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ABSTRACT

The general purpose of this study is to evaluate the effect of the language laboratory as a learning aid for foreign language students. The method used was a comparison of the achievement of secondary school students who received instruction in a foreign language laboratory as a part of the instructional program with that of students whose instruction did not include use of the language laboratory. Upon completion of one year's study, student achievement was evaluated in four areas: listening comprehension, proficiency in reading, writing achievement, and speech production. At the end of the second year, student achievement was tested in the same four skill areas to evaluate progress over the normal span of time devoted to foreign language learning in secondary schools. The major portion of the text is comprised of: (1) historical aspects of the foreign language controversy, (2) procedures and design of the study, (3) analysis of the data, and (4) summary, implications and recommendations. Numerous tables, a five-part appendix, and a bibliography are contained in the report. [Not available in hard copy due to marginal legibility of original document.] (Author/RL)

THE LANGUAGE LABORATORY AND FOREIGN LANGUAGE ACHIEVEMENT: A REPORT OF A TWO-YEAR STUDY OF MODERN FOREIGN LANGUAGE INSTRUCTION UTILIZING ELECTRONIC CLASSROOMS

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CHAPTER I

GENERAL INTRODUCTION

The foreign language laboratory has existed in rudimentary forms for several decades, but only since the passage of Public Law 85-864, commonly called the National Defense Education Act of 1958, has the electronic classroom become common to foreign language instruction in secondary schools. Nationwide, the number of language laboratories in operation increased from approximately 60 in 1958 to over 6400 in 1964.[1] Here in Florida, there are now more than 200 language laboratories in operation, while a short eight years ago, the first had yet to make its appearance.

When this elaborate equipment was first introduced, it was not used as effectively as anticipated, and in numerous instances, educators felt that the students derived little or no benefit from its use. This situation resulted, it was believed, both from inadequate preparation of teachers who utilized the laboratory as a part of their instructional program, and from a dearth of suitable materials for use by classes in the laboratory. For several years, the only materials available commercially were those hastily devised by textbook publishers to complement a text which was

[1] Eugene Anderson, "The Keating Report: A Symposium, Review and Criticism." Modern Language Journal, Vol. 48 (April, 1964), p. 64.

disoriented from the audio-lingual approach.[1] This would scarcely enhance the value of the language in the minds of either teachers or students, since it was not being used as an adjunct to the teaching process, nor was it presenting material of value or interest to the learner. The only way that teachers could get materials related to what they were teaching was to produce their own, a task for which many lacked sufficient time and preparation.

Since those early years, a number of suitable teaching aids have been developed and are now available for use with the language laboratory, such as the foreign language series developed by the Encyclopedia Britannica Corporation and several leading textbook publishers.[2] These materials are currently in use in many of Florida's school systems, and appear on the state lists for textbooks. In recent years, NDEA institutes, in-service training courses, and pre-school workshops for teachers have provided limited opportunities for teachers to become reasonably proficient in the use of the language laboratory and the supplementary materials.

Numerous questions have arisen from the use of the language laboratory in the secondary school program, among them the following, which will be treated in this study. What is the effect of the new materials on student achievement? What is the effect of

[1] J. R. Brinie and I. R. Johnson, "Developments in Language Laboratory Materials." English Language Teaching, vol. 20, (October, 1965), pp. 29-32.

[2] The Encyclopedia Britannica Corporation, Holt-Rinehart-Winston's Listen-Speak-Read-Write series, Harcourt-Brace-World's A-L M Series, and Mc-Graw-Hill, among others.

specific teacher training in the new methodology upon student achievement? Of how much value is only occasional (once a week) use of the language laboratory by foreign language students?

HISTORY OF THE PROGRAM

The movement for improving and expanding the foreign language programs in our secondary schools evolved from a series of conferences and events of the period following World War I and extending into the 1950's. As a result of a study done in the 1920's, the Modern Language Association recommended that since most schools were providing only a two-year sequence in foreign languages, primary emphasis be placed on developing the ability to read as well as possible during this relatively short time for instruction.[1] During World War II, when an urgent need for personnel competent in foreign languages arose, the armed services established their own schools for this purpose.[2] The language laboratory was developed in connection with these programs. After the war, the first language laboratories appeared at Yale University and Louisiana State University, with their number continuing to grow until more than 6500 are now in existence. Although the literature contains many references to the successful use of language laboratories, as well as suggestions

[1]Algernon Coleman, The Teaching of Modern Foreign Languages in the United States (New York: The Macmillan Co., 1929).

[2]Dorothy Fraser, Current Curriculum Studies in Academic Subjects (Washington, D. C.: National Education Association, 1962), p. 56

for their use, there has been an absence of objective reports of educational gains attributable to the language laboratory as it is used in the public schools of Florida, or anywhere else, for that matter. Studies by Keating, Lorge, and Allen have shed light on certain aspects, such as the relative merits of eagerness of pupils in a laboratory class as opposed to a non-laboratory situation; the greater holding power of the laboratory upon second and third level students; and the comparable performance of laboratory and non-laboratory groups with regard to reading and writing skills.[1] Hutchinson and Lorge also cited cases of significant improvement with regard to audio-lingual skills.[2] The only studies which are concerned with conditions in Florida schools are those by Sorenson, which describe the status of foreign language instruction in the junior colleges in 1964, and by the author, which deals with first year achievement of students of Spanish.[3] The current project may be considered an extension

[1] Raymond F. Keating, Study of the Effectiveness of Language Laboratories (New York: The Institute of Administrative Research, 1963); Sarah Lorge, "Foreign Language Laboratories in Secondary Schools," A-V Learning (Board of Education of the City of New York), Vol. 8, (October-November, 1963); and Edward D. Allen, "The Effects of the Language Laboratory on the Development of Skill in a Foreign Language," The Modern Language Journal, Vol. 44 (December, 1960), p. 355.

[2] J. C. Hutchinson, "Language Laboratory: How Effective Is It?" School Life (January, 1964), pp. 14-17; and Lorge. loc. cit.

[3] Catherine Sorenson, "Functions of the Foreign Language Laboratory in the Junior Colleges of Florida," University of Florida, 1964; and Thomas Ackerman, "Language Laboratory Instruction and the Achievement of First Year Students of Spanish in Florida," Florida State University, 1965. (Unpublished Dissertations).

of the above cited research, in that it uses as subjects the individuals from the first year study who continued their study of Spanish for two years. It is expected to be an objective evaluation of the language laboratory as a part of Florida's foreign language program in that it tests all four skills of comprehension, reading, speaking, and writing in relation to the aptitude of the student, and the professional preparation and experience of the teacher. The subjects of the study are a representative sample of the population of Florida, as may be seen from Appendix C.

THE NEED FOR THE STUDY

The impact of the language laboratory on foreign language learning of the students is believed to be influenced to a large extent by the attitude of the teacher toward the laboratory, and by the proficiency of the teacher in the use of the laboratory, and by the teacher's general knowledge both of the subject matter and of instructional methodology. Language laboratories are not auto-instructional devices; rather, they are implements which may be used by the teacher as a part of the total instructional strategy. The prudent and judicious use of the language laboratory by the teacher and the quality of the programs which are utilized in the laboratory are factors which undoubtedly influence the learning achievement of students.

Previous studies in other parts of the country have concentrated on pupil performance. These studies seem to assume that all teachers have similar attitudes toward the use of the

laboratory and equal preparation both in its use and in foreign language instruction in general. The characteristics of the teacher appear to have been an uncontrolled variable in the studies cited; hence, appropriate interpretation of the research findings would be rendered difficult by this lack of control. This project attempts to statistically equate teachers as well as student groups in order to determine the effect of the language laboratory on pupil achievement in foreign language.

Another significant factor in foreign language instruction is the purpose for which one studies a foreign language. Is the student pursuing the foreign language to gain a reading knowledge or does he want to be able to converse in the language? During the period extending from the early years of this century to the 1950's, the principal aim of our educational system was to develop in the student the ability to read a newspaper in the target language with a certain degree of understanding. Since then, the pressures of the international situation and of modern life in general have caused the goals to change, so that the schools are now attempting to equip the foreign language student not only to read and write with at least some competency, but also to converse with a modicum of fluency.

Devices designed to measure a defined learning skill are not appropriate to measure another skill; yet none of the studies cited has used a test which was adequate for a comprehensive evaluation of all four language skills acquired through foreign language study. Attempts to judge a method of instruction or a learning device which is designed to assist in the

acquisition of one skill by results on a test which evaluates a different type of language proficiency do not provide convincing findings. Recently, the Modern Language Association, in cooperation with the Educational Testing Service, has devised a new test, constructed to evaluate all areas of language skills, which has been employed as the measuring device in this study.[1] This research, therefore, attempts to evaluate each of the four language skills in relation to the method of instruction, something which has not been systematically attempted before. However, this would appear to be needed if the considerable expenditure involved in the expansion and change occurring in the foreign language program in our schools is to be justified.

PURPOSE OF THE STUDY

The general purpose of this study is to evaluate the effect of the language laboratory as a learning aid for foreign language students. The method used was a comparison of the achievement of students who have received instruction in a foreign language with the language laboratory as a part of the instructional program with that of students who have had instruction which did not include the language laboratory. Upon completion of one year's study, student achievement was evaluated in four areas: listening comprehension, proficiency in

[1] The Modern Language Association Cooperative Foreign Language Tests (Princeton, N. J.: The Educational Testing Service, Cooperative Test Division, 1964).

reading, writing achievement, and speech production. At the end of the second year, student achievement was tested in the same four skill areas, to evaluate progress over the normal span of time devoted to foreign language learning in our secondary schools.

CHAPTER II

HISTORICAL ASPECTS OF THE FOREIGN LANGUAGE CONTROVERSY

Almost as long as we have had recorded history, the proper method of teaching foreign languages has been debated. The Romans of the ancient Empire imported learned slaves to tutor their sons; hence the boys learned Greek, the language of "culture," as a by-product of their education.[1] Donatus, in the fourth century A. D., composed a Latin primer, intending it to be used as a reference grammar. However, this work was soon misused, for the study of grammar became an end in itself during this period of highly stylized imitation of the great classical authors of Greece and Rome.

In the late Middle Ages, Wolfgang Ratke, a renowned educator of the period, advocated that students learn a second language by means of extensive reading in the language.[2] During the same period, however, Michel de Montaigne proposed the "natural" method, basing his approach on the way a person learns his own tongue from infancy without formal rules or use of books.[3] John Locke

[1] R. Freeman Butts, A Cultural History of Modern Education (New York: McGraw-Hill, 1955), p. 86.

[2] Emma Birkmaier, " Modern Languages," Encyclopedia of Educational Research (3rd ed.; New York: MacMillan Co., 1960), p. 861.

[3] Ibid., p. 861.

advocated a procedure similar to Montaigne's about one hundred years later, in that he recommended that the second language be "talked into" the learner.[1] Not a proponent of the oral approach exclusively, he suggested a reading approach if the purpose for learning the language was merely to understand written language, basing his attack on the results desired.

Gottlieb Heness and Lambert Saveur, in nineteenth century America, used a more systematic approach to the natural method introducing their techniques into schools where the spoken language was stressed, even to the exclusion of the native tongue from the classroom.[2] This program might be said to be a forerunner of the Army Specialized Training Program of the 1940's. These two men were also the first to institute summer schools for short periods of intensive training, a device which once again has become prominent in teacher training.

A method considerably different from that of Heness and Saveur was adopted by Johann Meidenger, whose philosophy of foreign language instruction has undoubtedly been one of the more influential upon the American school program of the past century.[3] This method emphasized memorization of rules and laborious translation, assisted by copious footnotes, from one language to another. The stated goals were development of the

[1] Ibid., p. 862.

[2] Lambert Saveur, Introduction to the Teaching of Living Language without Grammar or a Dictionary (Boston: Schonof and Moller, 1875); and Gottlieb Heness, Der Sprechlerer unter seinen Schulern (New York: Holt, 1878) cited in Birkmaier, loc. cit., p. 862.

[3] Birkmaier, loc. cit.

memory, mental discipline, and the training of the student in logical thinking. This method helped to make the study of modern language academically respectable, since up to that time, modern language instruction was considered too utilitarian to be worthy of inclusion in the secondary curriculum.

To Wilhelm Vietor, in the second half of the nineteenth century, goes the credit of developing the "direct" method, which uses an emphasized oral procedure, and visual aids as a basis for the conversations. This system, introduced into the United States in 1911 by Max Walter, requires a high degree of proficiency and unlimited energy on the part of the teacher.[1] Since it requires more time to accomplish significant learning, it had greater success on the continent than in this country, for the American schools were attempting to do in two years what the European schools took six to nine years to accomplish.

At the turn of the century professional organizations began to concern themselves about approaches to teaching foreign languages. The Modern Language Association in 1898 advised the use of several different methods, depending upon the age of the students.[2] For children under ten years of age, the natural method, in which the instructor uses the foreign language in describing familiar objects, was suggested. For either a six or nine year sequence, beginning in seventh or ninth grade, the

[1]Edmond A. Meras, A Language Teacher's Guide (New York: Harper and Row, 1954), p. 35.

[2]The Modern Language Association, Report of the Committee of Twelve of the Modern Language Association of America (New York: Heath and Co., 1901).

direct method was to be used at the beginning, with a change of emphasis to reading or grammar for at least the last three years of the program. Any course shorter than four years was to stress reading, with a minimum amount of oral practice.

The Modern Foreign Language Study, which was conducted in the 1920's, disclosed that most schools in the United States were offering only two year sequences of foreign languages.[1] Since more than half of the students completing this sequence were unable to read or write the language studied with any degree of proficiency, it recommended that the emphasis be placed on developing the ability to read the foreign language.[2] This practice produced, according to a former executive secretary of the MLA, a generation of students who could neither read, write, nor speak a foreign language beyond the level of an elementary student.[3]

During World War II, when the need for persons skilled in foreign languages became acute, the military services created their own training programs to satisfy this demand. The most famous of these programs was the Army Specialized Training Program (ASTP), which was notable for its use of the linguistic analysis of the language, utilization of native speakers of the target language, and intensive periods of study over relatively short periods of time.[4]

[1]Coleman, op. cit.

[2]Ibid.

[3]William H. Parker, The National Interest and Foreign Languages (rev. ed.); Washington: Government Printing Office, (1962)., p. 55.

[4]Robert J. Mathew, Language and Area Studies in the Armed Services (Washington: American Council on Education, 1947).

After the war, when the need for people proficient in foreign languages became less urgent, interest in the new techniques diminished. The motivational factors were different on the part of the students, and the over-crowded conditions caused by the inundation of the campuses by the returning GI's made the small class requirements of the new methodology impractical. Also, since the Harvard Report, published in 1945, advocated a core curriculum for secondary schools but omitted foreign language study from its proposed program, its influence caused a further disregard for foreign language study.[1] Fortunately, the interest did not disappear completely; language laboratories were installed and use of the new methods was initiated in several colleges in different parts of the country. Despite this slight interest, a less than enthusiastic attitude on the part of administrators at all levels prevailed toward foreign languages.

A change in attitude became apparent during the 1950's, both on the part of the foreign language proponents and of the general school public. The Modern Language Association, with the assistance of the Rockefeller Foundation and other grants, conducted a study which culminated in the issuance of a "Program Policy."[2] Among other things, it stated that the following threefold result should be realized with regard to values of

[1] General Education in a Free Society. Report of the Harvard Committee (Cambridge, Massachusetts: Harvard University Press, 1946).

[2] The Modern Language Association, "Foreign Language Program Policy," Publications of the Modern Language Association, Vol. 71, Part 2 (September, 1956), p. 13.

foreign language study:

> The student should acquire a set of skills that could result in real mastery of the language if practiced long enough; he should gain a new understanding of language, his own as well as the foreign language; and he should begin to develop the concept of difference between cultures through expanded knowledge of the foreign country and the likenesses and dissimilarities between its civilization and that of the United States.[1]

The statement recommended that foreign language learning commence with hearing and speaking the foreign tongue, and proceed to reading when the student is sufficiently grounded in the language so that he does not consciously attempt to translate. Writing should be only of the material which the student is capable of speaking correctly. The committee also advocated extended periods of study, citing the advantages of beginning study in the elementary grades, and recommending the utilization of audio-visual aids and the language laboratory in the language program.

A position paper of the National Association of Secondary School Principals expressed essentially the same philosophy as "The Program Policy of the MLA," again emphasizing the graduated progression of listening, speaking, reading and writing, as may be seen from this quotation: "No student should be asked to read a foreign language that he does not aurally understand. . ."[2]

[1] Ibid., p. 13

[2] "Modern Foreign Language in the Comprehensive High School," Bulletin of the NASSP, Vol. 43 (September, 1959), pp. 1-14.

To add further impetus to the emerging trend, the launching of Sputnik I by Russia in 1957, and the criticisms leveled at the American educational system by such prominent people as James Conant and Hyman Rickover, coupled with the financial assistance of the National Defense Education Act of 1958, accomplished a transition from the pattern of emphasis on reading and grammar to the audio-lingual method which predominated on the contemporary educational scene.[1]

In summary, these references indicate that there has been discussion concerning methodology in foreign language instruction from the time of the Roman Empire to the present day. The present acceptance of the audio-lingual method has emerged from a number of factors described here, such as the dissatisfaction of foreign language teachers with the achievement under the grammar-translation system, the success of the military programs, a growing insistence on the part of students to be able to converse in the foreign languages, and the governmental support of the new programs. In order to have a better understanding of the audio-lingual system, as opposed to the reading and direct approaches, a précis of this method of language learning is presented.

[1] James B. Conant, The American High School Today (New York: McGraw-Hill, 1959); and Hyman Rickover, Education and Freedom (New York: Dutton, 1959).

THE AUDIO-LINGUAL METHOD[1]

The audio-lingual approach treats a language as a system of sounds, the beginning student being initiated into the language by listening to a series of meaningful phrases, at the normal rate of speech. To aid in this phase of the program, tape recordings and discs are employed, not only to present consistently good models but also to acclimatize the listener to a variety of native voices. This first state is especially to train the ear of the student, and lasts as long as the teacher feels is necessary, considering the age and grade level of the class.

The next stage is imitation of the verbal model of the teacher or recordings. The teacher is of great importance at this stage since the teacher must give the correct utterance, judge the response of the pupil, and provide enough drill for the learner to ensure the proper training of both the ears and the vocal apparatus. After a minimum of proficiency with the sounds of the language is established, this capability is extended by the use of dialogues which introduce new vocabulary, idioms and structural patterns. This learning experience, which makes use of the new materials and structures, is reinforced through pattern drills of many varieties, including repetition, transformation (changing tenses or forms), substitution, expansion (addition

[1] The material in this section is based on Nelson Brooks, Language and Language Learning - Theory and Practice (rev. ed.; New York: Harcourt, Brace and World, 1964; J. Wesley Childers, Foreign Language Teaching (New York: Center for Applied Research in Education, 1964); Robert Lado, Language Teaching (New York: McGraw-Hill, 1964); and Patricia O'Connor, Modern Foreign Languages in the High School, Bulletin No. 9 (Washington: Office of Education, 1960).

of one or more items to the basic pattern), and combination.

After a period of at least several weeks, the student is introduced to reading through the medium of the dialogues and exercise patterns on which he has already been drilled audio-lingually.[1] The reading progresses from material which the student already knows to other material, using graded textbooks, which have as their purpose to build the student's passive vocabulary and to increase skill and speed in reading comprehension.

The last step in the program, writing, is taken after a considerable amount of time devoted to listening, speaking, and reading aloud. At the start, it consists of writing sentences and phrases from dialogues learned previously, and of writing, from direction, some of the already-learned pattern drills. After this stage, the student is asked to re-write dialogues, changing tenses, genders, or other patterns. Following this, the student expands this skill by writing brief compositions on selected topics, using chosen vocabularies. Free composition comes only after the student possesses an adequate vocabulary, knowledge of grammatical structure, and the ability to organize thoughts in correct patterns of the target language.

Throughout this approach to language learning, there is constant modeling and imitation of models, as well as drill periods. Since the language laboratory is an invaluable assistant to the language teacher in this method, various opinions concerning the actual make-up and utilization of this device are surveyed.

[1] Bulletin of the NASSP, Vol. 43, pp. 1-14.

THE LANGUAGE LABORATORY

According to Elton Hocking, a language laboratory is "... a complete electronic installation which provides a booth, headset, microphone, sufficient recording facilities for every student in the room to record frequently, and monitoring facilities for the teacher."[1]

Alfred Hayes has another, more simple definition: " a language laboratory is a classroom or other area containing electronic equipment designed and arranged to make foreign language instruction more effective."[2]

The divergence in opinion of what actually constitutes a language laboratory is easily discernible from these two definitions: on the one hand, a costly, complex installation, more elaborate (at least with regard to recording facilities) than most of the laboratories in operation in Florida secondary schools; on the other hand, an arrangement as simple as a tape recorder operating in a classroom to which students listen and make responses. The laboratories in Florida schools range to both extremes, although the average laboratory consists of a single classroom equipped with twenty to thirty booths, each containing at least a headset and microphone. The laboratory will also provide for several simultaneous program sources, and

[1] Elton Hocking, "Language Learning Today," Audio-Visual Instruction, Vol. 4, No. 6 (September, 1959), p. 197.

[2] Alfred Hayes, "What is the Language Laboratory?" Saturday Review, Vol. 46 (February 16, 1963), pp. 70-71.

additional facilities for monitoring students. It may have provisions for utilization of visual materials, such as films or overhead projectors, in conjunction with, or independent of, the audio-lingual materials. From the standpoint of general utility, a facility of thirty booths is able to accommodate 300 to 480 students during the normal school day, in addition to individual pupil use before and after school. This estimated figure is based on laboratory periods lasting fifteen to twenty-five minutes, or half the ordinary class period, as recommended by Holton and others.[1]

To obviate any possible confusion, the term "language laboratory" in this study refers to an installation in which a student is able to listen and respond to a master recording, either disc or tape, without appreciable external interference, and without anyone but the teacher being able to audit his responses.

The greatest contribution of the language laboratory, according to Hutchinson, is made as an integral part of a program in which audio-lingual instruction forms the basis for the progressive and continuous development of all the language skills.[2] Other ways that the laboratory strengthens foreign language instruction are through increasing participation of all students in listening and speaking; by enlarging the number and variety of

[1] James S. Holton et al., Sound Language Teaching (New York: University Publishers, 1961), pp. 20-21.

[2] Joseph C. Hutchinson, The Language Laboratory, Bulletin No. 23 (Washington: Office of Education, 1961), p. 9.

native speakers available to the pupils; by relievirg the teacher from the tedium of presenting drill material and allowing him to assist pupils in need of help during drill periods; by providing privacy, less distraction, and opportunity for greater concentration through the use of headphones and partitions; and by strengthening the program of teachers who might be deficient in audio-lingual training.[1]

The language laboratory is weakest when used as an adjunct to traditional grammar-translation approach; when it is expected to perform functions beyond helping to develop and maintain listening and speaking skills; when the teacher is expected to develop and prepare the programs to be used; when it is used for enrichment or other peripheral activities; and when it interferes with teacher-student rapport.

[1] Ibid., pp. 8-9.

RECENT RESEARCH IN THIS AREA

Although there was an abundance of literature relating to the use and selection of the language laboratory, very few controlled studies of the achievement of the students who use the language laboratory in foreign language instruction had been made by 1964. The situation is relatively unchanged at the present. A number of non-experimental studies, dealing with philosophical considerations of foreign language instruction and having some relevance to the present study, will be included in this section.

Among the non-experimental studies is that of Leamon, who analyzes the factors which constitute a quality foreign language program.[1] In his opening chapter, he lists six assumptions worthy of note. These include:

1. Good language teaching has long been a concern in the western world, and is even more of a concern at present.

2. A good language program today must be built around good language teachers, using an audio-lingual, or "new Key" approach.

3. To be most effective, a foreign language teacher must have good materials and equipment.

4. A good language program must rest soundly upon the four basic skills; listening, speaking, reading, and writing, and upon a knowledge of and understanding of the civilization and culture of the people whose language is being studied.

5. A good language program begins as early as possible after the second grade and continues until real control of the language is achieved and maintained.

[1] Max Philip Leamon, "Quality Foreign Language Programs in the Secondary Schools" (unpublished dissertation, University of Indiana, 1962).

6. The essence of a good foreign language teacher and of a good foreign language program is something which can be described.[1]

He concluded that the really good foreign language teacher is rare and that the really strong foreign language program is even rarer. He also reached the conclusion that these two factors are interwoven, and should not be considered separately.[2]

On the matter of the foreign language teacher, Hocking points out in a recent article that language laboratories have been handicapped by teachers who lack the required specialized training.[3] Unfortunately, the laboratory experienced widespread adoption before adequate materials were developed for its use. Teachers who were poorly qualified to use laboratories in foreign language instruction were thrust into an electronic classroom, with little or no training, and few, if any, appropriate materials.

He compares the foreign language teacher situation to an iceberg, with trained teachers above the surface, and the vastly greater number of untrained teachers hidden below a surface of NDEA institutes, and various in-service training projects.[4]

Hutchinson, in an article in School Life, reinforces the statement concerning the importance of the teacher when he writes,

[1] Ibid.

[2] Ibid.

[3] Elton Hocking and Charles Blickenstaff, "Teacher Preparation for the Language Laboratory," Education, Vol. 85, No. 7 (March, 1965), pp. 391-395.

[4] Ibid.

concerning a series of innovations ". . . none showed itself so important as the classroom instructor who is a perceptive observer of his students. The contribution the instructor makes in reinforcing the students' self-correction and practice is indispensable."[1]

In a similar vein, Barcelone, in a study of 130 foreign language teachers using language laboratories for at least four years prior to the survey, listed as needs of the prospective teacher of foreign languages the understanding of the value and limitations of the language laboratory, the ability to use such a tool, and a general knowledge of technological advances and their uses.[2]

In a survey conducted in 29 of the 33 junior colleges in existence in Florida at that time, Sorenson lists six values of the language laboratory, as indicated by the instructors themselves, in an opinionaire.[3] These were:

1. Extra contact with the target language;
2. Constant practice of all students at the same time;
3. A variety of native voices;
4. Provision for individual differences of students, with varying rates of presentation;

[1]Hutchinson, loc. cit.

[2]Hermina H. Barcelone, "Competencies Needed by Secondary School Teachers Who Use the Laboratory in Teaching Foreign Languages" (unpublished dissertation, University of Indiana, 1964).

[3]Catherine Hennessey Sorenson, "Functions of the Foreign Language Laboratory in the Junior Colleges of Florida" (unpublished dissertation, University of Florida, 1964), p. 114.

5. Acquisition of native-like comprehension;

6. Avoiding endless repetition by the teacher.

Sorenson also emphasizes the need for in-service training of instructors and research on the most effective means of using the language laboratory.[1]

Several investigations have been conducted to evaluate the use of tapes in the junior high school as a substitute for a qualified, proficient teacher of the foreign languages. In one of these, White studied four groups in the same school, one of which was taught by a regular, qualified Spanish teacher, and the other three by tapes prepared by the same teacher.[2] Although an attempt was made to equate groups with respect to ability, most of the students taught by the teacher, in person, learned more than most students taught by the tapes, as measured by the final achievement test. However, one experimental (tape) group matched the control (teacher-taught) group on the final test, and some students, regardless of the method of instruction, were high achievers throughout the study. He also discovered that motivation, as provided by the teacher, was an important factor.

Anoneuvo, working on a similar type project at the same level of beginning Spanish, reached some interesting conclusions

[1] Ibid., p. 117.

[2] Wayne Hugh White, "A Comparison of Two Methods of Teaching Beginning Spanish in the Junior High School" (unpublished dissertation, University of Arkansas, 1963).

relating to achievement.[1] In her study, the variables of IQ, achievement test scores, previous foreign language experience, or class absences had no effect on the post-test achievement. The students in this project showed no significant difference in written comprehension or pronunciation, but those students who had a teacher, instead of tapes only, had intonation and accent better than those who received their instruction from tapes alone. This would seem to support the assumption that if one were interested in reading and writing skills, the method using tapes instead of the teacher would be acceptable. It is even posited that in cases where an experienced teacher is not available, multi-sensory materials might be utilized profitably in beginning foreign language instruction.

In studies which compare classes using actual language laboratory facilities, results seem equally conflicting. In the next two studies, one shows no difference in speech production, while in the other, the laboratory group achieved superior results. Both seem equal in reading achievement, but this is a condition which appears with relative consistence throughout the literature.

Allen, in a study conducted in the laboratory school of Ohio State University, matched twenty students on the basis of vocabulary, spelling, and language learning ability as measured by a synthetic language.[2] The experimental group received

[1] Felicia B. Anonuevo, "Special Teacher versus Multi-sensory Materials in Second Language Teaching on the Elementary School Level" (unpublished dissertation, Pennsylvania State University, 1963).

[2] Allen, loc. cit., pp. 355-358.

fifty-five (55) minutes work per week in the language laboratory, while the control group had a supervised study session. Results showed the laboratory group to have made significantly greater gains in the areas of reading, vocabulary, and grammar. There was no measurable degree of difference between the two groups in the area of oral achievement. It was reported that the language laboratory provided strong motivational impetus regarding attitude of the student toward foreign language study.

In another study conducted in Arizona, which involved a number of bi-lingual students, Maynes selected groups on the basis of sex, age, grade level, IQ, English achievement, and native speaking ability of Spanish.[1] The laboratory group was noticeably better in speech production, aural comprehension, and grammar, while the two groups showed similar achievement in reading and knowledge of the foreign culture. In this study, also, the laboratory group seemed to have greater motivation for study.

Keating recently reported on research involving over 5000 students in twenty-one school districts of the Metropolitan New York area.[2] He concluded that on only one language skill, that of speech production at the beginning level, did the laboratory group score higher than the non-laboratory students. In the other language skills, the non-laboratory students gave evidence

[1] J. C. Maynes, "Experiment to Guage the Effectiveness of the Audio-Lingual Method and the Language Laboratory," Hispania, Vol. 45 (May, 1962), pp. 377-382.

[2] Keating, op. cit.

of significantly greater gains at all levels of study, advanced as well as beginning classes. However, the instruments used for testing in this experiment consisted of the Cooperative Test for French, 1940 edition, and of a very brief oral test which took isolated sounds, rather than meaningful groups of syllables. In such a situation, it would seem natural that a class taught according to the newer methods would not achieve as high a degree of success as the traditionally taught class.

Other investigations carried out in the New York City schools by Lorge and her committee produced results which were considerably different from the previous study reported here.[1] One study which investigated audio-active and listen-record-playback laboratories used in varying amounts of time showed that the greatest gains in achievement were attained by laboratory groups using record-playback equipment daily. From the summary of the report, it appeared that the control group (non-lab) was significantly poorer in the areas of overall speech production from sightreading, and in the areas of listening comprehension, both slow and fast.[2]

The Lorge studies reaffirmed the findings of Allen, Maynes, and others that the laboratory has strong motivational characteristics, and that students who have received instruction using the laboratory tend to elect the study of the foreign language for a

[1] Sarah J. Lorge, "Language Laboratory Research Studies in New York City High Schools: A Discussion of the Program and the Findings," The Modern Language Journal, Vol. 48, No. 7 (November, 1964), pp. 409-419.

[2] Ibid., pp. 414-415.

longer sequence of time than those students who received traditionalinstruction.

In an experiment conducted by Scherer and Wertheimer with college students of German at the University of Colorado, classes were closely controlled, after random selection of course section, with interesting results.[1] This project, which lasted for two years (four college semesters), had as its main purpose to determine ". . . whether at the end of two years of instruction the reading and writing skill of students trained by an audio-lingual method would equal or even surpass that of the students trained by a conventional grammar-reading method." [2]

The results demonstrate that the two methods produce students who are comparably proficient in overall language ability. At the end of the first year, the audio-lingual students were better in listening and speaking, but poorer in reading, writing, and translation. The results at the end of the second year showed that the experimental group was still superior in speaking, but poorer in writing and German-to-English translation, and equal in all other aspects.

This project had special pertinence to the present study because it is the only one reported in the literature which used the Modern Language Aptitude Test as a part of the pre-test program. It also seemed to have the most effective controls for

[1] George A. Scherer and Michael Wertheimer, A Psycholinguistic Experiment in Foreign Language Teaching (New York: McGraw-Hill, 1964).

[2] Ibid., p. 15.

variables and the most comprehensive achievement measures.

A prior study conducted by the author in Florida secondary schools reports on the effect of the language laboratory on first-year students of Spanish. Results at the end of the first year of instruction indicated no significant difference in student achievement attributable to the language laboratory, except with regard to aural comprehension.

A significant difference attributable to professional preparation and experience of the teachers in the achievement of the total sample in listening, speaking, and writing was also found.

SUMMARY

From the presentation of the historical aspects of the debate which has endured for more than twenty centuries, it is easily seen that various methods have been proposed, and have enjoyed prominence at different periods of history, depending upon the results desired. In ancient times, schoolmen favored both the translation and the natural method. In the sixteenth century, Ratke recommended a reading approach, while one of his contemporaries proposed learning to speak by listening and conversing with others. In the past century, both the natural method, stressing the spoken language, and the formal discipline approach, emphasizing grammar and translation have enjoyed periods of vogue. Both individuals and professional organizations have advocated the various procedures of instruction, but in the last two decades, as a result of the war, the shrinking world, and other factors listed here, the audio-lingual method, utilizing the language laboratory has become the most widely accepted approach.

Many people in the educational world have given consideration to the problem of the language laboratory as an integral part of the foreign language program. Leamon has contributed a list of assumptions basic to any good foreign language program, and Hocking, Hutchinson, and Stack have established criteria for the physical make-up and operation of the laboratory itself Several studies have described conditions prevalent throughout the nation, some of which have investigated achievement in limited

ways. In only the Scherer-Wertheimer project has a single study given pre-tests designed specifically for the prediction of foreign language aptitude, compared with other achievement and aptitude measures. No other research reported, except the prior study of the author, has measured the achievement of the laboratory and non-laboratory groups by a single comprehensive instrument designed to measure all the various language skills.

CHAPTER III

PROCEDURES AND DESIGN FOR THE STUDY

To facilitate interpretation of data, the evaluation of the foreign language instructional program was stated in the form of null hypotheses. To re-phrase this in more understandable terms, it was stated that there was no significant difference between the achievement of the students who used the laboratory, and those who did not, so that any difference which appeared would be plainly evident.

The exact wording of the null hypotheses which were tested is as follows:

Null Hypothesis 1

There is no significant difference at the .05 level in the learning achievement of foreign language students grouped according to aptitude levels who use the language laboratory, and those in the same aptitude level who do not, with regard to:

a. aural comprehension

b. speech production

c. reading achievement

d. writing achievement

Null Hypothesis 2

There is no significant difference at the .05 level in the learning achievement of foreign language students grouped according to aptitude levels who use the language laboratory under the direction of a trained and experienced teacher, and in the achievement of those of the same aptitude level who use the language laboratory without the benefit of a trained teacher, in the areas of:

a. aural comprehension

b. speech production

c. reading achievement

d. writing achievement.

SUBJECTS FOR THE STUDY

The project was begun in the fall of 1964 with 620 first-year Spanish students who had had no prior formal instruction in Spanish. They were selected from twenty-two schools chosen from eleven representative counties of Florida which provide a representative cross-section of geographic and economic areas of the state. (See Appendix C.)

A population of 536 students (86.5%) completed the first year of full-time instruction, and the achievement of these students is noted in Appendix E. Of this number, a total of 240 (38.6%), students in 19 schools and 10 counties completed their second year of foreign language, and participated in the second-year achievement tests. Included in the sample are classes which

receive instruction utilizing the language laboratory, other classes which use tape recorders and other recorded materials as part of the instructional program, and a third group of classes which use no recorded material in the foreign language instruction. The classes are taught by teachers whose experience ranges from less than a year to more than twelve years background in foreign language teaching.

Experimental group

The experimental group is divided into two sections, those who had instruction utilizing the language laboratory for the entire period of two years (Group L), and those who had the use of the laboratory for one year of instruction (Group M). This group is drawn from counties and population areas which represent a cross-section of the total state population. The time when the laboratory is actually used varies from one to five periods per week, varying in length from ten to forty-five minutes. The following table illustrates the amount of time spent by each class in the language laboratory each week.

TABLE 1

TIME PER WEEK SPENT BY EACH CLASS
IN THE LANGUAGE LABORATORY

School Number	Periods Per Week	Minutes Per Period
105	1	45
106	5	10-20
107	1	40
111	2	25
113	2	25
523	2	20-40
525*	-	-
528	2	20-40
709	3	10-20
719	5	10-20
726	1	20
727	1	20-40
729	3	10-20
Averages (Mean)	2.33 periods	25 minutes

*Did not report.

Control group

The control group is composed of second-year students of Spanish with comparable foreign language aptitude in eleven schools which do not have language laboratories.

These schools are from the same or from similar counties to those from which the experimental group is drawn, and were selected because of the overall degree of relationship between the experimental and test groups. Of these, some use tape recorders and record players to varying degrees, while others do not use any devices of this type in their foreign language program.

Description of teachers who participated in the survey

The 22 teachers who participated in the foreign language survey were chosen from the ten counties* which were selected as representative of the state of Florida. Among the teachers were five native speakers of Spanish and others who had lived a portion of their lives in Spanish-speaking countries or environments. The range of experience of the teachers extended from teachers who had taught Spanish for more than twelve years, to two beginning teachers.

Eighteen teachers had degrees in foreign languages, while nine had attended at least one NDEA Institute for Foreign Language Teachers. All of the teachers were certified by the state certification agency to teach Spanish, or were adjudged competent by their respective county foreign language supervisors.

The teachers were divided into the categories of experienced and less-experienced on the basis of six selected factors:

*Bay County High School, Panama City, was not able to participate in the second year of the study.

years of foreign language experience, native speaker of the language, foreign language degree, NDEA institutes attended, Spanish language courses taken, and levels taught. (See Appendix B).

Collection of Data

The Modern Language Aptitude Test by Carroll and Sapon was administered to all students at the beginning of the 1964-65 school year. This test, which predicts how easily and rapidly a student will learn a foreign language, consists of a series of practice exercises in learning various aspects of foreign languages. In addition to the customary test booklet, a taped portion of the test evaluates the student's ability to distinguish particular language sounds. This test is not an intelligence test, but rather a predictor of foreign language success and is considered to be a better indicator with relation to foreign language than any of the conventional IQ tests.

On the basis of the results of this test, subjects were assigned to one of the categories, high, average or low aptitude.[1] The subjects scoring higher than one standard deviation above the mean compose the high group; those scoring within one standard deviation, plus or minus, from the mean make up the average group; and those who score lower than one standard deviation below the mean constitute the low group.

[1] In the first-year study, four categories were used, but because of the high attrition over the two-year period, the average group was combined.

TABLE 2

CATEGORIES OF STUDENTS
ACCORDING TO MLAT

1964-1965

Classification	Raw Score	Percentile	Number
(I) High Aptitude	117-169	85-99	85
(II) High-Average Aptitude	94-116	50-84	165
(III) Low-Average Aptitude	70-93	17-49	199
(IV) Low Aptitude	1-69	1-16	75

1965-1966

Classification	Raw Score	Percentile	Number
(1) High Aptitude	118-169	85-99	41
(II) Average-Aptitude	73-117	17-84	162
(III)Low Aptitude	1-72	1-16	37

Questionnaries and class observations were employed to determine the category into which each class was placed with regard to instructional method (laboratory or non-laboratory), to note class progress, and to record the use of any other electronic equipment. The teachers participating in the study were asked to complete additional data sheets so that they could be grouped according to experience and training. (See Appendix B). To insure validity of information contained in the questionnaire and to aid in the assignment of classes

to appropriate categories each class was visited during the year to observe methodology and student progress.

During the final month of each school year, the Modern Language Association - Educational Testing Service Cooperative Language Test for Spanish, Level L, forms A and B, was administered to each student. This instrument consists of four sections: listening, which is recorded on magnetic tape and to which the student chooses an appropriate answer from a group of printed answers; speaking, in which the student records his response to a test tape; and reading and writing, which are administered by means of the customary test booklet. It is designed to be a comprehensive test and to evaluate all areas of the student's knowledge of Spanish. The reading and listening sections of this test were scored by the IBM 1230; the writing and speech production tests were graded by the principal investigator in conjunction with other competent readers and auditors.

The data were then placed on IBM cards and analyzed according to appropriate statistical procedures, utilizing the facilities of the Computing Center of the Florida State University.

Design for the study

The statistical procedure used to compare the groups with regard to achievement was the analysis of co-variance. The laboratory and non-laboratory groups were sub-divided on the basis of experience and training of the teacher and

on aptitude for foreign language as determined by the Modern Language Aptitude Test. (See Table 3).

TABLE 3

MODEL FOR ANALYSIS OF COVARIANCE

Aptitude Levels (MLAT score)	Treatment					
	Lab. Two Years		Lab. One Year		Non-Laboratory	
	Experienced Teacher	Less Experienced Teacher	Experienced Teacher	Less Experienced Teacher	Experienced Teacher	Less Experienced Teacher
HIGH (118-169)						
AVERAGE (73-117)						
LOW (1-72)						

CHAPTER IV

ANALYSIS OF DATA

The reader will find data presented and analyzed in this chapter which leads to the acceptance or rejection of the hypotheses stated in the previous chapter. Each hypothesis will be restated and pertinent findings will be presented. One hypothesis deals with the achievement of language students compared with the non-laboratory group. Another concerns the achievement of students trained by an experienced instructor compared with students taught by a less experienced one.

Influence of the Language Laboratory

The first hypothesis stated in Chapter III related to achievement of laboratory students as opposed to non-laboratory students in the language skill areas of listening, speaking, reading, and writing. To facilitate a more orderly presentation, each language skill will be discussed separately. Because there are two types of laboratory treatments (one and two years), the non-laboratory group is compared with both of these, and significance was noted when there was a difference between the non-laboratory

gr[illegible] and either of the laboratory samples.

Listening

In the area of aural comprehension, the students who used the language laboratory as a part of their instructional program showed no greater achievement at the .05 level. (See Table 4)

The overall statement that there is no significant difference between achievement of students who use the laboratory and those who do not must be accepted, at least with regard to listening comprehension. All aptitude levels seem equally unaffected by the use of the laboratory. The only source of variation which shows significance with regard to achievement is the distribution of students according to the MLAT test (the covariate). There is a positive correlation between the increment in scores the MLAT and the increase in scores on the aural comprehension test. From these data, it is evident that the higher the aptitude of the individual, as predicted by the MLAT, the greater is the achievement realized from foreign language instruction, regardless of method.

None of the interaction relationships tested proved to be significant with regard to the achievement of skill in aural comprehension. An interaction is the result of a combination of two factors acting upon a given situation and producing results together which neither

produced independently.

The covariate, which adjusts for the higher aptitude of the group which used the laboratory one year (105.32), as opposed to the two-year laboratory group (95.32) and the non-laboratory group (95.23), shows significance, meaning that the higher aptitude of this group is a source of the variation of their scores from those of the other two groups, and that the treatment was not the cause of the increased achievement score.

Speaking

In the area of speech production, data reveal no difference apparent at the .05 level of significance between the non-laboratory and the laboratory groups (Table 5). Therefore, this section of the null hypothesis cannot be rejected according to these findings, and should be accepted.

There is a significant factor in the laboratory-teacher experience variable, which indicates that the two factors of use of the laboratory and experience and professional preparation of the teacher, although not important in isolation, are significant when taken together with regard to speech production (Tables 9 and 10).

Again the covariate is significant, indicating that the scores of the laboratory group (one year) reflect their higher foreign language aptitude scores.

Reading

The results of the reading achievement test show that the use of the laboratory is a significant factor at the .05 level in this language skill (Table 6). This portion of the null hypothesis cannot be rejected, and must therefore be accepted. This factor was not significant at the end of the first year of foreign language study.

Again, the interaction between the laboratory and the experience of the teacher is revealed to be a significant factor at the .01 level in the reading achievement of students.

The statistical procedures employed reveal the significance of the covariate, indicating that the increased achievement of the laboratory (one year) sample is a result of the higher aptitude of these students, as compared with that of the other two samples.

Writing

The results of the test measuring writing achievement revealed that the factor of language laboratory use is not significant at the .05 level (Table 7). Consequently, this part of the hypothesis must also be accepted in terms of this study.

Several previous studies have found that the laboratory students do not enjoy the same facility for writing as the non-laboratory students because of difference in instructional procedures.[1] These studies would seem to indicate that

[1]Lorge, loc. cit., and Scherer and Wertheimer, op. cit.

that the students who use the laboratory do not have the same opportunity to develop writing skills to a similar degree as non-laboratory students.

A wide variation of means, as may be seen in Tables 12 and 13, seems to indicate that there is no clear advantage accruing to students using the laboratory, since in some cases the achievement of the laboratory groups is higher, and in other instances, the reverse is true.

Summary

From this analysis, it is evident that the null hypothesis, except for the section dealing with reading achievement, must not be rejected on the basis of the data gathered at the end of the second year of this research. It is interesting to note that at the end of the first year of foreign language study, the laboratory group showed significantly greater achievement in aural comprehension, but this advantage was dissipated by the end of the second year. In an examination of achievement with regard to all four language skills, students using the language laboratory as a part of the present instructional program appear to realize little, if any, gain in general language skills over non-laboratory students unless other factors are considered concomitantly. To summarize, using achievement tests at the end of two years of foreign language study as a basis for judgment, the laboratory students as a total group show an advantage over the non-laboratory students in the area of reading, but no

TABLE 4

ANALYSIS OF COVARIANCE UTILIZING SCORES ON MLA-ETS TEST FOR AURAL COMPREHENSION OF STUDENTS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Tests
Laboratory	9811.6357	2	4905.8090	1.3256
Teacher Experience	9695.3301	1	9695.3301	.0001
Aptitude Group	9730.3017	2	4865.1508	.3986
Lab x Experience	9762.6650	2	4881.3325	.7674
Lab x Group	9720.4404	4	2430.1101	.1431
Experience x Group	9695.3701	2	4847.6850	.0005
Lab x Experience x	9741.3174	4	2432.8293	.2621
Covariate	10045.2900	1	10045.2900	7.9772**
Error within Treatments	9695.3291	222	43.870	
Totals	105194.0000	240		

** Significant at .01 level

TABLE 5

ANALYSIS OF COVARIANCE UTILIZING SCORES OF MLA-ETS TEST FOR SPEECH PRODUCTION OF STUDENTS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Tests
Laboratory	35755.543	2	17877.772	.1457
Teacher Experience	35708.441	1	35708.441	-.0001
Aptitude Group	35715.839	2	17857.919	.0229
Lab x Experience	37283.797	2	18641.898	4.8749*
Lab x Group	35904.090	4	8976.023	.3027
Experience x Group	35734.258	2	17867.129	.0799
Lab x Experience x Group	36250.559	4	9062.439	.8388
Covariate	36577.117	1	36577.117	5.3762*
Error within Treatments	35708.449	222	161.576	
Totals	452093.000	240		

*Significant at .05 level.

TABLE 6

ANALYSIS OF COVARIANCE UTILIZING SCORES ON MEA-ETS TEST FOR READING ACHIEVEMENT OF STUDENTS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Tests
Laboratory	11042.145	2	5521.072	3.133*
Teacher Experience	10737.690	1	10737.690	.001
Aptitude Group	10805.693	2	5402.846	.700
Lab x Experience	11880.763	2	5940.381	11.763**
Lab x Group	10782.078	4	2695.519	.228
Experience x Group	10740.491	2	5370.245	.029
Lab x Experience x Group	10767.740	4	2691.935	.155
Covariate	11317.723	1	11317.723	11.938**
Error within Treatments	10737.689	222	48.587	
Totals	121607.000	240		

** Significant at .01 level.

* Significant at .05 level.

TABLE 7

ANALYSIS OF COVARIANCE UTILIZING SCORES ON MLA-ETS TEST FOR WRITING ACHIEVEMENT OF STUDENTS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Tests
Laboratory	70367.508	2	35318.754	.397
Teacher Experience	70384.328	1	70384.328	.001
Aptitude Group	70340.883	2	35215.441	.073
Lab x Experience	76618.031	2	38309.015	9.787**
Lab x Group	71348.641	4	17837.152	.757
Experience x Group	70465.836	2	35232.918	.128
Lab x Ezperience x Group	71736.773	4	17934.193	1.062
Covariate	77587.758	1	77587.758	22.618**
Errors within Treatments	70384.328	222	318.481	
Totals	665779.000	240		

**Significant at .01 level.

TABLE 8

MEANS AND DIFFERENCES BETWEEN MEANS
LABORATORY AND NON-LABORATORY

Test and Aptitude Level	Laboratory Two years (L)	Laboratory One Year (M)	Non Laboratory (N)	t score	
Listening					
Low	21.36 (11)	17.63 (16)	14.40 (10)	2.938**	af
Average	20.43 (65)	19.09 (43)	17.37 (54)	2.267*	af
High	27.17 (12)	21.83 (13)	22.13 (16)	2.533*	af
Speaking					
Low	41.55 (11)	37.38 (16)	32.40 (10)	3.352**	af
Average	43.42 (65)	41.81 (43)	36.42 (54)	2.891**	ab
High	49.00 (12)	47.46 (13)	50.27 (16)	1.231	-
Reading					
Low	18.27 (11)	20.75 (16)	14.40 (10)	3.629**	be
Average	19.55 (65)	21.95 (43)	17.37 (54)	3.097**	ab
High	25.25 (12)	34.62 (13)	24.63 (16)	4.826**	be
Writing					
Low	40.82 (11)	35.25 (16)	23.60 (10)	3.523**	ab
Average	49.83 (65)	48.16 (43)	39.87 (54)	3.317**	ab
High	63.33 (12)	72.62 (13)	60.56 (16)	2.969**	be

a. L > N
b. M > N
c. L < M
d. L < M
e. L = N
f. N = M

*Significant at .05 level.

**Significant at .01 level.

TABLE 9

MEANS AND DIFFERENCES BETWEEN MEANS WITH t VALUES: LABORATORY GROUP[1]

Test and Aptitude Level	Experienced Teachers	Less Experienced Teachers	t score
Listening			
Low (11)	22.44 (9)	16.50 (2)	1.773
Average (65)	23.30 (40)	15.84 (25)	4.940**
High (12)	28.11 (9)	24.33 (3)	1.170
Speaking			
Low (11)	44.33 (9)	29.00 (2)	4.394**
Average (65)	50.73 (40)	31.72 (25)	9.954**
High (12)	52.00 (9)	40.00 (3)	3.079*
Reading			
Low (11)	20.89 (9)	6.50 (2)	5.922**
Average (65)	21.89 (40)	15.80 (25)	3.885**
High (12)	25.89 (9)	23.33 (3)	.796
Writing			
Low (11)	41.44 (9)	38.00 (2)	.937
Average (65)	59.50 (40)	34.36 (25)	10.185**
High (12)	68.44 (9)	48.00 (3)	4.232**

[1]Two years of laboratory work

*Significant at .05 level
**Significant at .01 level

TABLE 10

MEANS AND DIFFERENCES BETWEEN MEANS WITH t VALUES:
LABORATORY (ONE-YEAR) GROUP

Test and Aptitude Level	Experienced Teachers	Less Experienced Teachers	t score
Listening			
Low (16)	18.60 (5)	17.18 (11)	.645
Average (43)	18.92 (24)	19.32 (19)	.265
High (13)	24.50 (2)	21.36 (11)	2.166
Speaking			
Low (16)	38.40 (5)	36.91 (11)	.548
Average (43)	39.91 (24)	44.00 (19)	2.223*
High (13)	41.50 (2)	48.55 (11)	4.731**
Reading			
Low (16)	18.20 (5)	21.91 (11)	1.893
Average (43)	16.50 (24)	28.84 (19)	4.455**
High (13)	25.00 (2)	36.36 (11)	6.843**
Writing			
Low (16)	26.00 (5)	39.45 (11)	3.821**
Average (43)	35.79 (24)	63.79 (19)	9.964**
High (13)	48.00 (2)	77.09 (11)	8.057**

*Significant at .05 level.

**Significant at .01 level.

TABLE 11

MEANS AND DIFFERENCES BETWEEN MEANS WITH t VALUES:
NON-LABORATORY GROUP

Test and Aptitude Level	Experienced Teachers	Less Experienced Teachers	t score
Listening			
Low (10)	(0)	14.40 (10)	-
Average (54)	14.73 (11)	18.07 (43)	2.213*
High (16)	21.20 (10)	23.67 (6)	1.246
Speaking			
Low (10)	(0)	32.60 (10)	-
Average (54)	33.09 (11)	37.28 (43)	1.606
High (16)	50.70 (10)	49.40 (6)	.406
Reading			
Low (10)	(0)	14.40 (10)	-
Average (54)	15.64 (11)	17.81 (43)	1.538
High (16)	24.20 (10)	25.33 (6)	.504
Writing			
Low (10)	(0)	23.60 (10)	-
Average (54)	33.82 (11)	41.42 (43)	2.733**
High (16)	64.90 (10)	53.33 (6)	3.318**

*Significant at .05 level.

**Significant at .01 level.

TABLE 12

MEANS AND DIFFERENCES BETWEEN MEANS WITH t VALUES: EXPERIENCED TEACHERS

Test and Aptitude Level	Laboratory Two Years (L)	Laboratory One Year (M)	Non Laboratory (N)	t score	
Listening					
Low (14)	22.44 (9)	18.60 (5)	(0)	-	-
Average (75)	23.30 (40)	18.92 (24)	14.73 (11)	2.675*	ab
High (21)	28.11 (9)	24.50 (2)	21.20 (10)	3.472**	ab
Speaking					
Low (14)	44.33 (9)	38.40 (5)	(0)	-	-
Average (75)	50.73 (40)	39.91 (24)	33.09 (11)	2.952**	ab
High (21)	52.00 (9)	41.50 (2)	50.70 (10)	4.035**	bd
Reading					
Low (14)	20.89 (9)	16.50 (5)	(0)	-	-
Average (75)	21.89 (40)	18.20 (24)	15.64 (11)	4.296**	af
High (21)	25.89 (9)	25.00 (2)	24.20 (10)	.772	-
Writing					
Low (14)	41.44 (9)	26.00 (5)	(0)	-	-
Average (75)	59.50 (40)	35.79 (24)	33.82 (11)	9.447**	af
High (21)	68.44 (9)	48.00 (2)	64.90 (10)	3.737**	de

a. L > M
b. M > N
c. L < M
d. L < M
e. L = N
f. N = M

*Significant at .05 level.

**Significant at .01 level.

TABLE 13

MEANS AND DIFFERENCES BETWEEN MEANS WITH t VALUES:
LESS EXPERIENCED TEACHERS

Test and Aptitude Level	Laboratory Two Years (L)	Laboratory One Year (M)	Non Laboratory (N)	t score	
Listening					
Low (23)	16.50 (2)	17.18 (11)	14.40 (10)	.989	-
Average (87)	15.84 (25)	19.32 (19)	18.07 (43)	1.058	-
High (20)	24.33 (3)	21.36 (11)	23.67 (6)	1.137	-
Speaking					
Low (23)	29.00 (2)	36.91 (11)	32.60 (10)	1.376	-
Average (87)	31.72 (25)	44.00 (19)	37.28 (43)	2.808**	bc
High (20)	40.00 (3)	48.55 (11)	49.40 (6)	2.265*	bc
Reading					
Low (23)	6.50 (2)	21.91 (11)	14.40 (10)	3.663**	bc
Average (87)	15.80 (25)	28.84 (19)	17.81 (43)	6.605**	be
High (20)	23.33 (3)	36.36 (11)	25.33 (6)	5.542**	be
Writing					
Low (23)	38.00 (2)	39.45 (11)	23.60 (10)	4.602**	ab
Average (87)	34.36 (25)	63.79 (19)	41.42 (43)	8.316**	bc
High (20)	48.00 (3)	77.09 (11)	53.33 (6)	7.627**	be

a. L > N
b. M > N
c. L < N
d. L < M
e. L = N
f. M = N

*Significant at .05 level.

**Significant at .01 level.

superiority in the language skill areas of aural comprehension, speech production or writing.

The reader should not be misled by the data in Table 8, which gives comparisons between individual levels of aptitude in the different language skills. Although there are apparent differences which are significant at particular aptitude levels, when the total samples are studied, these differences are not great enough to appear as significant in the analysis.

Influence of Teacher Training and Experience

The second hypothesis tested deals with the achievement of language laboratory and non-laboratory groups, giving attention this time to the additional factor of the training and experience of the teacher as an influence upon the achievement of the groups in each of the four language skills of listening, speaking, reading, and writing. As in the first hypothesis, each of the four areas will be considered separately.

Listening

The experience and professional preparation of the teacher was not a significant factor in the achievement of aural comprehension by the student population, as may be seen from Table 4. This section of the null hypothesis should therefore be accepted with regard to the whole sample.

However, in certain categories, as seen in Table 9, the experience of the teacher did produce significantly higher achievement on the part of the students. There appears to be

too much variation in scores to state definitively that this is a result of the experience of the teacher considered in isolation.

No interaction involving the factor of teacher preparation and experience has proved significant with regard to the analysis of aural comprehension of students in the research.

Speaking

Speech production of the student population was not affected significantly by the preparation and experience of the teacher in this research, as may be seen in Table 5. The section of the null hypothesis dealing with speech production is therefore accepted.

With those students who used the laboratory for the two years of the project, teacher experience proved to be a significant factor in achievement of speech production at all three levels of aptitude, as may be seen by an examination of Table 9.

There is an interaction between the laboratory and teacher experience, which would appear to indicate that the combination of two years' use of the laboratory, plus an experienced teacher, significantly affects speech production of students. This factor was not significant at the end of the first year of foreign language study. (See Appendix E)

Reading

The data summarized in Table 6 indicate that teacher experience and preparation is not significant at any level of

confidence in the achievement of foreign language reading skill, at least with regard to the data gathered in this study. This section of the hypothesis is therefore accepted.

Table 9 would seem to indicate that teacher experience is a significant factor in the reading skill, but the data in Tables 10 and 11 fail to confirm this, and, in fact, the data in Table 10 contradict this premise.

The laboratory-teacher experience interaction is significant at the .01 level, as may be seen from Table 6. However, because of the variation of scores in Tables 9 and 10, it is not clear what type of influence this interaction is having.

Writing

The factor of teacher preparation and experience did not appear as significant with regard to writing achievement of the participating students (Table 7). The null hypothesis must therefore be accepted in terms of the data of this study.

In the case of the writing test, also, an interaction effect appeared between laboratory use by students and the preparation and experience of the teacher (Table 7). This is especially evident in Table 9, the two-year laboratory sample, with regard to the experienced and the less experienced teachers. The achievement of students having the experienced teachers and using the laboratory is significantly higher than that of those students with less experienced teachers.

Summary

This null hypothesis stating that the professional preparation and experience of the teacher does not affect the achievement of foreign language students has been proven true in all four skill areas of listening, speaking, reading, and writing, and should be accepted, at least as far as this research is concerned. However, certain data point out that a combination of factors, such as a combination of the laboratory usage and teacher experience produce salutory results not otherwise obtainable.

It should be mentioned and, indeed, emphasized here, that certain sampling procedures used in the research may have contributed to the variation in results. This is inevitable when research is conducted in a normal school situation efforts are made not to disrupt ordinary school operations, and emphasis is on the maintenance of ordinary school conditions. For example, some students from the first-year group who had an experienced teacher, might have received instruction from a less-experienced teacher during the second year. These students would be classified as having a less-experienced teacher, but in reality, they may have had a better preparation during their first year than some of the sample who are classified as having an experienced teacher this year, but who may not have been as well grounded in the foreign language during their initial year of study. The results from these students would not be as valid as the data from students who

worked under the same level of instructor for both years, but in a typical school situation, it is common for students to have instructors with different levels of competency and experience. It would be safe to assume that this study does closely approximate actual school situations more closely than a completely controlled situation.

In summary, teacher experience does not appear to be a significant factor over a two-year span with regard to student achievement in the language skill areas of listening, speaking, reading, and writing, at least from an examination of the data from the present study.

Discussion and Summary of the Data

Listening

As was noted earlier, the language laboratory was not a significant factor in aural comprehension over the two years of the survey. The laboratory was a significant factor in the favorable results gained at the completion of one year of foreign language study, which might lead to the conclusion that the laboratory is of considerable assistance to students at the beginning of their course of study. It appears that no benefit is gained by extended use of the laboratory when the figures are examined for the whole sample. However, when one examines Table 8, it is apparent that students of all levels of aptitude who have used the language laboratory at least one year show significantly greater achievement than those students who did not use the laboratory. An additional

factor worthy of note is that there is no apparent difference in achievement among the students who were instructed by teachers in the less-experienced category (Table 13). This would seem to indicate the importance of the teacher in the development of aural acuity. To summarize, although there is not sufficient difference in achievement of the student samples to be statistically significant overall, there is a slight difference, apparently favoring the laboratory groups.

Speaking

In speech production, the low and the average aptitude groups who had had laboratory experience indicated achievement which was greater to a statistically significant degree. The high aptitude group showed only negligible differences between the three samples (Table 8).

With regard to the two-year laboratory group, all three aptitude levels indicated that the experience and professional preparation of the teacher is a significant factor in the achievement of the skill of speech production in a foreign language (Table 9).

The non-laboratory group shows no significant difference attributable to teacher education and experience, while the results of the achievement tests of the laboratory (one year) group indicates that the students who had the experienced teachers did not achieve as highly as those students who had a less-experienced teacher. This in part could be a result of the training which the students had received

from their teachers over the two-year period. As was mentioned previously, students listed as having a less-experienced teacher may have had an experienced teacher during their first year, and this would not be reflected in these scores.

Reading

The results from the reading test indicate that there was a significant difference in the achievement of the students over the two-year period which was attributable to the use of the language laboratory (Table 6). Study of Table 8 indicates further that both laboratory groups at the low and average aptitude levels showed achievement scores significantly superior to those of their non-laboratory counterparts. While the achievement of the laboratory (two-year) and non-laboratory in the high aptitude group are about equal, the scores of the laboratory (one-year) group are significantly superior to those of the other two groups in their aptitude level (Table 8).

Since the interaction between the laboratory and the experience and preparation was statistically significant, it would seem necessary to consider achievement from these two aspects, as seen in Tables 9 and 12. From Table 9, it may be learned that the laboratory (two-year) group who had experienced teachers had achievement scores significantly higher than the students who had less-experienced teachers, at both the low and average aptitude levels. Although the high aptitude level students achieved scores which followed

the same trend, the differences were not so great as to be significant statistically.

It is worthy of note that with the experienced teachers, achievement in reading is comparable at the high aptitude level (Table 12) while at the average level, the students who have had an experienced teacher with a laboratory for two years show significantly greater scores than either of the other two groups. This would seem to indicate the importance of the teacher and the laboratory with the student of average ability and aptitude.

Writing

A perusal of Table 9 would show increased achievement scores by the two groups of laboratory students over those of the non-laboratory students at both the average and low aptitude levels, and achievement significantly greater by the laboratory (one-year) group over both the other groups at the high aptitude level.

On the basis of experience and professional preparation of the teachers, in the laboratory (two year) group, the teacher factor was significant with both the average and high aptitude groups. With the laboratory (one year) group, the experience of the teacher produces a negative efffect at all three ability levels. The students who did not use a language laboratory as a part of their program, achieved scores which seemed to reflect negatively, upon this factor with the average group, and positively with the high aptitude.

In short, the results do not indicate a clearcut advantage to students who have had an experienced teacher, with regard to achievement of writing skill.

CHAPTER V

SUMMARY AND CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Summary and Conclusions

This study of language laboratories grew out of questions concerning the relative value and proper use of the language laboratory in contemporary educational strategy, which led to this attempt to determine the relative importance of the teacher and of the electronic classroom in foreign language instruction. Since the foreign language most widely taught in Florida is Spanish, students of that lnaguage in 11 counties and 22 secondary schools, representing a cross-section of the population of the state were chosen as participants in a two-year research project. Of the original 620 students, 240 students, now attending 20 secondary schools, and taught by 29 teachers, completed the two-year course and took the second-year achievement tests. A total of 48 teachers and 29 schools participated over the two-year period.

At the beginning of the 1964-1965 school year, one laboratory and one non-laboratory class were selected from each county. The Modern Language Aptitude Test (MLAT) was administered to each student during the first month of the school year, and the results from this test were correlated

with the scores of that student on the School and College Ability Test (SCAT) and the Metropolitan Achievement Test (MAT) to further validate the assignment of students to appropriate aptitude groups.

In addition to the aptitude pre-test, questionnaires were completed by the students and their teachers. The data received from the students' forms were used to eliminate students who had previous training in Spanish and to assist in categorization of the student population. The teachers' responses, being concerned with their professional preparation and experience as well as methodology and materials used during the survey year, were valuable aids in assigning the classes to specific categories, especially with regard to laboratory or non-laboratory and experienced or less experienced teachers. As reinforcement to the printed data, each class was observed several times to note progress and to observe implementation of the specific progress by the individual teacher.

During the final month of each school year, the Modern Language Association-Educational Testing Service Cooperative Foreign Language Test, Spanish, Level I, Form A and B was administered to each student. This is a four-part test covering the areas of listening, speaking, reading, and writing, and is the only commercially devised comprehensive test of foreign language achievement presently available In addition to the normal reading and writing sections, there

is a taped section which tests the student's listening comprehension, and another taped section to which the student responds orally (in this case, on magnetic tape) which measures the student's speech production. The standardized sections were scored by IBM 1230, the speaking and writing parts being graded by competent auditors and readers as described earlier.

During the first year each student was assigned to one of four aptitude levels, the criterion being the individual's score on the MLAT. As a result of a smaller population in the second year sample, three aptitude levels were used in place of the original four. The achievement scores were analyzed with the previously obtained data, using a linear correlation program, with the results as reported in the previous chapter. Briefly, the findings of the two-year study are as follows:

1. There is no significant difference between the achievement of students who use a language laboratory and those who do not, except with regard to reading skills, where there is a significant difference in the achievement of the laboratory students over the non-laboratory group. The difference in reading was not apparent at the completion of one year of foreign language study, but it is readily perceived over the two-year period.

2. A difference in achievement of aural comprehension, noted at the end of the first year, and clearly in favor of the laboratory group was dissipated at the end of the second year

of foreign language study, and no statistically significant difference between the groups was apparent at the completion of the study.

3. There is no significant difference in the achievement of the laboratory groups with regard to speaking or writing skills compared to the non-laboratory group.

4. The professional preparation and experience of the teacher was a significant factor in listening, speaking, and writing achievement of the combined groups during the first year of foreign language learning. The results at the end of the second year indicate that professional preparation and experience of the teacher are significant when considered concomitantly with the laboratory factor, but not in isolation.

Implications

1. The aptitude group to which an individual belonged seemed to be a significant factor with regard to achievement. This would appear to favor grouping students according to aptitude levels to enhance the possibilities of greatest learning and achievement.

2. The predictive power of the MLAT seemed to gain greater validity over the two-year period. That is, students who did not achieve according to the original prognosis during the first year of study had achievement scores more in line with the MLAT percentile during the second year. A

possible explanation would be that aptitude is more important during the advanced aspects of learning a foreign language than it is during the initial encounter during the first year.

3. Test scores of the laboratory students, and classroom observations indicate that the language laboratory is not being used as effectively as anticipated by its proponents. It is necessary to expand the opportunities for professional growth of language teachers so that they might utilize the laboratory for greater efficiency in foreign language teaching. Many teachers need instruction in the basic operation of the equipment presently being used in their schools.

4. The high rate of attrition indicates a serious flaw or shortcoming in our foreign language program. To complete two years of foreign language study with only 38% of those who began the course, and not perceive any concern on the part of the teachers or administrators would indicate that this is not an exceptional condition. A study should be conducted to determine the deficiencies in the present instructional pattern.

Recommendations

1. Careful consideration should be given to large expenditures on electronic classrooms in proposed school plants, if no greater gains are evidenced than those shown in this research. Greater educational gains might be realized

from modified laboratory systems, or greater availability of tapes and tape recorders for individual teachers, for use in their classrooms.

2. Consideration should be given to adoption of different scheduling of classes in language laboratories. Students tend to "turn off" their ears after 15 to 20 minutes' exposure to the headsets. Half-periods could give twice as many students laboratory experience each day.

3. Instruction could be improved considerably by enriching the preparatory and in-service training of language teachers. Studies should be directed to the discovery of the most effective ways of providing this additional training, and the most suitable agencies to perform this function.

4. An examination of the goals of the foreign language program and of the students should be made. The approach used in teaching the language should be compatible with the aims of the students, i.e., if students want to learn a foreign language so that they may read in that language, instruction should stress reading and writing skills.

APPENDIX A

LIST OF THE TEACHERS, SCHOOLS, AND COUNTIES WHICH PARTICIPATED IN THE RESEARCH PROJECT

Miss Georgina Alvarez	Fletcher Sr. High	Duval
Miss Susan L. Amiesen	Edgewater High	Orange
Mrs. Gladys M. Cannon	Winter Park High	Orange
Miss Louise E. Carter	Edgewater High	Orange
Miss Rachel Clothier	Bay County High	Bay
Mrs. Norma Coto	Winter Park High	Orange
Miss Catherine Cornelius	Glenridge Jr. High	Orange
Miss Susan Counts	Winter Park High	Orange
Mr. Leonard B. Daly	Forrest Sr. High	Duval
Mr. Jack Dayan	Adams Jr. High	Hillsborough
Mrs. Nenita Duncan	Seabreeze Jr. High	Volusia
Mr. Michael Ferger	Merritt Island High	Brevard
Mrs. Betty Gibson	Jupiter High	Palm Beach
Mrs. Gloria Gill	Maitland Jr. High	Orange
Miss Iris Hernandez	Escambia High	Escambia
Mrs. Joan L. Hernandez	Chamberlain High	Hillsborough
Mr. Robert Hobbs	Edgewood Jr. High	Brevard
Mrs. Gloria S. Johnson	Seabreeze Jr. High	Volusia
Mr. Jorge Lopez	Southwest Jr. High	Brevard
Mr. James Lowry	Mainland Sr. High	Volusia

Mrs. Francis MacPike	Escambia High	Escambia
Mrs. Julia McGirt	Rickards High	Leon
Mrs. Gwen S. Montgomery	Seabreeze Jr. High	Volusia
Mrs. Georgiana S. Murphy	Fletcher Sr. High	Duval
Mrs. Barbara Nielsen	Lakeland Sr. High	Polk
Mrs. Margaret D. Nobles	Escambia High	Escambia
Mrs. Angie Noto	Hillsborough High	Hillsborough
Mrs. Bette Page	Forrest Sr. High	Duval
Mr. Leonard Powell	Kathleen Sr. High	Polk
Mrs. Charles Pugh	Lakeland Sr. High	Polk
Mrs. Mary Raines	Memorial Jr. High	Hillsborough
Mrs. Pihlar Rhaney	Lincoln High	Leon
Mrs. Jean M. Rosenberg	Winter Park High	Orange
Mrs. Mary Ruddy	Winter Park High	Orange
Mrs. Marilyn Santiago	Bay Shore Jr. High	Manatee
Mrs. Eleanor Scruggs	Lee Sr. High	Duval
Mrs. Elizabeth Seiffert	Woodham High	Escambia
Miss Martha Terrell	Forrest Sr. High	Duval
Mrs. M. Thiemes	Mainland Sr. High	Volusia
Mr. Marvin Thompson	Palmetto Sr. High	Manatee
Miss Lola R. Todd	Hillsborough High	Hillsborough
Mrs. Roberta Turner	Rickards High	Leon
Miss Lois Underwood	Palm Beach High	Palm Beach
Mrs. Elieen Webster	Tate High	Escambia
Mrs. Barbara Weltman	Manatee High	Manatee
Mr. Charles Winton	Lee High	Duval

Mrs. Frankie Workizer	Lakeland High	Polk
Mrs. Juanita C. Yanes	Chamberlain High	Hillsborough

APPENDIX B
1964-1965

RANK ORDER OF TEACHERS BASED ON SIX SELECTED FACTORS

Teachers	Years[a] Exp.	Native[b] Speaker	F. L.[c] Degree	NDEA[d] Institute	Courses[e] Taken	Levels[f] Taught
H*	+	5	5	2	+	5
V	+	0	5	4	+	5
J*	+	5	0	4	+	4
K*	+	0	5	2	+	4
I	+	0	5	2	+	5
B	-	0	5	4	+	4
O*	+	0	5	0	+	3
T*	+	0	5	2	+	4
D	-	0	5	2	+	3
G*	-	0	5	2	+	2
A*	-	5	0	2	+	4
L*	-	0	5	2	+	4
M*	-	0	5	2	+	2
[illegible]	+	0	0	2	+	4
P*	+	0	5	0	-	4
F	+	0	0	2	+	5
N	+	0	0	2	+	5
E	-	0	5	0	+	3

S	-	0	0	0	+	5
Q*	-	0	5	0	+	2
U	-	0	0	0	-	4
C	-	0	0	2	+	2

[a]Years experience - one to 2 years "-"; three to five years "+".

[b]Persons who were native speakers were given a "5" and the others "0".

[c]A foreign language degree rated "5"; other degrees, "0".

[d]Teachers were awarded two points for each institute attended.

[e]Teachers were awarded a "+" for 24 hours of course work in foreign languages; a "-" for less than 24 hours.

[f]Teachers were awarded two points for each level of a formal course taught, and one for each conversational course.

*Laboratory

APPENDIX B
1965-1966

RANK ORDER OF TEACHERS BASED ON SIX SELECTED FACTORS

Teachers	Years[a] Exp.	Native[b] Speaker	F. L.[c] Degree	NDEA[d] Institute	Courses[e] Taken	Levels[f] Taught
A*	+	0	5	2	+	6
B*	+	5	5	0	+	4
C*	-	0	5	0	+	4
D	-	0	5	0	+	8
E*	-	5	5	2	+	4
F*	+	0	0	2	+	4
G*	+	5	5	0	+	6
H*	+	5	5	2	+	6
I*	+	0	5	0	+	4
J	+	0	5	2	+	8
K*	+	0	5	0	+	4
L*	-	5	0	0	-	4
M*	-	0	5	0	+	6
N*	-	0	5	0	+	4
O*	-	0	0	0	+	4
P*	+	0	5	0	+	2
Q	+	0	5	2	+	6
R*	+	0	5	2	-	6

S*	-	0	5	0	-	4
T	-	0	0	2	+	6
U	-	0	5	0	-	4
V*	-	0	5	2	+	4

[a]Years experience - one to two years "-"' three to five years "+".

[b]Persons who were native speakers were given a "5" and the others "0".

[c]A foreign language degree rated "5"' other degrees, "0".

[d]Teachers were awarded two points for attending institutes.

[e]Teachers were awarded a "+" for 24 hours of course work in foreign languages; a "-" for less than 24 hours.

[f]Teachers were awarded two points for each level of a formal course taught, and one for each conversational course.

* Laboratory

APPENDIX C

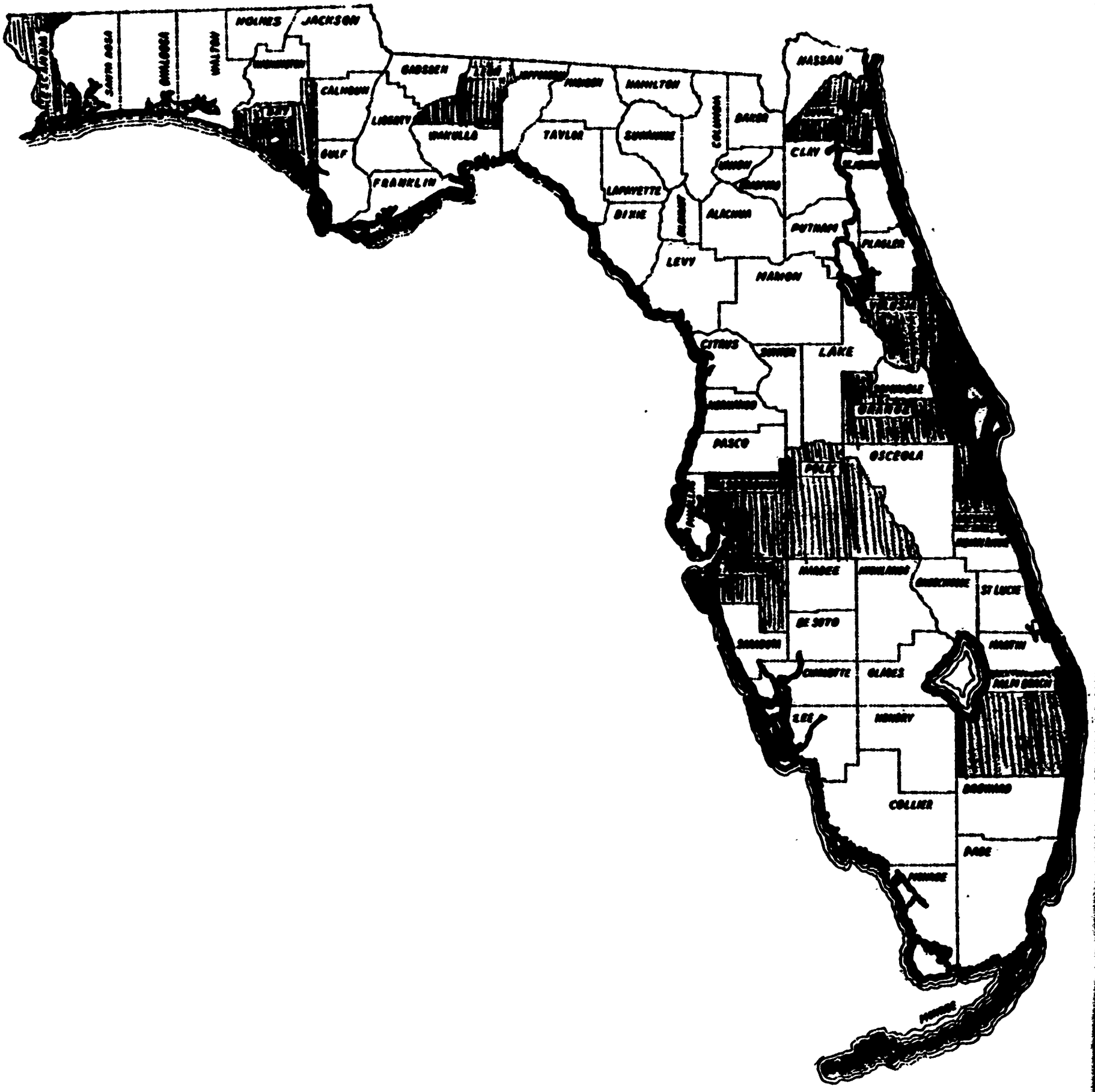
ANALYSIS OF COUNTIES SELECTED FOR THE STUDY

County	Population 1963	Median Family Income	Per Capita Income	Percentage of White Collar Workers	Median Adult Education
Bay	68,700 (17)[a]	$4413 (20)	$1657 (25)	43.6 (12)	11.1 (11)
Brevard	150,800 (10)	$6123 (1)	$2350 (5)	50.4 (2)	12.1 (1)
Duval	503,700 (2)	$5345 (3)	$2377 (3)	45.4 (8)	10.8 (16)
Escambia	191,400 (9)	$5174 (5)	$1875 (16)	40.1 (18)	10.7 (19)
Hillsborough	429,800 (3)	$4616 (15)	$1965 (14)	39.9 (19)	10.1 (27)
Leon	82,600 (14)	$5173 (6)	$1746 (19)	53.3 (1)	11.9 (3)
Manatee	76,700 (15)	$3814 (34)	$1439 (38)	39.6 (20)	10.2 (24)
Orange	297,000 (6)	$5222 (4)	$2436 (6)	45.4 (8)	11.8 (5)
Palm Beach	271,400 (7)	$4784 (10)	$2244 (7)	38.6 (21)	11.3 (10)
Polk	212,300 (8)	$4476 (16)	$2131 (9)	34.9 (34)	9.7 (29)
Volusia	141,900 (11)	$4114 (29)	$1739 (20)	44.4 (11)	11.5 (7)
State Mean Av.	84,177	$4722	$1990	42.5	10.9
Sample Mean Av.	220,573	4841	1996	43.2	11.0

[a]Figure in parentheses lists rank of the county in the state for each category.

APPENDIX D

MAP OF FLORIDA SHOWING COUNTIES PARTICIPATING IN THE STUDY


HOLMES
JACKSON
CALHOUN
GADSDEN
LIBERTY
GULF
FRANKLIN
TAYLOR
HAMILTON
SUWANNEE
COLUMBIA
BAKER
NASSAU
CLAY
PUTNAM
FLAGLER
LAFAYETTE
DIXIE
ALACHUA
LEVY
MARION
CITRUS
LAKE
PASCO
OSCEOLA
POLK
HARDEE
DE SOTO
CHARLOTTE
GLADES
LEE
HENDRY
COLLIER
DADE
ST LUCIE

APPENDIX E

MISCELLANEOUS TABLES

TABLE 14

MODEL OF THE STUDY LISTING THE MEAN APTITUDE AND NUMBER OF SUBJECTS IN EACH CELL

	Laboratory (88) Two Years		Laboratory (72) One Year		Non (80) Laboratory	
	Experienced		Experienced		Experienced	
	More	Less	More	Less	More	Less
APTITUDE						
Low						
MLAT	55.778	69.5	71.00	76.909	-	56.4
Number	9	2	5	11	0	10
Average						
MLAT	96.875	91.16	101.125	104.526	90.273	94.697
Number	40	25	24	19	11	43
High						
MLAT	134.22	128.33	134.5	138.182	130.5	130.5
Number	9	3	2	11	10	6

TABLE 15

ANALYSIS OF VARIANCE UTILIZING SCORES ON MLS-ETS TEST FOR AURAL COMPREHENSION OF STUDENTS

1964-1965

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Tests
Laboratory	319.549	1	319.549	11.727**
Teacher Experience	149.289	1	149.289	5.478*
Aptitude Group	742.222	3	247.407	9.079**
Lab x Experience	1.283	1	1.283	.047
Lab x Group	123.108	3	41.036	1.506
Experience x Group	49.590	3	16.530	.607
Lab x Experience x Group	11.817	3	3.939	.145
Error within Treatments	13842.897	509	27.196	
Total	15239.755	524		

* Significant at .05.

** Significant at .01.

TABLE 16

ANALYSIS OF VARIANCE UTILIZING SCORES ON MLA-ETS TEST FOR SPEECH PRODUCTION OF STUDENTS

1964-1965

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Tests
Laboratory	23.488	1	23.488	.144
Teacher Experience	1130.395	1	1130.395	6.934**
Aptitude Group	8957.861	3	2985.956	18.316**
Lab x Experience	10.453	1	10.453	.064
Lab x Group	669.391	3	223.130	1.369
Experience x Group	426.008	3	142.002	.871
Lab x Experience x Group	331.469	3	110.489	.678
Error within Treatments	82817.746	509	162.707	
Total	94366.811	524		

** Significant at .01.

TABLE 17

ANALYSIS OF VARIANCE UTILIZING SCORES ON MLA-ETS TEST FOR READING ACHIEVEMENT OF STUDENTS

1964-1965

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Tests
Laboratory	53.733	1	53.733	2.259
Teacher Experience	63.308	1	63.308	2.261
Aptitude Group	655.792	3	218.587	9.192**
Lab x Experience	17.819	1	17.819	.749
Lab x Group	96.155	3	32.052	1.347
Experience x Group	55.757	3	18.586	.781
Lab x Experience x Group	39.676	3	13.225	.556
Error within Treatments	12084.782	509	23.742	
Total	13067.022	524		

** Significant at .01.

TABLE 18

ANALYSIS OF VARIANCE UTILIZING SCORES ON MLS-ETS TEST FOR WRITING ACHIEVEMENT OF STUDENTS

1964-1965

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F Tests
Laboratory	218.277	1	218.277	.839
Teacher Experience	6400.308	1	6400.308	24.591**
Aptitude Group	43286.305	3	14428.768	55.438***
Lab x Experience	1866.664	1	1866.664	7.172**
Lab x Group	1240.377	3	413.449	1.589
Experience x Group	713.039	3	237.679	.913
Lab x Experience x Group	588.597	3	196.199	.754
Error within Treatments	132215.340	509	259.755	
Total	186528.887	524		

** Significant at .01.

*** Significant at .001.

TABLE 19

MEANS AND DIFFERENCES BETWEEN MEANS
LABORATORY AND NON-LABORATORY

1964-1965

Test and Aptitude Level	Laboratory	Non-Laboratory	t score
Listening			
Low	12.937 (40)	12.529 (34)	.357
Low-Average	14.788 (99)	11.908 (96)	2.796**
High-Average	16.012 (84)	13.556 (81)	2.274*
High	18.518 (27)	15.351 (57)	2.554*
Speaking			
Low	18.272 (33)	19.837 (33)	.855
Low-Average	23.201 (77)	22.027 (93)	.703
High-Average	29.282 (78)	29.282 (80)	.000
High	35.321 (24)	30.371 (53)	2.619*
Reading			
Low	14.438 (41)	12.088 (34)	1.621
Low-Average	14.070 (99)	12.902 (96)	.374
High-Average	14.551 (83)	14.215 (80)	.329
High	17.148 (27)	16.912 (57)	.176
Writing			
Low	14.683 (31)	11.353 (34)	1.809
Low-Average	20.556 (99)	17.445 (96)	1.897
High-Average	27.998 (83)	29.432 (81)	.710
High	44.556 (27)	46.850 (57)	.896

* Significant at .05.

** Significant at .01.

APPENDIX F

EVALUATOR'S CHECKLIST OF FOREIGN LANGUAGE CLASSES

Teacher_____ School_____ Date_____

Time_____ Number of Pupils_____ Language & Level_____

		1	2	3	4	5
Scene:	Pupils in semi-circles					
	Pupils in rows					
	Lighting					
	Ventilation					
	Chalkboards (clean, etc.)					
	Bulletin boards (up to date)					
	General order of room					
Pupils:	Orderly					
	Posture					
	Desks clear					
	Books at 45° angle when reading					
	Attentive					
	Motivated					
	Participating					
	Speaking clearly					
	Using the target language					
Teacher:	Poise					
	No aimless movement					
	Tempo					
	Avoidance of English					
	Audio-lingual techniques					
	Teaching - not testing					
	Chorus drill - short utterances					
	Individual repetition					
	Modeling					
	No repetition of errors					
	Phonetic demonstration					
	Phonetic explanation					
	Free use of original substitution					

Structural patterns to illustrate grammar _____

Absence of grammar explanation (English) _____

Absence of translation _____

Devices used:

Audio aids _____

Visual aids _____

Songs _____

Games _____

Dialogues _____

Skits _____

Dictation _____

Pupils taking part as teacher _____

Short speeches _____

Cultural reports _____

The items listed are to be scored on a 1 to 5 basis. (5 highest).

Additional remarks:

BIBLIOGRAPHY

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Books

Brooks, Nelson. Language and Language Learning - Theory and Practice. Rev. ed. New York: Harcourt, Brace and World, 1964.

Butts, H. Freeman. A Cultural History of Western Education. New York: McGraw-Hill, 1955.

Childers, J. Wesley. Foreign Language Teaching. New York: Center for Applied Research in Education, 1964.

Coleman, Algernon. The Teaching of Modern Foreign Languages in the United States. New York: Macmillan Co., 1929.

Conant, James B. The American High School Today. New York: McGraw-Hill, 1959.

Dickson, Paul. Articulated Language Learning. Rev. ed. Tallahassee: Florida State University Press, 1964.

Finocchiaro, Mary. Teaching Children Foreign Languages. New York: McGraw-Hill, 1964.

Fisher, Ronald A., and Yates, Frank. Statistical Tables for Biological, Agricultural, and Medical Research. New York: Hofner, 1957.

Fraser, Dorothy. Current Curriculum Studies in Academic Subjects. Washington, D. C.: National Education Association, 1962.

Gage, M. L. (ed.) Handbook of Research on Teaching. Chicago: Rand-McNally, 1963.

Guilford, J. P. Fundamental Statistics in Psychology and Education. 3rd ed. New York: McGraw-Hill, 1956.

Harvard Committee. General Education in a Free Society. Cambridge, Massachusetts: Harvard University Press 1946.

Holton, James S., et al. Sound Language Teaching. New York: University Publishers, 1961.

Keating, Raymond F. Study of the Effectiveness of Language Laboratories. New York: Institute of Administrative Research, 1963.

Kone, Elliott, (ed.) Language Laboratories: Modern Techniques in Teaching Foreign Languages. New Haven: Connecticut Audio-Visual Association, 1960.

Lado, Robert. Language Teaching. New York: McGraw-Hill, 1964.

Mathew, Robert J. Language and Area Studies in the Armed Services. Washington, D. C.: American Council on Education, 1947.

Meras, Edmond A. Language Teacher's Guide. New York: Harper and Row, 1954.

Modern Language Association. Report of the Committee of Twelve of the Modern Language Association of America. New York: Heath and Co., 1901.

O'Connor, Patricia. Modern Foreign Languages in the High School. Washington, D. C.: Office of Education, 1960.

Parker, William R. The National Interest and Foreign Languages. Rev. ed. Washington, D. C.: Government Printing Office, 1962.

Rickover, Hyman. Education and Freedom. New York: Dutton, 1959.

Saveur, Lambert. Introduction to the Teaching of Living Languages without Grammar or a Dictionary. Boston: Schonof and Moller, 1875.

Scherer, George A., and Wertheimer, Michael. A Psycholinguistic Experiment in Foreign Language Teaching. New York: McGraw-Hill, 1964.

Stack, Edward M. The Language Laboratory and Modern Language Teaching. New York: Oxford University Press, 1960.

Periodicals

Allen, Edward D. "The Language Laboratory in Learning Foreign Languages," Theory into Practice. Vol. I (February, 1962), pp. 20-24.

_____. "Effects of the Language Laboratory on the Development of Skill in a Foreign Language," Modern Language Journal, Vol. 44 (December, 1960), pp. 355-358.

Anderson, Eugene W. "The Keating Report: A symposium, Review, and Criticism," Modern Language Journal, Vol. 48 (April, 1964), pp. 189-210.

Barrick, M. "Variety and Language Laboratory Success," Modern Language Journal, Vol. 45 (December, 1961), pp. 361-365.

Bernard, E. G. "Evaluating Uses of Language Laboratories," Education, Vol. 85 (March, 1965), pp. 396-398.

Boehn, Leonore. "Age and Foreign Language Teaching," Modern Language Journal, Vol. 43 (January, 1959), pp. 32-33.

Brine, J. R., and Johnson, I. R. "Developments in Language Laboratory Materials," English Language Teaching, Vol. 20 (October, 1965), pp. 29-32.

Cables, Virginia. "Language Laboratory, Boon or Bane?" French Review, Vol. 39 (February, 1966), pp. 618-621.

Cassidy, Helene. "The New Audio-Visual Student." Modern Language Journal, Vol. 50 (January, 1966), pp. 15-21.

Charest, G. "Language Laboratory and the Human Element in Language Teaching," Modern Language Journal, Vol. 46 (October, 1962), p. 268.

Chiofarri, V. "What Can We Expect from the Language Laboratory?" Modern Language Journal, Vol. 45 (January, 1961), pp. 3-9.

Crane, L. D. "Language Laboratories Overemphasized?" Audio-Visual Instruction, Vol. 7 (January, 1962), p. 55.

Green, John A. "On Improvement in Teaching the Oral Skills," French Review, Vol. 39 (February, 1966), p. 748.

Grittner, Frank, "Language Laboratory - Gadget or Godsend?" Wisconsin Journal of Education, Vol. 95 (May, 1963), pp. 15-16.

Guiliano, S. "Aural-Oral Proficiency without a Language Laboratory," Modern Language Journal, Vol. 45 (April, 1961), pp. 171-173.

Hayes, Alfred, "What Is the Language Laboratory?" Saturday Review, Vol. 46 (February 16, 1963), pp. 70-71.

_____. "Procedures for Language Laboratory Planning," NASSP Bulletin, Vol. 46 (March, 1962), pp. 123-135.

Hocking, Elton, "Language Learning Today," Audio-Visual Instruction, Vol. 4, No. 6 (September, 1959), p. 197.

Hocking, Elton, and Blickenstaff, Charles. "Teacher Preparation for the Language Laboratory," Education, Vol. 85 (March, 1965), pp. 391-395.

Hutchinson, Joseph C. "Language Laboratory: How Effecticw Is It?" School Life, Vol. 46 (January, 1964), pp. 14-17.

Isaacson, W. D. "Library Use of the Language Laboratory," High Points, Vol. 46 (April, 1964), pp. 13-19.

Johnston, Marjorie C. "Foreign Language Instruction," Review of Educational Research, Vol. 31 (April, 1961), pp. 188-196.

Kangas, R. D. "Factors Relating to Success in Seventh Grade Foreign Language Study," Modern Language Journal, Vol. 49 (February, 1965), pp. 97-98.

King, P. E. "Man and Machines in Language Teaching," Teachers' College Record, Vol. 65 (February, 1964), pp. 430-435.

Kirch, Max S. "Role of the Language Laboratory," Modern Language Journal, Vol. 47 (October, 1963), pp. 256-260.

Kreiman, R. "Laboratory Learning: Methods and Machines," Educatica, Vol. 85 (March, 1965), pp. 399-400.

Logan, S. "Observations abou+ High School Laboratories," German Quarterly, Vol. 35 (May, 1962). pp. 309-317.

Lorge, Sarah. "Language Laboratory in Secondary Schools," A-V Learning (Board of Education of the City of New York), Vol. 8 (October-November, 1963), pp. 1-4.

_____. "Language Laboratory Research Studies in New York City High Schools: A Discussion of the Program and Its Findings," Modern Language Journal, Vol. 48 (November, 1964), pp. 409-419.

Mathieu, Gustav. "Language Laboratories," Review of Educational Research, Vol. 32 (April, 1962), pp. 168-174.

Maynes, J. C. "Experiment to Guage the Effectiveness of the Audio-Lingual Method and the Language Laboratory," Hispania, Vol. 45 (May, 1962), pp. 377-382.

Micarelli, Carl. "Individuality in Language Teaching," Language Quarterly, Vol. 1, No. 1 (Fall, 1962), pp. 1-5.

Modern Language Association. "Foreign Language Program Po'icy," Publications of the Modern Language Association, Vol. 71, Part 2 (September, 1956), p. 13.

"Modern Foreign Language in the Comprehensive High School," NASSP Bulletin, Vol. 43 (September, 1959), p. 197.

Moore, Patricia. "Language Laboratory Experiment in a Junior High School," Modern Language Journal, Vol. 46 (October, 1962), pp. 269-271.

Pimsleur, Paul. "Functions of the Language Laboratory," Modern Language Journal, Vol. 43 (January, 1959), pp. 11-15.

Reindorp, H. A. "Role of the Language Laboratory in the Foreign Language Program," Hispania, Vol. 45 (December, 1962), pp. 829-836.

Rivers, Wilze. "Listening Comprehension," Modern Language Journal, Vol. 50 (April, 1966), pp. 196-204.

Sawyer, J. " Innovations in Foreign Language Instruction," Review of Educational Research, Vol. 34 (April, 1964), pp. 203-210.

Starr, Wilmarth, "Teaching of Foreign Languages: Current Issues and the Future," School Life, Vol. 46 (November, 1963), pp. 7-10.

Tous, A. "Nature and Philosophy of the Language Laboratory Method," National Catholic Education Association Bulletin, Vol. 58 (August, 1961), pp. 269-273.

Valdman, A. "Toward a Redefinition of Teacher Role and Teaching Context in Foreign Language Instruction," Modern Language Journal, Vol. 48 (May, 1964), pp. 275-284.

Wood, N. "Direct Method in a Foreign Language Class in a Junior High School," Modern Language Journal, Vol. 45 (February, 1961), pp. 71-74.

Zellner, Max. "Bewildered Modern Language Teacher," Modern Language Teacher, Vol. 47 (October, 1963), pp. 245-253.

Dissertations

Anonuevo, Felicia B. "Special Teacher versus Multi-Sensory Materials in Second Language Teaching on the Elementary School Level," Unpublished dissertation, Pennsylvania State University, 1963.

Barcelona, Hermina M. "Competencies Needed by Secondary School Teachers Who Use the Laboratory in Teaching Foreign Languages," Unpublished dissertation, University of Indiana, 1964.

Leamon, Max Philip. "Quality Foreign Language Programs in the Secondary Schools," Unpublished dissertation, University of Indiana, 1962.

Sorenson, Catherine Hennessey. "Functions of the Foreign Language Laboratory in the Junior Colleges of Florida," Unpublished dissertation, University of Florida, 1964.

White, Wayne Hugh. "A comparison of Two Methods of Teaching Beginning Spanish in the Junior High School." Unpublished dissertation, University of Arkansas, 1963.

Tests

Carroll, John, and Sapon, Stanley. The Modern Language Aptitude Test. New York: The Psychological Corporation, 1959.

The Metropolitan Achievement Test. Tarrytown, New York: Harcourt, Brace, and World, Inc., 1959.

The Modern Language Association Cooperative Foreign Language Tests. Princeton, N. J.: The Educational Testing Service, Cooperative Test Division, 1964.

The School and College Ability Test. Princeton, N. J.: Educational Testing Service, 1955.