for acoustical research in many fields.

They do not measure training or achievement in music.<sup>3</sup>

Although the manual warns against averaging the scores, in this experiment the tests were averaged since it seemed impractical to try to equate pairs on the basis of each subtest. The reliability coefficients of the subtests as computed by the split half method adjusted by the Spearman-Brown prophecy formula, for students of Grade nine age-range: Pitch .88, Loudness .88, Time .76, Timbre .74, Rhythm .62, Tonal Memory .88.

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<sup>3</sup>Seashore, Carl E., Don Lewis, and Joseph E. Saetveit Manual of Instructions and Interpretation for the Seashore Measures of Musical Talents. RCA Victor Camden (1939 Revision)



Table I gives the means and standard deviations of the two groups on the different criteria used for matching.

Table II gives the correlation coefficients between the equating criteria and the achievement tests computed at the end of the experiment. They are placed at this early point in the report to show that the relationships later measured largely justified the choice of criteria for matching. The scores used in these computations were from the total of ~~fifty~~ two students.

The relationships between achievement and matching criteria are not high and in some cases very low, for example in the case of the sub-test of timbre. Nevertheless in the absence of other known related variables the correlations in general are satisfactory in the case of auditory comprehension and oral translation. On the other hand, prediction of pronunciation ability by the variables used here is not nearly so satisfactory. With coefficients of correlation which range from minus .08 to .36 (with IQ), one can only hope that with twenty-six students in each group an approximate equivalence in pronunciation aptitude was attained.

TABLE I  
GROUP MEANS AND STANDARD DEVIATIONS OF CRITERIA  
USED FOR EQUATING GROUPS

<u>Variable</u>	<u>Four Impression Group</u>		<u>Two Impression Group</u>	
	Mean	S.D.	Mean	S.D.
I.Q.	115.4	9.15	115.5	8.19
Grades (previous year)	13.5	3.73	13.2	4.34
Grades (current year)	12.4	4.70	12.6	4.92
Musical talents	44.5	18.06	48.6	18.44
Subtests				
(a) Pitch	36.9	6.01	36.3	6.91
(b) Loudness	40.5	4.27	40.6	5.30
(c) Rhythm	24.3	3.86	24.5	3.36
(d) Time	38.2	3.43	37.9	6.05
(e) Timbre	34.5	5.92	37.2	5.46
(f) Tonal Memory	19.7	5.61	22.2	5.09

TABLE II

COEFFICIENTS OF CORRELATIONS SHOWING RELATIONSHIPS  
BETWEEN ACHIEVEMENT TESTS AND CRITERIA  
USED FOR MATCHING

<u>Matching Criterion</u>	<u>Comprehension</u>	<u>Oral Translation</u>	<u>Pronunciation</u>
I.Q.	.63	.43	.36
Previous Year's grades academic subjects	.58	.62	.24
Current year's grades academic subjects	.69	.64	.19
Musical Talents (total)	.34	.33	.24
Subtests:			
a) Pitch	.11	.16	.24
b) Loudness	.28	.33	.12
c) Rhythm	.43	.41	.25
d) Time	.17	.21	.16
e) Timbre	.07	-.05	-.08
f) Tonal memory	.29	.25	.17

Table III gives details of the twenty-six pairs of students. It will be noted that although there were over a hundred students from which to select candidates for pairing, a considerable amount of compromising had to be allowed. While it is recognized that there is some deficiency here particularly in the equating of sexes it is claimed that the procedure used is a considerable refinement on the process of merely equating mean scores of the groups.

TABLE III  
DATA REGARDING MATCHED PAIRS

<u>Serial Number of Student</u>	<u>I.Q.</u>	<u>Grades</u>	<u>Music Apt.</u>	<u>Sex</u>
1a	130	15	40	F
1b	132	17	37	M
2a	104	8	47	M
2b	104	6	35	M
3a	120	13	50	F
3b	118	15	37	F
4a	118	11	7	F
4b	117	11	36	M
5a	125	20	51	M
5b	123	20	69	F
6a	123	18	65	M
6b	123	18	54	M
7a	113	17	87	M
7b	113	17	56	M
8a	135	17	42	M
8b	126	14	48	F
9a	118	12	50	F
9b	117	11	57	F

<u>Serial Number of Student</u>	<u>I.Q.</u>	<u>Grades</u>	<u>Music Apt.</u>	<u>Sex</u>
10a	127	17	42	M
10b	120	18	44	F
11a	108	10	27	M
11b	112	8	39	F
12a	116	17	42	M
12b	118	19	75	F
13a	113	15	58	F
13b	115	16	66	F
14a	100	9	49	F
14b	104	8	19	M
15a	118	6	17	F
15b	121	8	25	F
16a	104	13	43	M
16b	101	13	35	F
17a	118	17	38	M
17b	123	20	90	M
18a	115	12	79	F
18b	123	14	82	F
19a	129	16	41	F
19b	122	13	36	F
20a	116	9	33	F
20b	114	9	45	M
21a	108	15	32	M
21b	114	12	56	M
22a	116	16	60	F
22b	120	16	68	M
23a	102	0	30	M
23b	101	4	30	M
24a	111	11	56	F
24b	110	10	63	M
25a	105	6	24	F
25b	106	4	34	M
26a	111	6	27	M
26b	105	6	29	F

### Course Material.

A special course was developed which incorporated the most useful sentence structures and vocabulary of a type that can be used to communicate in real situations. It is thought for instance that the sentence patterns which take an infinitive are among the most useful in the language and should therefore be learned as early as possible for oral use:

"puis-je prendre l'auto?" "voulez vous le mettre là-bas?" "je vais rentrer;" and "pouvez-vous voir?"

There was no attempt to build a lesson around one restricted real life situation. Rather a sentence pattern was taken and substitution was practised to make that pattern useful in many different situations. For instance "il n'y a pas de (d')" was used with "quoi", with "eau", with "lumière" and many other words from everyday lexical vocabulary.

### Methods of Teaching the Experimental Course.

The teaching of French phonics to four impression group. This method is based on the belief that the oral reading of French can be reduced in all but a relatively few exceptional words to a fairly simple skill of recognizing the number of different spellings which produce a single phone. If one writes the French

from the English there is confusion because there are a variety of spellings for the sound /e/ for instance: "e", "ez", "et", "ai" or - "es" in such words as "les". But once these possible spellings are linked in the student's mind with the one pronunciation then oral reading is made more logical and future spelling training can be expected to be much easier.

The phonetic alphabet is no longer as popular as it once was for the teaching of pronunciation. The main complaint seemed to be that there was loss of time in teaching students two sets of spelling instead of one. A combined method used in this experiment is the real core of the teaching method. The careful learning of articulation which phonetic alphabet training required and the basically phonetic aspect of French (at least when working from the spelling to the pronunciation) were combined to give the best of both methods. If the four impression group perform as well on the achievement tests as the two impression group then this phonics unit can be said to have worked. Needless to say, the overlearning of the relationship of letters to sounds is essential.

Students first learned the principles of dividing French words into syllables. Rules for pronunciation of consonants were drilled and the vowels were presented on the conventional phonetics diagram based

on tongue movement, which are presented in appendix A.

An important difficulty which arises in applying the logical relationship of spelling to pronunciation, is in the case of the two sounds in French associated with the single spelling form "a". While the difference is non-phonetic it is none the less real and important in native French speech. For purposes of this two and a half month course the problem was left unsolved and the students had to distinguish by the auditory sense alone.

Methods common to both groups. Each phrase was given first by the teacher and then repeated immediately by the students. The next phrase was treated in the same way. After the group of sentence or phrase patterns selected for the day had been treated in this way, and difficult phonetics had been reinforced by individual repetition, the English equivalents of the phrases were put on the board. Then the process of memorization was begun by getting the class to respond in chorus when the English equivalent was indicated by the teacher. At this stage the teacher always repeated the phrase whether the class pronounced it correctly or not. Each time a phrase was indicated and the oral response given by the class a check mark was placed next to the English. The five or six phrases were asked for in varying



order. It was found after a few lessons that from twelve to sixteen repetitions were necessary before all students in the class were giving an automatic response. Maximum individual response was encouraged by the self-test device of asking students to pronounce silently to themselves the whole list of phrases for the day. The teacher would indicate them in order and after a pause the correct pronunciation would be given. Students were then asked to indicate if they had the answer correct. An advantage of using this technique once or twice during each sequence of memorization was that the teacher could assess how much additional practice was required. The students then copied the English into their notebooks. (The four impression group then copied the French word in normal spelling and read these words chorally with the teacher, practising syllabication at the same time).

Drill practice. At this point in the lesson students were asked to stand up and use the sentence patterns changing one word or adding a phrase to make a fluent meaningful utterance. The teacher ensured that each student said something before resuming his seat. Sometimes during this practice other students

were invited to indicate that they knew what the French utterance meant, either by giving the English equivalent or by making some action to indicate their comprehension. Students were encouraged to use vocabulary and phrases learnt in previous lessons.

The new material in each lesson was reviewed at the beginning of the following lesson. It was not found possible to review each time to a point where the teacher knew that all students had remembered every part of the previous lesson. Perhaps this is a weakness which should be avoided in a repetition of the experiment. It will be noted that the two impression group gained a slight amount of extra time for oral auditory practice while the other group was studying phonetics and writing the French into notebooks.

The teaching of vocabulary. Concrete nouns were taught by means of drawings, while all other vocabulary was paired with the English equivalent.

#### Duration of the Experiment

The lessons were of fifty minutes' duration, staggered so that they occurred at different times on different days. In a seven day week the students had six fifty minute French periods. In approximately ten weeks the total time spent in the classroom

was 2050 minutes. Students were told that they should go over the phrases learnt for homework but it was impossible to find out how consistently this was done. Perhaps a more controlled method of assigning homework would be used in a future study of this sort. The three months in question were September, October and part of November, 1962.

### Measuring Instruments

Test of oral pronunciation. The main test was a teacher-made test of fourteen one or two word items in English, for which the students were asked to give the French. This test was especially made from a list of the most common mistakes made by English speaking people learning to speak French. The list was compiled from a careful linguistic analysis of the two languages by Politzer.<sup>2</sup> The test, though rather short (and therefore fairly easily administered) contains examples of the main sources of mistakes which lead to difficulties in communication.<sup>3</sup>

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<sup>2</sup>Politzer, R.L., Teaching French: An Introduction to applied Linguistics, New York, Ginn and Co., 1960.

<sup>3</sup>The test appears in appendix B and an analysis of probable mistakes on page 70.

The test of auditory comprehension. Since the English had been used as a teaching medium it was also decided to use English in the testing process. To test comprehension the teacher read certain sentences twice and the student wrote in English his version of what was said. There were thirty-four sentences averaging five words in length.<sup>4</sup>

The test of oral translation. For the sake of objectivity students were asked to give a straightforward translation of English sentences. There were twenty-five items of about five or six words in length.<sup>4</sup> Each sentence was marked in much the same way as written translation is often marked. In this case divisions with allocation of one mark are indicated accurately by underlinings. Accent and fluency are not accurately measured by this test except in so far as marks were subtracted for words which were judged not to be readily comprehensible to a native speaker.

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<sup>4</sup>The test appears in appendix B.

## Validity and Reliability of Testing Instruments

### Validity of comprehension and oral translation.

The sentences in the tests of comprehension and the oral translation are not actual sentences used in the teaching of the course but are composed of words or phrases taken at random from all parts of the course. Since the aim of the course was to teach communication of such messages as occur in both these tests the establishing of validity of the tests does not present any major problem.

Validity of the pronunciation test. The third test, that of pronunciation, needs perhaps a little more careful explanation since the choice of items was a more rigorous process.

The starting point in the construction of this test was the following list by Politzer:<sup>4</sup>

This list can serve as a check list that a French teacher may use to evaluate a student's pronunciation or a guide to be kept in mind in correcting pronunciation mistakes:

- A. 1. Mispronunciation of the rounded front vowels.
2. Mispronunciation of the nasals by putting an /n/ after them:
3. Diphthongization of the French vowels /i/, /e/, /o/, /u/ -- "see" instead of si, "lay" instead of les, "bow" instead of beau, and "do" instead of doux.

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<sup>4</sup>Politzer, op. cit. page 70.

4. Aspiration of the initial voiceless stops.
5. Pronunciation of the alveolar /t/ and /d/.
6. Pronunciation of an English /r/ or /l/.
7. Failure to pronounce fully and explode the final consonants in words like patte, /pat/, digue /dig/.
8. Use of English stress patterns in French words, for instance, "liberté" with stress on the initial syllable.
9. Making marked pauses (English "open juncture") between French words.
10. Avoiding the running together of words and open syllabification in favor of the English syllable pattern.

If the student has learned French orthography, then the teacher must see to it that he does not:

- B. 1. Miss the obvious cases of liaison as in Les amis.
2. Pronounce /a/ which no Frenchman would pronounce in normal conversation, as in promenade.
3. Give obvious spelling mispronunciations.
4. React to French orthographic symbols as if they were English.

Table IV gives the totals of possible errors in each of the categories just listed. Except that A9 and A 10 have been combined, the headings for the various columns and rows in the analysis of pronunciation are taken from this list. In preparing the test of pronunciation care was taken to provide scope for students to make mistakes of these different types.

TABLE IV

CATEGORIES OF EXPECTED ERRORS ON PRONUNCIATION TEST

Test Items                      Types of error as listed on page 36

	AI	2	3	4	5	6	7	8	9	10	BI	2	3	4
le professeur	1					1		1						1
la petite cuillère	1			1	1	1		1				1		
la main		1				1								1
demain		1			1									1
quelle chance		1		1		1								1
le vin		1												1
je suis entré	1		1			1		1	1		1			1
du thé	1			1	1									1
bonne idée			1					1	1					
mes autos			1		1			1	1		1			
la toilette				1	1	1	1	1						1
tournez à droite				1	1		1	1	1					
le tiroir				1	1	1		1						
une porte	1			1	1	1	1							
	5	4	3	7	8	8	3	8	4	0	2	1	0	11

Total: 64

From the table it will be noted that there are a large number of words which students might be tempted to mispronounce in an English way. These were planted in this test intentionally since it is in this field that the difference between groups might be expected to show.. In B3 no examples are given since almost all the words included in this oral experiment were pronounced according to the phonetic rules and few exceptions were included. Mistakes made because of confusion with the English spelling pronunciation are included under B4.

Reliability. Since there was no part of the tests that was speeded the split-half method of testing for internal stability was used by dividing first and second halves of each test. This procedure was felt to be justified in that there was no gradual differentiation in difficulty from beginning to end of the test, because the different test items were chosen at random from the course and because none of the tests were considered long enough for any serious effects of fatigue to have beset the students.

The internal consistency coefficients for the half-test and the coefficients corrected by the Spearman-Brown prophecy formula for predicting the reliability of the whole test, were as follows: for the auditory comprehension test the result was .91,



corrected to .95; that of the oral translation test was .86 corrected to .93; for the test of pronunciation, a much shorter one, the result was .65 corrected to .78.

All tests were marked by the experimenter. In the comprehension test, care was taken to score one item on all papers before proceeding to the next item. The test of pronunciation was marked five times before the results were compiled. In this way it was hoped to reduce the errors of scoring in the more subjective aspects of this test.

#### Statistical Treatment

It is proposed to use the method recommended by McNemar<sup>5</sup> for calculation of significance of difference between means of the two groups. The formula to be used is for use when the two means are based on the same individuals or on paired cases, and makes allowance for the fact that the sets of scores are not random with respect to each other. With small samples it is easier to work with the differences between paired scores and thence the standard deviation of the distribution of the sampling error of  $M_D$ .

$$t = \frac{M_D}{S_{M_D}}$$

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<sup>5</sup>McNemar, Q., Psychological Statistics, New York, Wiley 1955, p. 108.

The relationship between musical ability and the achievement tests will be studied by computing the coefficients of correlations. These will then be subjected to a test of accuracy of prediction by using the formula for estimating the amount of the variance not explained by the predictor variable<sup>6</sup>.

Summary.

In table V the design of the experiment is summarised. Part A gives the experiment which is designed to test the main hypothesis dealing with the phonics and the postponement of the sight of the written word. Part B describes the methods used to give information on the nature of oral-auditory skills and their relationship to other variables.

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<sup>6</sup>Ibid 1949 p. 31.

TABLE V

SUMMARY OF DESIGN OF THE EXPERIMENT

A.	EQUATING OF GROUPS	Groups equated on I.Q., academic grades, musical aptitude and sex.	
	MATCHING OF PAIRS	Pairs matched on I.Q., academic grades, musical aptitude.	
		THE FOUR IMPRESSION GROUP	THE TWO IMPRESSION GROUP
		26 beginning students	26 beginning students
		Ten week course in oral French beginning with the <u>overlearning of French phonics</u> and with the <u>sight of normal French spelling</u> from the very first.	The same ten week course in oral French <u>without seeing the French words in any form.</u>
	MEASUREMENT OF ACHIEVEMENT	1. Auditory Comprehension Test 2. Oral Translation Test 3. Pronunciation Test	
B.	TREATMENT OF RESULTS	Means for the two groups to be compared and tested for significance of the difference by 't' test.	
	STUDY OF RELATIONSHIPS	Using all 52 students' scores compute coefficients of correlation among all tests administered to gain information on relationships between oral-auditory skills and I.Q., academic grades, and musical aptitude.	

## CHAPTER IV

### PRESENTATION AND ANALYSIS OF DATA

#### Auditory Comprehension

The students' papers were scored and the means and standard deviations were computed. There was a non-significant difference between the means in favour of the two impression group, the figures being 56.62 against 61.23. A greater spread of scores in the four impression group was indicated by the standard deviation of the four impression group of 17.43 while that of the two impression group was 16.26, but this difference proved not to be significant.

#### Oral Translation

The computation of means showed a non-significant difference between the two groups in favour of the four impression group. The means were 56.92 for the four impression group as against 55.00 for the other group. The standard deviations were 20.84 and 16.41 respectively.

#### Pronunciation Test

The four impression group gained a higher mean score of 38.26, with the two impression group registering 35.73. Standard deviations were 5.86 and 5.62 respectively. The difference in means was tested

for significance and found to be significant only at the ten per cent level and not at the previously selected level of .05. Table VI gives the most pertinent statistics for the three tests.

TABLE VI  
COMPARISON OF RESULTS ON ACHIEVEMENT TESTS

	Four impres- sion group		Two impres- sion group		Differences	Signifi- cance at .05 level
	Mean	S.D.	Mean	S.D.		
Auditory Compre- hension	56.62	17.43	61.23	16.26	4.61 1.17	None
Oral Trans- lation	56.92	20.84	55.00	16.41	1.92 4.43	None
Pronuncia- tion	38.26	5.86	35.73	5.62	2.53 .24	None

#### Analysis of Errors on the Pronunciation Test

Perhaps more useful than the comparison of means is the analysis of errors into categories giving type and frequency. Wright, speaking of an experiment carried out into different aspects of speaking French makes this statement:

In many of the comparisons no significant differences were found. The follow-up study did point to one important aspect to consider in further studies of language programs. Where significant differences were uncovered they were not in total scores. For an error analysis, thirteen categories of errors were established.

Here some of the significant differences were noted. I shall not go into details on the various analyses that were conducted. It is enough to note that there are many aspects of learning a modern language and total scores may be misleading.<sup>1</sup>

Such an analysis is given for the pronunciation test in tables VII and VIII. It should be noted that these charts do not include all mistakes made but only those made which correspond to Politzer's list of most likely mistakes. Hence the discrepancy between this list and those presented in appendix C.

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<sup>1</sup> Wright, E.N.; "Applications of Programmed Learning and Television to the Teaching of Modern Languages:" a paper read at the Seminar on the Teaching of Modern Languages, Ottawa, 1962.

TABLE VII

ANALYSIS OF ACTUAL ERRORS ON PRONUNCIATION TEST

FOUR IMPRESSION GROUP

	le professeur	la petite cuillère	la main	demain	quelle chance	le vin	je suis entré	du thé	bonne idée	mes autos	la toilette	tournez à droite	le tiroir	une porte	Total
1. Rounded Front Vowels	10	2	0	0	0	0	4	5	0	0	0	0	0	2	23
2. "n" added to nasals	0	0	3	2	6	7	0	0	0	0	0	0	0	0	18
3. Diphthongization	0	0	0	0	0	0	2	4	3	0	0	0	0	0	9
4. Aspiration of consonants	0	0	0	0	0	0	0	1	0	0	1	0	1	2	5
5. Alveolar "t""d"	recordings inadequate to detect mistakes of this nature.														
6. "r" and "l"	19	9	0	0	4	0	2	0	0	0	0	7	4	9	54
7. Explosion of final consonant	0	10	0	0	0	0	0	0	0	0	14	5	0	8	37
8. Stress	6	1	0	0	0	0	1	3	7	0	0	0	0	0	18
9. Open juncture and pause	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
B1 Liaison	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
2. Pronounce "e"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3. Exceptions pronounced as spelt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Pronounce French as English	2	3	0	0	0	6	0	0	5	0	2	0	0	0	18
Totals	37	25	3	2	10	13	9	13	16	11	17	12	5	21	184

TABLE VIII  
ANALYSIS OF ACTUAL ERRORS ON PRONUNCIATION TEST  
TWO IMPRESSION GROUP

	le professeur	la petite cuillère	la main	demain	quelle chance	le vin	je suis entré	du thé	bonne idée	mes autos	la toilette	tournez à droite	le tiroir	une porte	Total
1. Rounded Front Vowels	17	2	0	0	0	0	1	12	0	0	0	0	0	1	33
2. "n" added to nasals	0	0	5	6	13	11	0	0	0	0	0	0	0	0	35
3. Diphthongization	0	0	0	0	0	0	3	5	2	3	0	0	0	0	13
4. Aspirations of consonants	1	1	0	0	0	0	0	2	0	0	2	1	0	1	8
5. Alveolar "t" "d"	recordings inadequate to detect mistakes of this nature														
6. "r" and "l"	20	14	0	0	0	0	10	0	0	0	0	10	10	13	77
7. Explosion of final consonant	0	13	0	0	0	0	0	0	0	0	15	13	0	12	53
8. Stress	1	0	0	0	0	0	0	2	11	0	0	1	0	0	15
9. Open juncture and pause	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
B1 Liaison	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2. Pronounce "e"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3. Exceptions pronounced as spelt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Pronounced French as English	0	0	0	0	0	3	0	0	0	2	2	1	0	0	8
Totals	39	30	5	6	13	14	14	21	13	5	19	27	10	27	243



Because of its relation to phonics, the most interesting type of mistake is the one which might be made because of an English-like pronunciation of the French spelling. Of these mistakes the four impression group made eighteen and the two impression group made less than half as many, namely eight. The surprising aspect of these figures is not that the four impression group made eighteen such mistakes, since this was a very small number considering the total number possible, i.e., one hundred eighty two for each group. Seven items were chosen especially to tempt students to make such mistakes so that the effectiveness of the phonic teaching in overcoming this tendency could be assessed. The surprising thing is that the two impression group made eight such mistakes having never seen the written words. It would seem that the sound of these words was enough to trigger the connection with the English. It may be that this fact points to a weakness of the test. For instance, should the word "idée" have been included in a test of pronunciation when its consonant so readily suggests the English, which all students had written in their notebooks. Curiously enough the French word "vin" was mispronounced as /vin/ by three members of the two impression group possibly because

of the connection with the English "vineyard".

Another less likely explanation is that some students in the two impression group had studied with those of the four impression group outside school. This is thought to be unlikely because of the high degree of cooperation on the part of the students in all aspects of the experiment and on the lack of weight placed on the results for reporting purposes.

A maximum penalty of four points for a lax mouth was deductible. It will be seen from appendix C that the four impression group lost eight such points while the two impression group lost over three times as many.

#### Evidence on Secondary Questions.

Coefficients of correlations among the various measures were computed and are given in table IX. Certain items are particularly interesting. Between the measure of I.Q. and the various French achievement tests, the high correlations were with comprehension and oral translation while the lowest were with pronunciation. Between the measure of current year's grades in the other major subjects and the achievement tests the same trend was observed: the highest correlation was with comprehension and the lowest with pronunciation. The correlations between the various musical aptitude scores and the final achievement tests were low although there was a most interesting tendency for rhythm to be consistently more highly correlated than the other sub-

tests. Even so, rhythm followed the pattern of being less highly correlated to pronunciation than to either comprehension or to oral translation.

Comprehension and oral translation showed a high intercorrelation though neither showed a high correlation with pronunciation which seemed to be the most "isolated" skill.

#### Conclusions on Major Hypothesis

The results supported the hypothesis that there would be no difference between the means of the two groups on the achievement tests. It was concluded therefore that the four impression group, given the benefit of a unit in French phonics, progressed as well as the two impression group. The teaching of the unit in phonics had counteracted any disadvantage that might otherwise accrue from the sight of French spelling from the beginning. It would be a mistake, however, to conclude that the indiscriminate use of the written word is therefore permissible. The same results could not necessarily be expected if the method of teaching were altered in any appreciable way.

#### Conclusions on Minor Hypotheses

In general, there was a low positive correlation between native musical ability and the achievements in auditory comprehension, oral translation and pronunciation, so that the subsidiary hypotheses were not supported. The lowest correlation appeared to be between these tests

TABLE IX  
CORRELATION COEFFICIENTS BETWEEN MEASURES USED

	I.Q. Otis B	Previous year's grades	Current year's grades	Pitch	Loudness	Rhythm	Time	Timbre	Tonal Memory	General Music Aptitude	Comprehension	Oral Translation	Pronunciation
I.Q. Otis B	1.00	.63	.65	.24	.13	.40	.09	.01	.19	.27	.63	.46	.36
Previous year's grades	.63	1.00	.84	.32	.36	.32	.19	.11	.19	.38	.58	.62	.24
Current year's grades	.65	.84	1.00	.30	.48	.46	.22	.35	.35	.58	.69	.64	.19
Pitch	.24	.32	.30	1.00	.20	.32	.10	.35	.35	.67	.11	.16	.24
Loudness	.13	.36	.48	.20	1.00	.04	.39	.22	.23	.55	.28	.33	.12
Rhythm	.40	.32	.46	.32	.04	1.00	.02	.44	.39	.59	.43	.41	.25
Time	.09	.19	.22	.10	.39	.02	1.00	-.10	.14	.41	.17	.21	.16
Timbre	.01	.11	.35	.35	.22	.44	-.10	1.00	.34	.64	.07	-.05	-.08
Tonal Memory	.19	.19	.35	.35	.23	.39	.14	.34	1.00	.70	.29	.25	.17
General musical aptitude	.27	.38	.58	.67	.55	.59	.41	.64	.70	1.00	.34	.33	.24
Comprehension	.63	.58	.69	.11	.28	.43	.17	.07	.29	.34	1.00	.82	.34
Oral Translation	.46	.62	.64	.16	.33	.41	.21	-.05	.25	.33	.82	1.00	.34
Pronunciation	.36	.24	.19	.24	.12	.25	.16	-.08	.17	.24	.38	.34	1.00

Number of cases 52.

and the measure of discrimination of timbre: .07, -.05 and -.08 respectively. The highest coefficients of correlation were with the ability to discriminate rhythms: .43, .41 and .25 respectively. It is also interesting to note that lowest correlations were consistently observed between the achievement test in pronunciation and all other measures except the subtest of pitch. The figure in this case was .24 as against .11 and .16 between pitch and the other two achievement tests.

The two highest coefficients of correlation were taken as examples and submitted to the test for prediction accuracy. In the case of rhythm and auditory comprehension (.43) the unexplained variance was estimated at .82 while the highest correlation with pronunciation (.25) would give an estimate of .94. In general the correlations are felt to be too low to consider musical aptitude as measured by the Seashore tests to be a useful predictor of success in oral-auditory skills. The best that can be said is that the matching of groups and individuals on the basis of this criterion was shown to be not entirely irrelevant.

#### General Remarks on the Results

The course as taught seemed suitable to the age group, interesting and conducive to a considerable degree of flexibility in free oral expression.

The phonics method, which was shown to be successful by the results of the pronunciation test, may be recommended as an acceptable way of beginning French or of passing from the oral-auditory to the reading stage of language learning and of reviewing before written work or dictation is begun.

Musical ability did not prove to be a useful trait on which to match groups. I.Q. and current year's grades proved to be related quite highly with auditory comprehension and oral translation but not with pronunciation.

Before valid experimentation on pronunciation using small groups can be pursued variables related to pronunciation aptitude must be discovered. Until then accurate balance of aptitude can be assured only by using large numbers or by repetition of smaller scale studies.

#### General Comments on Measuring Instruments

None of the tests administered measures quickness of response and in any future study it would be well to refine the procedures of measurement to include this aspect of language. In using the tape recorders, the use of the pause button was encouraged in both oral tests with the result that there was no indication of the length of pause needed for the student to recall the response.

Length of tests The length of time taken for the oral tests is probably worthy of note. The pronunciation test which was comparatively short offered no difficulty in administration since it was expected that the students would know all words before attempting the response. This test was administered at less than two minutes per student.

The translation test was more difficult to administer. All students were assembled in the cafeteria of the school and given the test paper. They prepared their answers mentally without recourse to writing or other notation and as soon as any student was ready he or she left his seat, went to a tape-recorder, of which there were five, recorded the responses and left to resume normal classes. The difficulty arose in that, in spite of the unlimited time the student had for recall of material before going to the tape recorders, many students still tended to indulge in excessively long periods of silence while sitting before the microphones. Perhaps the use of the pause button should be forbidden in the final tests thus permitting measurement of immediacy of response and reducing the time of administration. This would of course increase the time spent on scoring. As it was, the time at the microphone averaged six minutes per student. It had been anticipated that half this time would be needed.

Pronunciation test The aim of the course was to

produce good French accent and not to be tolerant of loose pronunciation at all. However when certain areas were found in which the test failed to discriminate, such as intonation, and the production of alveolar t's and d's, the tolerance of Vinay's remarks offer some consolation.

I would be tempted to say that from the remarks I have heard today that perfection is not, at any rate in a classroom, to be achieved at the level of the phonetic unit but on the level of phonemics, that is to say, of the contrast, and this goes for the whole of the language. If you, for instance, make a mistake of gender this is a very bad mistake because it changes the whole meaning of your message. But if you pronounce that message with a pronounced French or English accent then it's alright, it doesn't seem to make any difference to me.<sup>1</sup>

In a repetition of the experiment tests of fluency and intonation should be devised and the pronunciation test refined to measure the aspirated consonants and correctness of production of the dental plosive.

#### Recommendations for Further Research

1. Repetition of this or a similar study with different age groups and memory groups with tests of fluency and intonation included.
2. The development of a unit of programmed instruction for the teaching of the syllabication of French in preparation for the phonics unit.
3. The testing of different ways of teaching the phonics unit.

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<sup>1</sup>Vinay, J.P., Teaching Modern Languages, A report of a Seminar convened by the Canadian Teachers' Federation, Ottawa, 1962, p. 117.



4. The study of the effect of varying the amount of auditory drill of new materials at various stages of first and second year courses to attempt to discover the optimum time and rate for decreasing this rather time consuming aspect of the French lesson.
5. The comparison of the "sentence-pattern oriented lesson" with the "situation oriented lesson" measuring particularly interest, fluency and flexibility in speech.
6. The testing of the hypothesis that explaining the physiological production of the sounds of a language will ensure better pronunciation than a method relying on mimicry alone.
7. The comparison of the effectiveness of the phonics unit outlined here and of the use of phonetic symbols in achieving good pronunciation.
8. The investigation of the value of the overlearning of the phonics unit in improving standards in dictation exercises.
9. The effect of the teaching of the phonics unit on the introduction of reading and on the speed of reading comprehension.
10. The study of the possibility of adding to the phonics unit a section on suprasegmental elements of the language: e.g. stress, intonation.
11. A study of the relationship between initial ability to adopt a more tense mouth in mimicry and the eventual

attainment of good accent and intonation.

12. The analysis of the tolerance of native listeners to different degrees of poor accent and intonation (in order to discover priorities for teaching purposes).

13. The repetition of this study with careful measures of retention.

14. The further study of the relationship between personality traits and facility in oral language.

15. Further study to verify Politzer's list of expected errors of pronunciation given on page 36.

16. The repetition of this experiment with special attention to the test of pronunciation to throw light on the big difference in scores in the "expected" error categories (see tables VII and VIII).

Further topics not so closely related to this study are included in Appendix E.

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## APPENDICES

# APPENDIX A

## PRESENTATION OF PHONICS MATERIAL

The exceptions to the following rules are to be learnt as they occur and should be marked with an asterisk to remind students that the normal rules of pronunciation do not apply.

### I. Consonants.

1. The following consonants are pronounced with much smaller explosion than in English:

b,	d,	f,	g,	k,	p,	t.
ph	f					

### 2. C et G

	<u>Soft</u>	<u>Hard</u>
ce	ça	ca
ci	ço	co
cy	çu	cu
ch		c (followed by consonant or in final position)
ge		ga
gi		go
gy		gu

### Practice

la gorge	la suggestion	la langue
Georges	accepter	au secours
ici	la page	un morceau
le français	l'école	la gueule
neiger	Brigitte	pouce coupé
nager	Gigi	
j'ai reçu		

3. gn is pronounced almost as the ni in English  
"onion"

Montagne	Charlemagne
gagner	mignon

j pronounced as 's' in pleasure with lips thrust forward.



4. h never pronounced but usually treated as a vowel sometimes as a consonant

Practice

La haie - hedge                      en hiver - in winter  
le haricot - bean

'th' pronounced as 't'

Practice

une tasse de thé  
le théâtre

5. l is pronounced lightly with tip of tongue just behind top teeth.

6. qu pronounced as 'k'

Practice

qui  
que  
quel  
qu'est-ce que  
quoi

7. r                      1) French Canadian - rolled tip of tongue (also some parts of France)  
                            2) standard French - tapped back of tongue  
                            3) permitted - rolled back of tongue

Practice: - ar - ère - ert - ir - ore - ur

l arbre                      l or (m)  
l argent                      la radio  
                                    murmurer  
prêt                      prête                      le restaurant

8. "S"                      in initial position                      S  
                                    in medial position alone                      Z  
SS                      in medial position                      S  
                                    in medial position after n, t, etc.,                      S  
S                      in final position in silent, unless next word begins with vowel when sometimes pronounced                      Z

Practice

la saison, la télévision, avec plaisir, les oiseaux,  
le poison, le poisson, intéressant, saisissant,  
session.

---

9.    t                    th = t  
      't' in tion = s

Practice

le thé                    le théâtre  
la nation  
la situation  
stationner

---

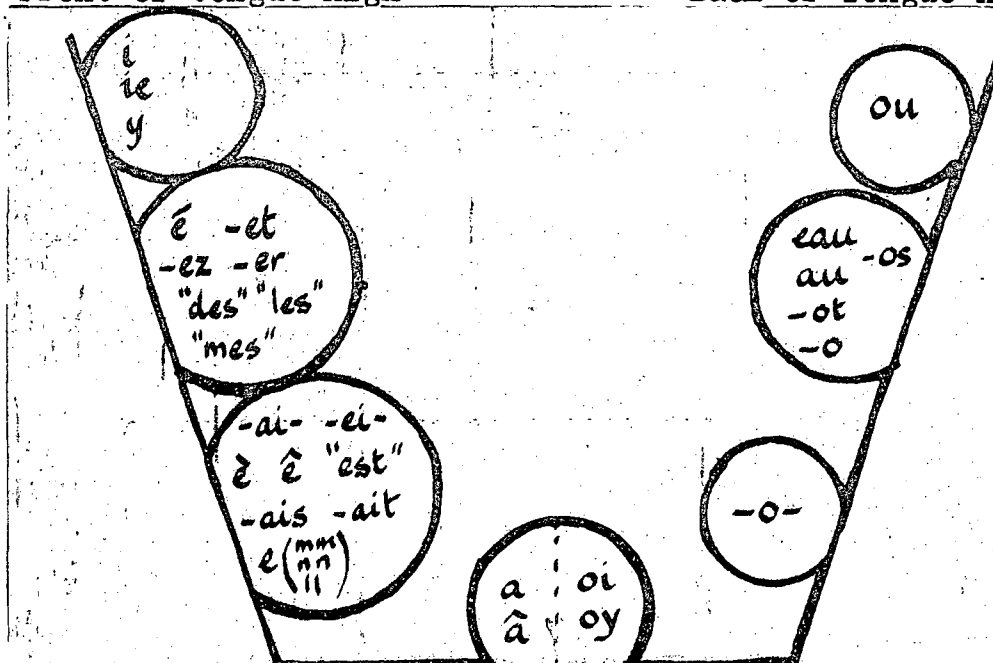
II. Vowels

Much practice in syllabication should be given since the knowledge of letter groups can mislead unless the words are split correctly into component syllables.

# Vowels I

Front of tongue high

Back of Tongue High

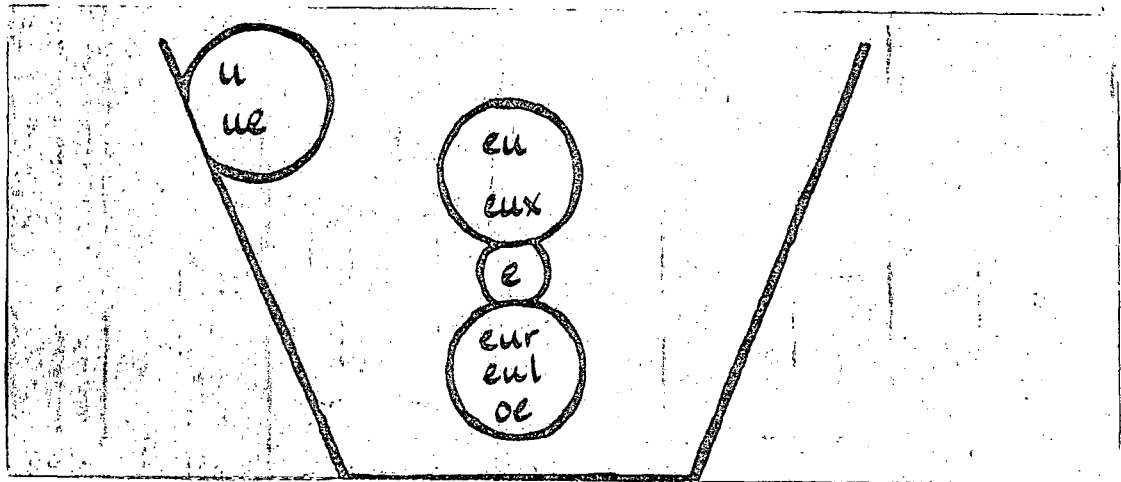


Practice and self-tests. The practices are set out in this way to enable students to pace their mastery of the letter groups by placing check marks in the squares and recording in the space below the number correctly pronounced. When student scores ten points consistently over a period of a week or more one can assume he has attained mastery (has "overlearned").

	A	1	2	3	B	1	2	3	C	1	2	3	D	1	2	3
1.	au				u				ou				eau			
2.	i				y				et				oi			
3.	ai				ais				e				est			
4.	e				e				ez				des			
5.	a				ou				u				et			
6.	oi				oi				eau				ue			
7.	eau				au				er				e			
8.	e				u				y				ou			
9.	est				ie				oi				ai			
10.	y				-o-				e				-o			
*Total Scores																

N.B. 'e' is often omitted in normal speech. It is always omitted in final position (except in song or verse, and - in "le", "de", "ne" "me", "te" and "ne").

Vowels II.



Practice and self-tests

A				B			
	1	2	3		1	2	3
1. le feu				1. treize			
2. le professeur				2. seize			
3. l'amateur				3. le bureau			
4. l'oeuf				4. ou			
5. neuf				5. le tableau			
6. jeune				6. la soupe			
7. le monsieur				7. la blouse			
8. la douzaine				8. le juge			
9. le début				9. la flûte			
10. la fleur				10. neuf			
Total Scores							



### Syllabication drill

(changed e because of double consonant)

[illegible]

APPENDIX B

ACHIEVEMENT TESTS USED IN EXPERIMENT

1. Test of French comprehension.

Student will write down the meaning of the following sentences each of which will be read twice in succession. This test is not timed and will be read sufficiently slowly for you to write your version without hurry. The stroke shows division for marking only. The reading should be rapid and without pause.

1. Je vais /très/ bien.
2. Vous avez /un petit/ appétit.
3. Le monsieur /est dans/ le bureau.
4. Qu'avez-vous /sous/ les pieds?
5. Où /allez-vous/ dans mon auto?
6. Pourquoi /dormez-vous/ comme ça?
7. Marchez-vous /avec/ ces garçons?
8. Que /dites-vous/ au professeur?
9. Nous /sommes tombés/ du pont.
10. Tournez /à gauche/ et allez tout droit.
11. Les couteaux /sont dans/ le tiroir.
12. C'est /de l'autre côté de/ la rue.
13. Je suis /près de la maison/ de Mr. Landers.
14. Voulez-vous /me prêter/ vos cuillères/ encore une fois?
15. Un de mes amis /est arrivé/ au lycée.
16. Il y a /du lait/ à côté de la glacière.
17. De quelle couleur /est le livre? / Il est brun.
18. Est-ce que /la table/ est jaune?
19. Il a /beaucoup de pommes/ dans le sac.
20. Il est allé /autour de/ l'église.

21. Il n'y a pas/de nourriture/chez moi.
22. Mes cheveux/ne sont pas /contre le mur.
23. Montrez-moi/un morceau de pomme/s'il vous plaît.
24. J'ai assez/de café pour/tous les étudiants.
25. Puis-je /avoir/encore un cola?
26. Qu'est-ce qu'il y a sur/la main?
27. Pourquoi/ne dansez-vous pas avec Lucille?
28. Je suis/avec les grenouilles/ n'est-ce pas?
29. Allez à madame/avec/une tasse de thé.
30. Il est descendu/vers/la ville.
31. Que voyez-vous/sur/ la maison?
32. Je ne sais pas/que Jacques/est présent.
33. Je ne comprends pas/pourquoi il n'a pas/de chapeau.
34. Merci bien. (one mark only)

Marking            3 marks for each sentence --- 33

1 mark for number 34.

Where a third of a sentence can be subdivided into two halves, subsections, a half mark will be awarded for partially correct answers to that third.



2. Test of oral translation.

Attempt as many of the following sentences as you can and where you cannot translate the whole sentence try any part you know. You should not hurry. You may use the pause button on the tape recorder. When you start to speak try to make the sounds as fluent and as accurate as you can.

1. Je m'appelle .....
2. Good evening, sir. Good luck! See you soon. (6)
3. Your cup is in my saucer. (6)
4. Where is its neck? (3)
5. Why are you going like that? (4)
6. I'm going to the next class. (4)
7. Our teacher fell in front of the room. (5)
8. Is there a piece of apple? (3)
9. There on the other side of the desk. (3)
10. There is a lot of milk. (3)
11. How do you dance with all the girls? (5)
12. Something is in the room on the right. (3)
13. Go to the blackboard with a bit of chalk. (6)
14. Will you show me their school please? (5)
15. May I give you another cigarette? (4)
16. What do you want? Nothing. (3)
17. We know that there are some pencils. (3)
18. My white table is near the window. (5)
19. It is behind the house, isn't it? (4)

20. I have too many boxes. (3)
21. I do not understand why I entered? (3)
22. Aren't you going to church? (2)
23. How many books have you for me? (4)
24. I'm going towards the green house. (3)
25. What colour are the walls? Grey and Yellow? (7)

Did you give your name at the beginning? If not  
give it now.

Je m'appelle .....

Marking: One point is allocated for each word  
or group of words indicated by the  
underlining. No half points are to  
be awarded. In number 25 the extra  
point is for the 'de' of "De quelle  
couleur?"

3. Pronunciation Test.

A test of words which all students have been drilled to know thoroughly but which are now to be pronounced from recall.

Say the French for the following words and phrases. It is important that you attempt them all using as good a French accent as you can produce. Give your name first.

1. the teacher
2. the small spoon
3. the hand
4. tomorrow
5. what luck
6. the wine
7. I came in
8. some tea
9. good idea
10. my cars
11. the restroom
12. turn to the right
13. the drawer
14. a door

Method of marking

Total number of pronunciation errors will be subtracted from fifty. A further one to four marks will be subtracted for generally poor oral tension, or poor intonation.

One mark will be subtracted for each phrase or part of a phrase omitted.

APPENDIX C

MARKING SHEETS FOR PRONUNCIATION TEST

Four Impression Group

Serial Number of student	Le professeur	la petite cuillère	la main	demain	quelle chance	le vin	je suis entré	du thé	bonne idée	mes autos	la toilette	tournez à droite	le tiroir	une perte	penalty for lax mouth	number of mistakes	score on fifty
1a	r	r							(str)				-d-			-5	45
2a	r	[a]			-l-	u		(str)	oi	oi	oi	r				-17	33
3a	eu	er			n	(in)		é	(str)	-s	oi	oi	r	-te		-15	35
4a	r	er			n		en	u		es	oi	oi	a	-te		-15	35
5a	eu	u							9				r	r		-7	43
6a											oi	oi				-4	46
7a	eu	u					r	(str)	oi	oi	oi	r	-te			-12	38
8a	r	er	an		n	(in)	u	(str)	oi	oi	oi	r	u		-2	-19	31
9a	(str)	er	[a]		qu	(in)	é		oi	a		r				-10	40
10a	r	-te									-te					-3	47
11a			n		an	(in)	u	(str)	oi	oi	oi	r	-te		-4	-16	34
12a	eu	er	~	~	~	~	(str)	(str)	oi	oi	oi	r	-te		-2	-20	30
13a	eu	er	[a]		~	~	u	(str)	oi	oi	oi	r				-11	39
14a	eu	er	n	n	~	u	u	(str)	oi	oi	oi	oi				-20	30
15a		er			n	(in)	en				oi	oi	r	-te		-12	38
16a	eu	er		[a]	le	(in)	en	u	oi	oi	oi	oi	-d-			-23	27
17a	eu	er									oi	oi		r		-4	46
18a	r	-te	[a]		n				oi	oi	oi	-te	-te			-13	37
19a							ph									-1	49
20a	eu	r	~	~			er	[a]			ph		ph			-10	40
21a	(str)	u	n	n	n		(str)	(str)	oi	oi	oi	-te	-d-			-16	34
22a		-te					(str)	(str)	oi	oi	oi		-te			-8	42
23a	eu								oi	oi	oi	oi	ph	r		-17	33
24a	r	u				r	(str)				r	-d-	u			-8	42
25a	(str)	(str)	de						oi	oi	oi					-10	40
26a	r	-te				(in)	u	(str)	oi	oi	oi	-te				-11	39

Serial Number of student	le professeur	la petite cuillère	la main	demain	quelle chance	le vin	je suis entré	du thé	bonne idée	mes autos	la toilette	tournez à droite	le tiroir	une porte	Penalty for lax month	number of mistakes	score on fifty
1b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-4	-24	26
2b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-4	-14	36
3b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-7	-7	43
4b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-23	27
5b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-17	33
6b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-12	38
7b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-18	32
8b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-12	36
9b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-11	39
10b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-16	34
11b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-8	42
12b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-15	35
13b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-8	42
14b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-16	34
15b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-7	43
16b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-21	29
17b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-7	43
18b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-5	45
19b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-17	33
20b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-19	31
21b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-5	45
22b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-19	31
23b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-21	29
24b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-15	35
25b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-18	32
26b	le	la	la	de	que	le	je	du	bonne	mes	la	tournez	le	une	-2	-16	34

Key to the marking table.

- ɾ - retroflex Canadian 'R'
- <sup>ph</sup><sub>th</sub> - aspirated voiced stops as in English
- ~ - lack of nasalization
- [ẽ] - mispronounced nasal given in phonetic transcript
- <sup>(eɪ)</sup><sub>(oʊ)</sub> - diphthongization
- \* - draws attention to the mistake (noted by other symbols) which possibly result from knowing the written form of the word.
- (str) - indicates an English type stress pattern to the phrase.
- te - lack of release of final consonant
- Ɂ - glottal stop
- ˘ - a mistake in liaison
- / - indicates no attempt
- / - indicates a partial attempt
- ŋ - the pronunciation of the 'n' in a nasal vowel

All other letters indicate the part of the word in which an error was made.

## APPENDIX D

### GENERAL RECOMMENDATIONS FOR FURTHER RESEARCH

This section will be considered under four headings: measurement, theory, attitudes, and general topics. These topics are chosen because they appear to have priority in importance over the very many other topics which are still in need of research.

Measurement. 1. Concise and accurate descriptions of methods which are producing outstanding results in the four main areas of the learning of languages: auditory comprehension, oral expression, reading comprehension, and written expression.

2. Studies to evaluate the economy, validity and reliability of the interview as a means of testing oral-auditory skills and a comparison with the effectiveness of a tape recorder used for the same purpose.

3. Reliable tests of intonation and fluency with norms for groups of different ages and abilities.

4. Measures of attitudes as they relate to language learning with norms compiled for the various age groups, socio-economic levels, and geographical areas.

Theory. 1. Studies to test the theory advanced by Asher that noise and interference are maximum when one tries to learn new responses to old stimuli and that such noise will be decreased as the logical relationship between

the old response and the new response is increased.<sup>1</sup>

2. Studies to test the assertion that fifteen to twenty per cent only of all mistakes in French examinations are due to what one might call complete lack of learning, meaning that the student does not know a French word or form, and that the vast majority of mistakes are traceable to students having learnt some French-English correspondence which is then extended into an area where it does not apply.

3. Studies to investigate the efficiency in methods of avoiding this wrong extension of the French-English correspondence: for example, by teaching all alternative correspondences when the word is first encountered: e.g. time: l'heure, la fois, le temps;

then: puis, alors, ensuite, donc, etc.

4. Studies to discover how sociability and talkativeness are related to the mastering of oral-auditory skills.

5. Studies to discover if the ability to reproduce musical sounds is related to any of the following traits: auditory comprehension, accent, vocabulary, bilingual automacity. (This present study has been concerned with the relationship of ability in the discrimination

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<sup>1</sup>Asher, J.J. Sensory Interrelationships in the Automated Teaching of Foreign Languages. Paper read at the First Conference of Language Programmes, University of Michigan. University of Michigan Press, 1961.



of sounds to some of these traits.)

6. A study to test the hypotheses (a) that bilinguals, because of their training in two languages, become more adept at concept formation and abstract thinking, and (b) that bilinguals may develop more flexibility in thinking.

7. Further investigation of the age at which the advantage that young children have in the production and reproduction of vocal sounds begins to disappear, and whether this advantage is due to the absence of negative attitudes which may appear about the adolescent years.

8. Studies to test the assertions of Arsenian that the conditions, which permit the learning of a second language in such a way that it does not interfere with the first are as follows:<sup>2</sup>

(a) that at the earliest stages of the child's development a consistent source and method of presentation of the language is observed, i.e. one person speaks one language to the child.

(b) that psychological barriers or negative affective conditions, such as feelings about the inferiority or superiority of the languages involved or national and religious animosities sometimes associated with languages are absent;

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<sup>2</sup>Arsenian, S. "Bilingualism in the Post-war World." Psychological Bulletin, 42 (February 1945), 65-86.

(c) that the languages are learned by spontaneous, informal methods, and not by formal and task methods.

9. Studies to test the assertion made by the Second Language Committee of the Ontario Curriculum Institute, that "Acquisition of language can follow a natural sequence: listening, understanding, reading, writing, and attempts to shortcut this sequence by reference to an already learned language may not only be valueless but indeed may be harmful."<sup>3</sup>

10. Studies of learning during sleep.

Attitudes. 1. Since it appears that so much depends on the frame of mind of the learner, experiments are needed to determine the most effective ways of preparing students in elementary schools to be receptive of second and third language learning.

2. Further studies to discover:

(a) the optimum amount of second language preparation in elementary school which will achieve willingness to tackle the oral aspects of language enthusiastically when the more formal courses in junior or senior secondary school are begun;

(b) the length of the gap permissible between the introduction to a second language and its later resumption without detracting from the value of the early start.

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<sup>3</sup>MacDonald, G.E. et al (eds) French As a Second Language, Ontario Curriculum Institute, 1963, p. 14.

3. Further studies into the effect of the integrative motive for language study ( a real desire to communicate and become "integrated" with the other language group ) on oral-auditory skills.

4. A study using suitable measures of attitudes as they relate to language learning to discover the effect of different approaches in improving attitudes to other ethnic groups.

General. 1. Studies to test the following hypotheses:

(a) that time will be most efficiently spent on languages by commencing a second language in elementary school with a study of sounds and basic sentence patterns and very little vocabulary, followed by a gap before a return to the more formal written expression and reading skills of the language at senior high level;

(b) that time will be most effectively spent by beginning languages in junior secondary school while the brain is still fairly sensitive to learning new sound patterns and yet late enough for the students to be sufficiently mature for rapid learning of written expression and reading skills.

2. Further investigation of the visual learner, the auditory learner and the "balanced" learner, and the degrees of difficulty presented by methods which do not suit their natural learning methods.

3. A study to check the tentative finding that vocabulary first learnt by the visual presentation of the word followed by the auditory review is learnt more efficiently than by the more common reverse approach.

4. An experiment to check the assertion that it is preferable to teach the contrasting structure first and the parallel structure later: e.g. "ne me le donnez pas" before "donnez-le-moi".

5. A study of the value of regular tape recorder assignments to provide incentive in continual mastering of oral expression.

6. A study to measure the increase in fluency and flexibility gained by teaching the verbal constructions which take the infinitive early in the course.

7. A study of the gain in flexibility and fluency gained by teaching the passé composé before the present tense.

8. Studies into the advisability of concentrating in the early stages of second language learning on structural vocabulary: e.g. souvent, il y a, pouvez-vous, déjà, depuis, l'heure, la fois, quelqu'un, quelque chose, and of leaving the specific lexical vocabulary of specific objects until after basic sentence patterns and all the most common vocabulary necessary to construction formation have been overlearnt.

9. Investigation of the claim made by some that the "statistical and structural" properties of the grammar of a language are best acquired informally in preparation for the more formal study later.

10. Experiments in teaching other subjects in the second language, e.g. guidance, social studies.

11. The development of a programmed learning series on grammatical points for improving written expression and another series for the teaching of reading of a second language, as well as a thorough study of their strengths and weaknesses.

12. Controlled experiments with language laboratories. Although there are under way at the moment several studies to test the desirability of language laboratories and the most effective techniques for their use, there will remain many questions even when the results are known.

13. Studies into the use of visual aids. Much work on this subject needs to be done not only in the close, scientific preparation of courses using films, film strips and television but in the testing and perfecting of them for different levels of age and ability.

14. The accumulation of evidence regarding the rates of relearning a language several years after formal study has ceased, and the effect of the different types of initial learning on this relearning.