THE RELATIONSHIP BETWEEN ETHNIC DENSITY AND THE ACQUISITION OF ENGLISH INFLECTIONS IN ITALIAN SPEAKING KINDERGARTEN CHILDREN

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CURRICULUM STUDIORUM

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TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Oral language is important to the development of an individual both as a means of communication with other individuals and the establishment of relationships in regard to the world around him, and because of its intimate connection with thought. [1] McCarthy states: "The earlier a child can acquire facility in linguistic expression, the sooner he is free to reap the benefits of the use of this valuable tool in all his social and intellectual pursuits." [2] Mackintosh states that "Articulate communication is essential not only for adequate participation in society but also for self fulfillment." [3]

Oral language is also the foundation on which formal learning is built, through the educational system. Proficiency in oral language - listening and speaking - is necessary before benefit can be derived from the secondary language systems - reading and writing. Mackintosh says that:

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1 Dorothea McCarthy, "Language Development in Children", in Manual of Child Psychology, Leonard Carmichael, Ed., 2nd Ed., New York, N.Y., John Wiley and Sons, Inc., 1954, p. 492-493.

2 Ibid, p. 493.

3 Helen V. Mackintosh, Ed., Children and Oral Language, Association for Childhood Education International, Association for Supervision and Curriculum Development, International Reading Association, National Council of Teachers of English, 1964, p. 1.

INTRODUCTION

"Of the four English language arts, listening and speaking are the most frequently used means of communication",[4] since the usual social and cultural exchange of ideas and practices is by means of face to face contact: and further, that oral language development is the basis for achievement in other areas of learning.[6] McCarthy states "that a certain basic level of attainment in linguistic skills is practically an essential prerequisite to the child's formal education."[7]

Complications arise when an individual is expected to use a language and to benefit from instruction in it, but has little or no knowledge of the language in use. Such a situation pertains when a child speaks one language at home but is required to learn a second language for instructional purposes at school.

This study was designed to investigate the acquisition of English grammatical inflections by young Kindergarten children learning English as a second language, in classes where varying numbers of their classmates were also learning English. The Auditory-Vocal Automatic

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4 Ibid.

5 Ibid.

6 Ibid, p. 15.

7 McCarthy, Op. Cit., p. 493.

subtest of the Illinois Test of Psycholinguistic Abilities was used to measure the children's acquisition, to see what relation, if any, density of numbers had on the rate at which English grammatical inflections were acquired.

Chapter One presents the theoretical considerations on second language learning pertinent to the study, and the experimental background: the acquisition of language in children and influences on its development; the learning of morphology, from a psycholinguistic approach; and the acquisition of a second language. The hypotheses to be tested are also presented. In Chapter Two, the experimental design, as well as the theory and construction of the test instrument are described and evaluated. Finally, the experimental results and their significance are presented in Chapter Three, along with suggestions for research.

CHAPTER I

REVIEW OF THE LITERATURE

This first chapter discusses some of the considerations that led to a study of the writer's problem. The nature of the problem is presented, followed by a statement of the present study. In reviewing the literature, three areas pertinent to the study are considered. Finally the summary and general hypotheses are presented.

1. Nature of the Problem

Agreement is general that children have learned the fundamental grammatical features of their native language by the age of four years.[1,2] It is not known whether the acquisition of English as a second language follows the same path as the acquisition of English by native English speaking children or whether it follows a somewhat different path. Nor is it known what length of time is required for a child to gain proficiency in a second language equal to that of his first language. May, discussing parental language habits, queries if children who are expected to learn

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1 Susan M. Ervin and Wick R. Miller, "Language Development", Chp. 3, in Child Psychology, Sixty-Second Yearbook, Part I, National Society for the Study of Education, 1963, p. 116, 125.

2 David McNeill, "The Capacity for Language Acquisition", in The Volta Review, Vol. 68, 1966, p. 22.

two languages assimilate both as rapidly as those who assimilate only one. From his survey of the literature, he concludes that a bilingual child tends to have a language handicap during the elementary school years.[3]

For children learning English as a second language, the kindergarten programme which stresses the development of oral language directly, and indirectly through its varied activity programme, should make a considerable contribution to a child's mastery of the language. However, a child may be in a classroom where a few, a considerable number, or a great many of his classmates are also learning English as a second language. All kindergarten programmes provide similar types of activities to stimulate the development of oral language, but the amount of English heard and the adequacy of the language models available in terms of the opportunities for practice in both listening and speaking, as well as the possibilities for correction, undoubtedly varies considerably from class to class, depending on the number of classmates who speak the same language as the child does. Although these children have had

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3 Frank B. May, "The Effects of Environment on Oral Language Development: I ", in Elementary English, Vol. 43, 1966, p. 595.

a common background of experience in terms of a structured, though informal, programme, it seems unlikely that they have had a common experience in terms of the opportunities for practice in the establishment of oral language patterns. It is probable that the rate of acquisition of oral language patterns will show a relationship to the number of children in the class who are also in the process of establishing new oral language patterns.

In the present study, it is hypothesized that children with a common background of school experience in regard to attendance, but differing with respect to the composition of their kindergarten classes in terms of the ethnic density of Italian language speakers, will make different scores on a test of inflectional knowledge. For this study, "ethnic density" is defined operationally as the percentage of children in each kindergarten class distinguished by the fact of speaking a particular language. In this case it is Italian. The definition is derived from Webster's New World Dictionary [4] definitions of "density" and "ethnic". Hence, the term could be applied to the study of any other language or cultural group if so desired.

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4 Webster's New World Dictionary, College Edition , Toronto, Nelson, Foster and Scott Ltd., 1962.

The Auditory-Vocal Automatic Subtest of the Illinois Test of Psycholinguistic Abilities (to be described in Chapter II) is the instrument used. The subtest is a measure of grammatical language learning and development, and samples the inflectional development of linguistically normal English speaking children.

In studies of the psycholinguistic type of date, no significant differences between the responses of boys and girls have been found. However, since this variable is commonly used in child development studies, it will also be used in the present study. It is further hypothesized that there will be no significant differences in scores between girls and boys on a test of inflectional knowledge.

2. The Acquisition of Native Language in Children, and the Influence of Adults and Peers on its Development.

In discussing the acquisition of language, Noell [5] concludes that parental language models are the important factor in the quality of children's language usage.

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5 Doris I. Noell, "A Comparative Study of the Relationship Between the Quality of the Child's Language Usage and the Quality and Types of Language Used in the Home", in the Journal of Educational Research, Vol. 47, 1953, p. 161 167.

However, for many children in the present study, parental models are not available in the second language, English, since many of the parents do not even speak the second language. If they do so, they frequently speak incorrectly, thus presenting incorrect models. Moreover, the first language is generally maintained as the language used at home. Therefore, the models for the second language come largely from the school-teacher and peers.

Strickland says that "Children in the early grades frequently copy the teacher quite unconsciously", [6] and that "Young children appear to be influenced by the teacher's own language far more than are older children." [7] She quotes Gesell as saying, "Five-and-six-year-olds usually like their teacher very much", [8] (but this writer was unable to find such a statement in the referenee cited). "They want to please her and often call attention to their efforts in order to gain her approval. They also imitate quite unconsciously as their ears become attuned to the teacher's speech." [9]

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6 Ruth G. Strickland, "Factors That Influence Language Growth: School Influences", in Elementary English, Vol. 29, 1952, p. 474-475.

7 Ibid, p. 476.

8 Ibid.

9 Ibid.

Strickland discusses several factors concerning the extent and the means of the teacher's influence on the children through her speech and language. She says that if the school language is different from the one used at home, a child "finds it very difficult to feel relaxed, secure and happy in his new school environment." [10]

May, after surveying pertinent research, concludes "that oral language proficiency increases directly with the quantity of communication with adults", [11] although he points out that not all research findings are consistent. [12] He further considers "that the quantity of adult contacts is probably a major factor in oral language development", [13] and "that the quality of adult contacts is also important". [14] These conclusions were based on studies made in relation to the child's family situation.

With regard to the school environment, May says that the effect of teachers' speaking habits on children's oral language can only be

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10 Ibid, p. 474.

11 May, Op. Cit., p. 589.

12. Ibid.

13 Ibid.

14 Ibid.

be speculative because there is little research on the subject. [15] The extent to which children learn basic oral language patterns merely from listening to the teacher's normal speech remains to be investigated. [16] Based on the research studies he surveyed, he concludes that the teacher's leadership pattern may have a much greater impact on oral language growth than his or her speaking habits, [17] and that certain types of teacher leadership encourage more practice in oral communication, [18] but he says that specific research is needed to determine whether this practice leads to greater oral language facility. [19]

Strickland states that through play with age peers, both boys and girls learn to engage in a greater amount of true verbal interaction. [20]

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15 Frank B. May, "The Effects of Environment on Oral Language Development: II", in Elementary English, Vol. 43, 1966, p. 720.

16 Ibid,

17 Ibid.

18 Ibid., p. 721.

19 Ibid.

20 Strickland, Op. Cit., p. 476.

She further states that oral language abilities grow more rapidly in the guided group situations provided at school than in the unsupervised neighbourhood play or at home with people of varying ages and relationships, [21] citing two research studies.

3. The Learning of Morphology

This section reviews the studies pertinent to the psycholinguistic behaviour to be considered in this study.

Sievers [22] (1955) attempted to devise a series of tests to measure the various aspects of language development derived from a psycholinguistic analysis of the language process and to obtain normative data on the scale with average preschool children between ages two and six. [23] One test, Vocal 'Cloze', is an attempt to tap all the speech

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21 Ibid.

22 Dorothy Jean Sievers, "Development and Standardization of a Test of Psycholinguistic Growth in Preschool Children", Ph. D. Thesis, University of Illinois, Urbana, Illinois, 1955; published in the Doctoral Dissertation Series, Publication No: 15,271, University Microfilms, Ann Arbor, Michigan, 1963, viii - 124 p.

23 Ibid, p. 22, 91.

facilities and is a preliminary version of the instrument used in this study. Children were given sentences with words missing, e. g., "Mother _____ a dress", and asked to supply the missing word, such as "had", "saw", and "tore". Each response was scored in terms of the correctness of the grammatical form and meaning content for the sentence. [24] The eight sentences were split in two halves, (alternate items), and administered on two successive days. [25] None of the differences between the means of the sexes was significant on either the grammar or meaning score. [26] The curves of meaning and grammar scores ascended linearly until the 4/0 - 4/5 age level, correlations between both meaning and grammar and chronological age was .76 . The two year group did not score and the ceiling was not reached. The author considered the split-half reliabilities of this test to be good, with coefficients of .72 on grammar and .82 on meaning, [27] using Guttman's modification of the Spearman-Brown formula to determine the coefficients. [28]

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24 Ibid, p. 27, 28.

25 Ibid, p. 90.

26 Ibid, p. 45.

27 Ibid, p. 72.

28 Ibid, p. 28.

Berko [29] (1958) devised a test to explore young children's ability to apply morphological rules to new words, using pictures, labelled with nonsense words in sentence frames, following the rules for possible sound combinations in English. Inflection of words was the area of investigation of interest to this study. Children aged four to seven years, enrolled in a pre-school programme and in first grade, were the subjects. Adult college graduates, tested on the same materials were used as the standard of correctness. The categories chosen were: the plural; the two noun possessives; the third person singular present tense; the progressive; the past tense; the comparative and superlative of adjectives; the diminutive-affectionate "-y"; the adjectival "-y"; and the agentive "-er".

Results indicated that the children gave consistent and orderly answers and that they operated with clearly delimited morphological rules. No difference between boys and girls was significant. Some differences were found between pre-schoolers and first graders, with the latter doing significantly better on slightly less than half of the

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29 Jean Berko, "The Child's Learning of English Morphology", in Word, Vol. 14, 1958, p. 150-177.

inflectional items, mainly those on which the group as a whole did best and worst on: otherwise, improvement indicated perfecting knowledge already available. Answers of the two groups were not qualitatively different, as both groups used the same simplified morphological rules.

The children's performance was over-regularized from the standard of adult language. New words were modelled on the most frequent pattern. Their best performance with inflectional endings was for the most regular forms having the fewest variants. For morphemes having several allomorphs, children could handle the most common long before they could deal with allomorphs appearing in a limited distribution range.

This study was the first one of its type published, and its influence on the construction of the Auditory-Vocal Automatic subtest (the test instrument) is apparent.

Kernan and Blount [30] (1966), following Berko's technique, tested Spanish speaking Mexican children for the internalization of Spanish grammatical rules. As with Berko's study, nonsense words were presented orally in sentences, and a picture accompanied each word. The

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30 Keith T. Kernan and B. G. Blount, "The Acquisition of Spanish Grammar by Mexican Children", in Anthropological Linguistics, Vol. 8, 1966, p. 1-14.

categories chosen for testing were either representational of Spanish grammar or corresponded directly to those chosen by Berko in her study of English speaking American children. The areas tested were: plural formation; formation of diminutives; formation of the third person future; preterite (past); imperfect and present perfect tenses from the third person present tense; formation of the agentive - active, occupational and place of business; formation of singular and plural possessives.

Subjects aged five to twelve years were tested, the greater age range being chosen to see more clearly any developmental trends that might exist. Eighteen adults, of the same lower socio-economic class as the children, were tested to provide the standard of correctness. The test was administered by a native Spanish speaking elementary school teacher.

There was no significant difference between boys and girls in the acquisition of these rules in any of the grammatical categories for any of the age groups (5-7, 8-10, 11 and 12), a finding consonant with Berko's. It seems that "In both Mexican Spanish and American English, boys and girls internalize grammatical rules at about the same age." [31] The answers of the boys and girls were then combined, to look for differences

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31 Ibid , p. 7.

between age groups. By age twelve, the children seemed to have a command of most of the grammatical rules of the language, and the process of internalizing them was well underway in five-to-seven year-old children. It continued at a significant rate between ages five and twelve, so that by the age of eleven or twelve, the children did significantly better in seven of the ten categories tested. There was a steady progression of correct answers from younger to older children.

This study appears to be the first research type study done in a language other than English, but employing some of the techniques used in English language studies and allowing for some cross-cultural and language comparison. It is also valuable for the fact that it uses a different socio-economic and cultural group from the middle class group studied by Berko. [32] The group studied by Sievers was perhaps more representative, but socio-economic differences were not a major focus of the study.

4. Acquisition of a Second Language

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32 Berko, Op. Cit., p. 153; also Roger Brown and Jean Berko, "Word Association and the Acquisition of Grammar", in Child Development, Vol. 31, 1960, p. 5.

At the time of this writer's investigation (1966 - 67), no experimental studies of the psycholinguistic type (reviewed in section 3), investigating the acquisition of a second language in terms of that language's norm for native speakers, could be found. Nor did there appear to be any linguistic studies investigating the factors involved in young children's learning of a second language. A survey by Métraux and a case study by Valette appeared to be the only relevant literature available. However, a long term study was begun in the same year as the writer's study, by Lambert and Macnamara, to investigate the acquisition of French as a second language. It was not designed as a psycholinguistic study, although it does have some psycholinguistic aspects of relevance to the writer's study.

A study by Métraux[33] of children learning a second language (French) while maintaining their first language (English) indicates that a child's personality characteristics may be a factor in the rate and ease of learning a second language. For these pre-school and primary age children, it appeared, in general, that the more "outgoing" children learned more rapidly than those who were more "introverted".

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33 Ruth W. Métraux, "A Study of Bilingualism Among Children of U.S. - French Parents", in The French Review, Vol. 38, 1965, p. 650-665.

A case study by Valette [34] presents the experiences of a young American boy learning French in a French environment while English was maintained at home. He began learning French at age 3/3 and in six months' time (age 3/9), spoke the French of a native French two year old. In nine months' time (age 4/0), his speech was that of a native French three year old. The author notes that intonation was mastered well before pronunciation, grammar and vocabulary, and gives illustrations. She seems to lament the fact that this child in a favourable learning environment and with parental support and approval was a year behind his chronological age in his new language. She concludes that "The phonological system of one's own language presents a formidable block." [35]

If this is in any way typical of young children learning a second language, then children in far less favourable environments would undoubtedly have a greater gap in their mastery of a second language.

A study by Lambert and Macnamara [36] investigates the acquisition of French as a second language in first grade children whose

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34 Rebecca M. Valette, "Some Reflections on Second-Language Learning in Young Children", in Language Learning, Vol. 14, 1964, p. 91-98.

35 Ibid, p. 97.

36 W. E. Lambert and J. Macnamara, "Some Cognitive Consequences of Following a First-Grade Curriculum in a Second Language", in Journal of Educational Psychology, Vol. 60, 1969, p. 86-96.

native language is English. The majority of the children had also attended a French language kindergarten during the previous year. The experimental class was equated with classes of French and English language controls on intelligence and on family socio-economic status. Numerous tests were given to the children.

The areas of interest to the writer's study are the development of the experimental group's oral production in their native language (English) and in their second language (French).

The group had no difficulty when compared with their English controls, in comprehending spoken English (receptive vocabulary) as measured by the Peabody Picture Vocabulary Test. This test required them to relate words read to them to pictorial representations of appropriate referents.

They were also as competent as their English controls in terms of their overall expressive ability, enunciation and rhythm, and intonation in English speaking skills, but they made significantly more grammatical errors in retelling a story presented audio-visually in English, and their rate of production was slower. This seemed to suggest that the children had become somewhat slower at selecting words and constructing sequence of ideas in English.

The experimental group was noticeably poorer than their French language controls, in terms of overall expressive ability, in number of

grammatical errors, errors of liason, rhythm and intonation in French speaking skills, when they were required to reconstruct a story (similar to the English story reported above), but their mean score indicated good progress toward native-like skills for one year's study. Similarly, as a group, they were also poorer than their French language controls in French phoneme production, but their mean score was "average" with regard to native speakers. Thus their progress in the mastery of the basic sound units was greater than their ability to integrate these units into smooth and accurate speech patterns. The more passive skills in understanding French (in this case all related to reading) had been even better mastered than the more demanding production skills.

The most recent report on this study, by Tucker, Lambert, d'Anglejan and Silny [37] presents the results of four years of bilingual language instruction for the experimental or pilot class and of three years of bilingual instruction for a second follow-up class. The formal introduction of English language arts as a subject was begun in Grade Two although the major emphasis has clearly been given to French.

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37 G.R. Tucker, W.E. Lambert, Alison d'Anglejan and F. Silny, "Cognitive and Attitudinal Consequences of Following the Curricula of the First Four Grades in a Second Language", McGill University, mimeo, 1971, ii - 55 p.

The experimental pupils, at the end of Grade Four, are able to read, write, speak, understand and use English as well as the control youngsters instructed in English in the conventional manner. In addition, they can read, write, speak, understand and use French far better than students following traditional French as a Second Language (FSL) programmes. They have acquired a mastery of the basic elements of French phonology, morphology and syntax and have not developed the inhibition often characteristic of the performance of the foreign or second language student. The authors would not yet consider the experimental children to be balanced bilinguals (bilinguals with roughly equivalent competence in their two languages), even though they believe this to be a realistic goal. They then state the means which they consider necessary to the attainment of such of goal.

5. Summary and General Hypothesis

There are as yet no well standardized methods for measuring the development of children's language from a psycholinguistic viewpoint or approach, but investigators have used imaginative techniques in their attempts to assess it.

The studies of Noell, May and Strickland are concerned with very broad areas of behaviour and not at all with the internal patterning of language acquisition and development. This is true of the majority of

studies concerning language learning and language development in children. The study of Sievers is a beginning in the area. This approach is markedly expanded in the studies of Berko and later Kernan and Blount, where the internal patterning is examined in considerable detail, and the orientation and purpose of the studies are very explicit.

The Illinois Test of Psycholinguistic Abilities is more in line with Sievers' approach and is indeed a logical extension of it. Although it attempts to break down language development into different psycholinguistic abilities, its focus of attention concerns a broader area of behaviour than the internal patterning, and emphasis is not placed on the child's knowledge or understanding of the pattern involved, but on the appropriate "production".

The survey by Métraux and the case study by Valette are beginning attempts to explore second language learning, and provide fruitful hypotheses for experimental studies in this area, which could be used to advantage in studies of the psycholinguistic type concerned with the development of internal patterning.

The study by Lambert et al is a systematic attempt to provide second language instruction in a controlled situation, where specific variables are controlled, as well as a systematic attempt to evaluate the results of such instruction in terms of overall language development

and academic achievement, as well as other factors.

The present study attempts to explore the factors of ethnic density and sex as related to the acquisition of a second language, specifically, the learning of inflectional endings in a kindergarten programme. The approach of Berko, as it is formulated in the Auditory-Vocal Automatic subtest of the Illinois Test of Psycholinguistic Abilities, is used for the developmental knowledge of internal patterning, although the results will not be examined in the detail of Berko's study.

The two independent variables in this research are sex and ethnic density and the dependent variable is the scores obtained on the Auditory-Vocal Automatic subtest of the Illinois Test of Psycholinguistic Abilities or ITPA, described in section 3 of Chapter II.

The hypotheses stated in the null form are:

a) There are no significant differences in scores on the Auditory-Vocal Automatic subtest of the ITPA obtained by Italian-speaking children in kindergarten classes differing with respect to a high, medium and low ethnic density of Italian language speakers.

b) There are no significant differences in scores on the Auditory-Vocal Automatic subtest of the ITPA obtained by Italian speaking boys and Italian speaking girls in kindergarten classes differing with respect to ethnic density.

The areas of interest to this study have been outlined and the pertinent studies reviewed; hypotheses to be tested have been formulated. The next chapter describes the experimental design used in testing the hypotheses, as well as a summary of the theory and construction of the test instrument.

CHAPTER II

EXPERIMENTAL DESIGN

This chapter describes the procedures used in testing the hypotheses presented at the end of the preceding chapter. The sample population is described in the first section of the chapter, followed by a description of selection procedures. A discussion of the reliability and validity of the instrument is then presented. Description of the experimental procedures and the scoring follows. Lastly, the statistical techniques used in the analysis of the data are presented.

1. Description of the Sample

Subjects were all Italian speaking Senior Kindergarten pupils in the City of Toronto public school system during the school year 1966-67. All subjects had attended a Junior Kindergarten class for a full year during the previous school year 1965-66. The children were tested between May 11 and June 27, 1966, and ranged in age from 5/8 to 6/4 at the time of testing.

The controlled subject variables - language, age and Junior Kindergarten attendance - were chosen for the reasons outlined in the following paragraphs.

The Italian speaking language group was chosen because it is the

largest language group, after English, in the Toronto public school system, and the metropolitan area at large. Consequently, the possibility of obtaining a representative sample was greater. This group includes both Canadian born speakers of the language as well as those born in Italy.

The writer has been able to find only two sources of written documentation on Toronto's Italian community, both publications of the International Institute of Metropolitan Toronto.[1,2] The latter indicates that estimates of the size of the Italian population (1966) of Metropolitan Toronto, as given by Italian people, and undoubtedly including Canadian born children, range from 180,000 to 230,000, and that many people would accept a figure of 200,000. The author thought that 40,000 would be from pre-war immigration.[3] She further states that census statistics indicate that the Italian population in the City of Toronto has more than quadrupled between 1951 and 1961, rising from 18,441 to 77,898, and that the 1961 census figures for the Italian population of Metropolitan Toronto were 140,378.[4]

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1 Edith Ferguson, Newcomers in Transition, A Project of the International Institute of Metropolitan Toronto, 1962-1964, 128 p.

2 _____, Newcomers and New Learning, A Project of the International Institute of Metropolitan Toronto, 1964-1966, 114 p.

3 Ibid., p. 18.

4 Ferguson, Op. Cit., 1962-1964, p. 25.

Italian immigrants of 25-40 years ago settled in a small area of downtown Toronto, but the original settlement has expanded greatly in all directions, with the influx of Italians in 1951.[5] These areas cannot be clearly defined[6] and change quickly.[7] The large majority come from Southern Italy, particularly from Calabria and Sicily, although there is representation from all geographical regions of Italy.[8]

Postwar immigration of Italians to Canada began with a low of .2% (1946), rose rapidly to 12.3% (1950), and since then has never been lower than 10.4% (1957 - a postwar peak for immigration). It rose to a high of 25.1% (1959). For the years 1959-1961, Italians made up the largest percentage of immigrants entering Canada. By 1962, Italians composed 13.9% of the post war immigrants who had entered Canada.[9]

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5 Ibid , p. 24.

6 Ibid , p. 25.

7 Ferguson, Op. Cit., 1964-1966, p. 18.

8 Ibid.

9 Percentages quoted are largely taken from the annual publication of immigration statistics (see below), but occasionally had to be calculated by the writer from the data provided. Canada, Department of Citizenship and Immigration, Statistics Section, Immigration to Canada by Ethnic Origin from Overseas and Total by Province of Intended Destination, Calendar Years 1946 to 1955, Inclusive, Ottawa, (no date), (no pagination); Immigration Statistics, yearly, 1956 to 1962; also yearly, 1963 to 1965, published by the Immigration Branch; and yearly, 1966 and 1967, published by the Department of Manpower and Immigration, Canadian Immigration Division.

The province of Ontario has generally received at least 60% of Italian immigrants entering Canada, and often more. The lowest figure was 56.2% (1962).[10] Immigration information estimates that as a "rule of thumb" one-half of the immigrants received by Ontario come to Toronto, and that an estimated 103,200 Italian immigrants had come to Toronto between 1946 and 1962, with an estimated total of 299.910 for Canada.[11] This amounts to 34,5% in comparison with the expected 30%.

No attempt was made to assess the amount of Italian spoken in the home in terms of a rating scale or a percentage. The judgment of an Italian speaking home was made on the basis of the teacher's knowledge of the child's home and questions put to the child by the examiner. The child was considered as Italian speaking if the language of communication with his or her parents was entirely or mainly Italian.

Pupils of Senior Kindergarten age (approximately 5/6 to 6/6 at the latter end of the school year) are approximately in the middle of the age range of the ITPA. In addition, Special English classes have been

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10 Percentages calculated by the writer from the sources quoted above.

11 Telephone conversation with Immigration Officer of the Immigration Branch, Toronto, March 1961.

established in many of the Toronto schools for pupils in Grade Two (approximately seven years of age) and up. At the time this project was conceived, not all schools had these facilities, and if a slightly older group had been used, e.g., seven to eight years, attendance versus non-attendance at a Special English class would have had to be considered as an additional factor, since such attendance would presumably increase facility in English. Thus, it seemed best to choose a group below the age level for eligibility for such classes. A narrow age range was chosen because many intelligence tests have half yearly intervals around this age level, and ITPA norms are based on three monthly intervals. Language develops fairly steadily and quickly from year to year as is apparent in looking at the literature on child development.

Junior Kindergarten attendance in the year 1965-66 was decided upon because it was felt that: a) children having only one year of school attendance might be unable to respond to test items due to insufficient grasp of English; b) some children with a limited grasp of English might be reluctant to use it; c) some children might not make any scoreable response on the test. In addition, the Study of Achievement [12] begun in 1964 by the Research Department of the Board of Education for

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12 Research Department, Study of Achievement: An Outline of a Longitudinal Study from Junior Kindergarten Through the Elementary Grades, The Board of Education for the City of Toronto, 1964, 8 p.

the City of Toronto, indicated that "a child from an English speaking home was twice as likely to be enrolled in junior kindergarten as one from a non-English speaking home".[13] However, the areas in which parents born in non-English speaking countries live are well served by Junior Kindergartens and are in fact over represented in terms of availability of such facilities. This is particularly true for the Italian and Portuguese groups.[14] A combination of factors appears to be responsible for the fact that these parents do not make use of the facilities in proportion to their availability. Thus, the possibility exists that non-English speaking parents who do send their children to Junior Kindergarten are in some ways distinct from those who do not. One possible factor may be a desire that their children learn English at an earlier age. To determine which Senior Kindergarten pupils would have attended Junior Kindergarten, had the facilities been available, and which Senior Kindergarten pupils had facilities available in their area but did not attend, would have been a time consuming task. This problem and the possible bias it might have introduced were avoided by taking only children who had attended Junior Kindergarten. Full year attendance was

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13 Research Department, Study of Achievement: Junior Kindergarten: Who is Served and Who Goes, The Board of Education for the City of Toronto, 1965, p. 12.

14 Ibid., p. 10.

was considered to be school entry no later than half the number of possible school days for the month of September 1965.

2. Selection Procedures

To obtain potential subjects, schools were chosen on the basis of: a) having had a Junior Kindergarten class during the school year 1965-1966; b) having ten or more pupils in the Senior Kindergarten with little or no English, or still in need of English instruction, according to a survey compiled by the Academic Department, Toronto Board of Education, in September 1966; c) having a large enough New Canadian population in the school to require the full time services of at least one Special English Teacher. The only exception to c) was one very small school in an area of very high Italian concentration.

Elementary school areas in the City of Toronto are generally quite small geographical areas and consist of a fairly small number of adjacent streets. With rare exceptions, pupils attend the school in whose district they live. Italo-Canadians and Italian immigrants settle in similar areas because of kinship or geographical ties. The areas of settlement are more or less homogeneous socio-economically.

Data survey sheets were sent to all Senior Kindergarten teachers of the twenty-one schools, chosen as previously outlined. Four of these schools

had no Italian speaking children in attendance and one had no Italian speaking children with a full year of Junior Kindergarten attendance. These sheets were completed between May 5 and 15, 1967. The remaining sixteen schools had fifty-seven Senior Kindergarten classes with children who fitted the experimental criteria.

The data survey sheets (see Appendix I) asked for the name and the language spoken in the home (English only, Italian only, Italian and English, another foreign language, another foreign language and English)of each child in the class. For the Italian speaking children, teachers were also asked to check whether the child was born in Italy or Canada, if he (or she) had attended Junior Kindergarten during 1965-66, the date of entry into Canada (for the Italian born), and whether a child had any serious physical or other handicap.

Originally, when planning the project, the intention was to use a population of Italian speaking kindergarten children, born in Italy, who had attended Junior Kindergarten in 1965-66. Preliminary checking indicated that this number might not be large. As survey data came in, it became apparent that such indeed was the case, so it was decided to test all Italian speaking children, whether Italian or Canadian born. After testing, the number of Canadian born Italian speaking children was found to be eight times the number of Italian born Italian speaking children, so the Canadian born Italian speaking population was used.

3. The Illinois Test of Psycholinguistic Abilities [15]

The Illinois Test of Psycholinguistic Abilities or ITPA (as it will be referred to hereafter), was developed by James J. McCarthy and Samuel A. Kirk, and published in an experimental edition in 1961. As indicated in Chapter I, the Auditory-Vocal Automatic Subtest (AVA) of the ITPA was the test instrument used for all subjects. It was individually administered and scored according to test procedures in the Examiner's Manual.[16]

In the preface to the Examiner's Manual,[17] the authors state that the "test was designed to meet the need for a comprehensive instrument for the assessment of language development in exceptional children, particularly those of preschool age".[18] The test was constructed largely from Osgood's theoretical model of language acquisition and use.[19,20]

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15 James J. McCarthy and Samuel A. Kirk, Illinois Test of Psycholinguistic Abilities, Experimental Edition, Institute for Research on Exceptional Children, University of Illinois, Urbana, Illinois, 1961.

16 James J. McCarthy and Samuel A. Kirk, Examiner's Manual, Illinois Test of Psycholinguistic Abilities, Experimental Edition, Institute for Research on Exceptional Children, University of Illinois, Urbana, Illinois, 1961, p. 31-34, 63-66, 112.

17 Ibid, vii-130 p.

18 Ibid, p. vi.

19 Ibid.

20 Ibid, p. 2.

Nine psycholinguistic abilities are tested and each psycholinguistic ability is defined by the postulation of three dimensions; 1) levels of organization, 2) psycholinguistic processes, and 3) channels of communication.[21]

1) Levels of organization describe the functional complexity of the organism, and appear to vary in complexity. Two levels are considered important for language acquisition and use; a) the representational level, (or meaning level [22]) which mediates activities requiring the meaning or significance of linguistic symbols; and b) the automatic-sequential level, which mediates activities requiring the retention of linguistic symbol sequences and the execution of automatic habit-chains.[23]

2) Psycholinguistic processes encompass the acquisition and use of the habits required for normal language usage and are dependent on learning theory for a complete and adequate explanation. There are three main sets of habits: a) decoding, or the sum total of habits required to ultimately obtain meaning from either visual or auditory

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21 Ibid.

22 Samuel A. Kirk and James J. McCarthy, "The Illinois Test of Psycholinguistic Abilities - An Approach to Differential Diagnosis", in the American Journal of Mental Deficiency , Vol. 66, 1961, p. 403.

23 McCarthy and Kirk, Op. Cit. , p. 3.

linguistic stimuli (receptive language ability);[24] b) encoding, or the sum total of those habits required to ultimately express oneself in words or gestures; and c) association, or the sum total of those habits required to manipulate linguistic symbols internally.[25] Association is a central process elicited by decoding, which in turn elicits expressive or encoding processes. These processes are interdependent both in their operation and development.[26]

3) Channels of communication describe the sensory-motor paths over which linguistic symbols are received and to which responses are made. There are modes of reception and modes of response; visual, auditory, vocal or motor.[27]

Of the nine tests in the battery, six are at the representational level and three at the automatic-sequential level. Tests at the representational level assess some aspect of the subject's ability to deal with meaningful symbols; i) to understand the meaning of symbols (decoding-the ability to comprehend auditory and visual symbols, i. e., spoken or

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24 Kirk and McCarthy, Op. Cit., p. 403.

25 McCarthy and Kirk, Op. Cit., p. 3.

26 Kirk and McCarthy, Op. Cit., p. 403.

27 McCarthy and Kirk, Op. Cit., p. 3.

written words; and pictures or gestures, the last mentioned not sampled in this test); ii) to express meaningful ideas in symbols (association - the ability to relate visual or auditory symbols, standing for ideas, in a meaningful way, i.e., spoken words and pictures, written words and gestures, the latter two not sampled in this test); or iii) to relate symbols on a meaningful basis (encoding - the ability to put ideas into words or gestures, i.e., spoken words and gestures, written words and pictures, the latter two not sampled in this test).[28]

Tests at the automatic-sequential level deal with the non-meaningful use of symbols, principally their long term retention and the short term memory of symbol sequences. The authors made no attempt to divide these tests into the psycholinguistic processes, because of lack of theoretical clarity at this level.

In regard to automatic tests, frequent use of a language and the abundant redundancies of language lead to highly overlearned or automatic habits for handling its syntactical and inflectional aspects without conscious effort. Familiarity with the linguistic structure results in expectations or predictions of the grammatical structure to be said or read based on what has already been heard or seen. In speaking or writing, these automatic habits permit an individual to give conscious attention to the

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28 Ibid, p. 4, 5.

content of a message, while the words with which to express the message seem to come automatically. Auditory-vocal automatic ability permits one to predict future linguistic events from past experience. It is called "automatic" because it is done without conscious effort. In the test, the subject has to supply an inflected word, (the last), to a spoken statement. No suitable visual-motor counterpart could be designed, suitable for very young children. [29]

Sequencing is the ability to correctly reproduce a sequence of symbols, and is largely dependent on visual or auditory memory. In the tests, the subject repeats digits heard or reproduces a series of symbols (pictures or geometrical designs) seen. [30]

The ITPA includes a test of grammar, specifically a test of morphology, which samples a child's knowledge of English inflections. It is called the Auditory-Vocal Automatic subtest, (hereafter called AVA). As previously stated, it permits the prediction of future linguistic events from

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29 Ibid, p. 6, 7.

30 Ibid, p. 7.

past experience, and is called "automatic" because it is done without conscious effort. In this particular test, the subject must supply an inflected word at the end of a test statement.[31] Pictures are used as a concession to younger subjects to provide support for the task rather than information.[32] The age range of the test is from 2/6 to 9/0,[33] and test scores of linguistically normal English speaking children increase regularly with age.[34]

It seems that such a test could be used as a measure of the acquisition of English for young children learning English as a second language.

4. Reliability and Validity of the Auditory-Vocal Automatic Subtest of the ITPA

Because the ITPA is a recent test with no precise precedent in psychological testing, a discussion of the reliability and validity of the AVA subtest follows.

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31 Ibid, p. 7.

32 James J. McCarthy and Samuel A. Kirk, The Construction, Standardization and Statistical Characteristics of the Illinois Test of Psycholinguistic Abilities, University of Wisconsin and Institute for Research on Exceptional Children, University of Illinois, Urbana, Illinois, 1963, p. 12.

33 McCarthy and Kirk, Examiner's Manual, p. 19.

34 McCarthy and Kirk, Op. Cit., 1963, p. 22.

Two forms of reliability, internal consistency and stability, were computed for the ITPA battery.[35] For internal consistency reliability, internal consistency coefficients were computed for each test and age group.[36] For the AVA subtest, the coefficient at age 6/0 is .68, (N=50). The overall consistency coefficient for the AVA is .93, (N=700).[37] The authors consider the overall consistency coefficients comparable to similar type instruments, while the age group estimates are lower due to the severe effects of restricted range and number.[38]

For stability reliability, an entire age group near the centre of the age range (in the six year range) was chosen for the computation of a test-retest stability coefficient.[39] For the AVA, the restricted stability coefficient is .72, (N=69). The full range estimate for the AVA is 92.[40] The authors emphasized that the estimates obtained were minimal

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35 Ibid, p. 28.

36 Ibid.

37 Ibid, p. 29.

38 Ibid, p. 28.

39 Ibid, p. 30.

40 Ibid, p. 31.

estimates, [41] and felt that they had chosen poorly in using this age group. [42] The time interval was not specifically stated. [43]

A split-half technique based on the Rulon method was also used to estimate the stability reliability of the ITPA. An odd-even split was used and coefficients were computed for each test by age group, as well as overall coefficients. [44] For the AVA at age 6/0, the split-half reliability coefficient is .69, (N=50), and the overall coefficient is .95, (N=700). [45]

The authors noted that overall estimates of reliability were quite acceptable, while estimates by age group were lower and less reliable due to small N and age range. [46] Larger numbers for each age group and more careful grading of content would likely have produced higher reliability coefficients.

Standard Errors of Measurement for Standard Scores and for raw scores were computed from the split-half reliability coefficients. [47]

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41 Ibid, p. 32.

42 Ibid.

43 Ibid, p. 30.

44 Ibid, p. 30, 32.

45 Ibid., p. 33.

46 Ibid., p. 32.

47 Ibid., p. 30, 32 -34.

The Standard Error of Measurement for Standard Scores of the AVA for age range 5/9 6/3 is ± .56. [48]

In regard to validity at the time of publication of the standardization data, the authors acknowledged the need for: i) studies correlating the ITPA with linguistic variables for both concurrent and predictive validity; [49] ii) an empirical check on the representativeness of content (of psycholinguistic abilities), on the homegeneity of subtest items and on the heterogeneity of subtests; [50] iii) many studies relating ITPA scores with other tests and practical criteria, and an empirical check for each subtest; iv) experiments based on predictions from the basic theory. [51] They concluded that most validity demonstrations remained to be done. [52]

The factor analytic work available indicated the recurrence of certain factors in almost all age groups, suggesting a certain degree

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48 Ibid , p. 34.

49 Ibid, p. 36.

50 Ibid, p. 36-38.

51 Ibid, p. 38, 39.

52 Ibid , p. 40.

of permanence. [53] As for correlation of variables, the AVA produced significant intercorrelations at all age levels with other tests, and had regular and substantial correlations with mental age, suggesting that this test sampled some general ability. [54]

In Factor Analysis, about eighty percent of the variance appeared to be accounted for by a general linguistic factor, four percent by a group factor (general expressive ability), plus four specific factors, each for about three percent of the variance, for a total of ninety-five percent of the variance. [55] No reference tests were employed and no explanation of negative loadings was given. Factors were named after tests loading heavily upon them, the tests originally having been named for the psychological functions they were thought to tap.[56] For the AVA, the factor loading is .92 for general linguistic ability, plus five other factors, .07 for auditory-vocal sequencing, and four factors with negative loadings, ranging from -.15 to -.05. [57] For factor loading at the 6/0 age group level, (N=50), general linguistic

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53 Ibid, p. 38.

54 Ibid, p. 69.

55 Ibid, p. 63.

56 Ibid, p. 62, 63.

57 Ibid, p. 64.

ability indicated a loading of .57, with three other factors, visual decoding, auditory ability, and auditory decoding, loading between .30 and .50, the last mentioned being a negative loading.[58] The general linguistic factor was found to contribute about thirty-four percent of the variance, on the average, in the analysis by age group. Although somewhat less than generally found in general intelligence tests, the authors stated this was due to the limited range of talent.[59] They acknowledged the shortcomings of the analysis.[60]

To remedy the lack of validation in the original study, the authors designed a study to provide additional data. A correlational approach was used to relate the ITPA and its subtests with various index tests.[61] A group of subjects, aged 7/0 - 8/6, was selected to optimally resemble the original standardization group.[62] The ITPA and criterion tests of linguistic ability were administered to obtain concurrent validity estimates, and the criterion tests were readministered to obtain predictive validity estimates.[63] Difficulty was experienced in selecting criterion tests for subtests, because

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58 Ibid, p. 72.

59 Ibid, p. 81.

60 Ibid.

61 James J. McCarthy and James L. Olson, Validity Studies on the Illinois Test of Psycholinguistic Abilities, University of Wisconsin, and University of Wisconsin-Milwaukee, 1964, p. 7.

62 Ibid, p. 7, 10, 11.

63 Ibid, p. 8, 9.

of lack of single linguistic ability tests. Some criterion tests were especially constructed since no existing tests appeared appropriate.[64]

The results were in the magnitude and direction expected except for the data from the recorded language sample,[65] (mean-length-of-response and "sentence complexity"), two measures of the criterion test for the AVA. Neither concurrent nor predictive validity coefficients were significant at the .01 level for the recorded language sample.[66] The data did not give a clear indication of the psychological ability tested by a given subtest.[67] Since validity depends on the selection of an appropriate criterion test, and only one criterion test was used for each subtest, each subtest was correlated with every possible criterion test, to attempt to determine exactly what each subtest was measuring.[68] The AVA had doubtful validity, as it appeared to be more general in nature, more meaningful than intended, and to relate minimally to "grammatical"

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64 Ibid, p. 15.

65 Ibid, p. 13.

66 Ibid, p. 14.

67 Ibid, p. 15.

68 Ibid.

prowess.[69] It appeared to assess a rather general linguistic factor.[70]

In the writer's opinion, however, the uses of the criterion test chosen for the AVA were inappropriate and thus the validity findings must be questioned. Both "sentence complexity" and "mean-length-of response" are what Ervin[71] terms "frequency oriented research", i.e., the frequency rather than the internal patterning is of interest, statistical sampling is important, and counts are made of features and of such gross indices as sentence length, which depend both on the child's rules and on other variables.[72] The AVA was developed as a test of grammatical structure or knowledge based on the child's implicit knowledge of the rules or pattern of the language, which the authors considered to be "automatic". Ervin terms this "rule-or code-oriented research".[73] Since a psycholinguistic theory is being tested, a psycholinguistic approach is the only appropriate criterion. The authors appear not to have understood that there is a difference between the two approaches.

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69 Ibid, p. 22.

70 Ibid, p. 21.

71 Susan Ervin-Tripp, "Language Development", in Review of Child Development Research, Lois Wladis Hoffman and Martin Hoffman, Eds. Vol. 2, New York, N. Y., Russell Sage Foundation, 1966, p. 73.

72 Ibid.

73 Ibid.

Similarly, the "Probability Test", discussed under the section on construct validity,[74] seems based on the authors' misunderstanding of the nature of the structure of language, and the child's acquisition of it. The test requires the subject to "guess" whether the next page will contain a circle or not, and the circles are randomly distributed in the proportion of 5:1 in five sets of ten pages each.[75] Although the rationale for the Probability Test states that it was designed to assess the subject's ability to predict the probability of future events from past, similar events,[76] the authors appear not to see the logical consequence of the statement, and so set up the test on a random basis, rather than on a patterned basis which would allow the child to predict as he learns from experience. In this way, no "learning" can occur, for the child must always use a "trial and error" approach. The work of Berko (see Chapter I), clearly indicates that children's acquisition of language shows a discernible pattern and is not based on "random" choice.[77] (See also the work of Braine,

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74 McCarthy and Olson, Op. Cit., p. 46.

75 Ibid, p. 44, 46.

76 Ibid, p. 98.

77 Martin D.S. Braine, "The Ontogeny of English Phrase Structure: The First Phase", in Language, Vol. 39, 1963, p. 1-13; also "On Learning the Grammatical Order of Words", in the Psychological Review, Vol. 70, 1963, p. 323-348.

Brown and Fraser,[78] Ervin and Miller,[79] Brown and Bellugi,[80] Miller and Ervin,[81] and Ervin[82]). As the authors themselves state in the standardization study, quoting the work of Brown and Fraser just cited, "Linguistically normal children learn these inflections in a rather systematic way."[83] Hence, it would have been appropriate to set out the circles and blanks in a systematic order to see if the children learned the "rules".

Content validity was assessed by a logical examination of the test,

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78 Roger Brown and Colin Fraser, "The Acquisition of Syntax", Chp. 5, in Verbal Behaviour and Learning: Problems and Processes, New York, McGrawHill, 1963, p. 158-209.

79 Susan M. Ervin and Wick R. Miller, "Language Development", Chp. 3, in Child Psychology, Sixty-Second Yearbook, Part I, National Society for the Study of Education, p. 108-143.

80 Roger Brown and Ursula Bellugi, "Three Processes in the Child's Acquisition of Syntax", in the Harvard Educational Review, Vol. 34, 1964, p. 133-151.

81 Wick Miller and Susan Ervin, "The Development of Grammar in Child Language", in "The Acquisition of Language", Monographs of the Society for Research in Child Development, Serial No. 92, Vol. 29, 1964, p. 9-34.

82 Susan Ervin, "Imitation and Structural Changes in Children's Language", in New Directions in the Study of Language, Cambridge, Mass., MIT Press, 1964, p. 163-189.

83 McCarthy and Kirk, Op. Cit., p. 11.

and the preparation methods.[84] There were no precise coefficients to index the degree of content validity. Each subtest was qualitatively homogeneous. The use of the standard error range was advised in interpreting scores. Correlational and factor analytic studies had shown a fair degree of heterogeneity among ITPA subtests. Subtests at the automatic-sequential level required further differentiation. The authors consider the test a good "first approximation" in terms of content, but acknowledge numerous information voids.[85]

In regard to construct validity, mental age was found to be substantially and positively related to ITPA scores. Subtests in the Auditory-Vocal channel were affected by social class, birth order, number of siblings and sex,[86] in the age range 7/6 to 9/0.[87] All these variables were significant for the AVA at or beyond the .05 level.[88]

Test-retest correlations were adequate for the ITPA battery, as a precondition of validity,[89] for varying groups of children for

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84 McCarthy and Olson, Op. Cit., p. 23.

85 Ibid, p. 36, 37.

86 Ibid., p. 50.

87 Ibid, p. 38.

88 Ibid, p. 41.

89 Ibid, p. 43, 50.

intervals ranging from three days to nine months.[90] Predictions concerning the effect of selected factors on given ITPA subtests indicated that Auditory-Vocal tests appeared more meaningful than predicted, and specifically, AVA ability did not appear to be adequately assessed by its respective subtest,[91] thus questioning its construct validity.[92] The authors do concede that with a correlational analysis other reasons are possible for the lack of relationships but feel the data are suggestive.[93] The writer's comments on the criterion tests for assessing the validity of the AVA subtest have been presented under the discussion on concurrent and predictive validity.

For the validity study, concurrent and predictive validity coefficients for the ITPA battery, when correlated with other "linguistic" type tests, were fairly typical, while individual subtests indicated varying degrees of validity.[94] No direct test was made of content validity, although subtests appeared to be adequately heterogeneous.[95] For the

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90 Ibid , p. 50.

91 Ibid , p. 51.

92 Ibid , p. 46.

93 Ibid , p. 47.

94 Ibid , p. 63.

95 Ibid , p. 64.

AVA subtest, concurrent and predictive validity were judged doubtful and construct validity was questioned. Content validity was adequate in terms of internal consistency and the use of the standard error range for completeness.[96] The writer would question these judgments concerning the AVA, because of the authors' apparent lack of understanding of the theoretical nature of this subtest.

The validity study carried out by the authors is a beginning attempt to furnish additional data on the test and thus their comments concerning the need for additional validity studies, made in reference to the standardization study, are still applicable.

5. Experimental Procedures

Each child was accompanied from the classroom and back again by the examiner. Teachers generally introduced the child to the examiner, and if not, the examiner introduced herself to the child. The child was told that the examiner was going to "show you some pictures and ask you some questions."

Prior to testing, the examiner talked to the subjects to gain their confidence and put them at ease, asking questions of general information. The test was then administered, and after testing, questions were asked

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96 Ibid, p. 63-65.

about language: the one used at school, the one or ones used at home, with whom each language was used, and possible sources of exposure to both languages. (See Appendix 2).

Names, birthdates and dates of entry into Junior Kindergarten were checked from OSR[97] cards, and in some cases from Office Record Cards as well. If there was any doubt as to whether a child spoke Italian at home, the teacher was questioned in an attempt to elicit further information. Two children had to be eliminated because it seemed that English was the language used in the home, even though the child did know a little Italian. Two more were eliminated because illness had drastically curtailed their attendance. A few were lost due to transfer, between the date on which the data survey sheets were completed and the date of testing. Three children refused to talk, but this behaviour also obtained in the classroom. With these exceptions, all children who fitted the experimental criteria were tested.

6. Scoring

Scoring was done according to the standardized instructions.

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97 Ontario School Record Folder I, Kindergarten to Grade 8, (OSR-I), 1960 Revision, The Guidance Centre, Ontario College of Education, University of Toronto, Toronto, Ontario.

It was rechecked together with another person familiar with the ITPA. Questions concerning some borderline responses were also discussed with this person.

Both Language Age and Standard Scores were computed. Only Standard Scores were used in the statistical analysis because they provide a more versatile means of comparing a subject with his own standardization group,[98] and are more convenient for statistical analysis.

7. Statistical Procedures

In order to establish high, medium and low density groupings prior to computing the Analysis of Variance, the procedure outlined below was followed. For each Kindergarten class in which there were children who fitted the experimental criteria, a percentage of ethnic density was obtained by taking the total number of Italian speaking children in the class, dividing that number by the total number of Italian speaking and English speaking children in the class, and multiplying by one hundred.

$$\frac{\text{Italian speaking children}}{\text{Italian speaking + English speaking children.}} \times 100 = \text{percentage of ethnic density}$$

Percentages, with their corresponding test scores, were then ordered from high to low, separately. for males and females. Classrooms

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98 McCarthy and Kirk, Examiner's Manual, Op. Cit., p. 96.

in which males and females were present were then chosen in order to ensure comparability of conditions. This eliminated 18 of the 54 classrooms, leaving 36 remaining. This number was divided by three to provide high, medium and low density groupings. There were twelve classrooms per cell, and divisions were as indicated below (See table immediately following).

Percentage Range of Ethnic Density for Each Cell

Density		
High	Medium	Low
95% → 79%	76% → 58%	53% → 16%

The Standard Scores of the Auditory-Vocal Automatic test were used as the basis of computation. Scores ranged from -3.00 to +.99. A constant of 4.00 was added to each score to eliminate negative scores, thus allowing for easier computation.

The level of significance was set at the .05 level.

Prior to the Analysis of Variance, the data were subjected to a test for Homogeneity of Error Variance as a rough check on the assumption of homogeneity of the sample population.

The data were then analyzed by an Analysis of Variance, using original measurements. A 2 x 3 design was used to determine the effects of:

a) high, medium and low density groupings on Auditory-Vocal Automatic test scores;

b) sex on Auditory-Vocal Automatic test scores.

Two means per class, one for each sex group, were computed to provide group scores, which were then used as the unit scores for the Analysis of Variance.

F tests for Auditory-Vocal Automatic test scores were determined for the principal effects, interaction and within group effects.

After the completion of the Analysis of Variance and the F test, the data were further subjected to Tukey's Procedure for Comparing Individual Means, to determine whether significant differences existed between different levels of density.

The experimental procedures have been described and in the next chapter the results of the experiment and the discussion of the results will be presented.

CHAPTER III

PRESENTATION AND DISCUSSION OF RESULTS

The results of the experiment will be considered in three stages: a) the summary of the Analysis of Variance will be presented first, with some general comments on the results; b) the summary of the Tukey Procedure will be reported; c) in conclusion, the results will be considered in terms of the hypotheses.

1. Results

The summary of the Analysis of Variance is preceeded by the results of a test for Homogeneity of Error Variance, to check on the assumption of equal variance within each cell. The F max statistic for homogeneity of variance was used. The results were not significant (F max = 5.6653: at the .05 level , the critical value is 5.72; at the .01 level, the critical value is 8.2).

The summary of the Analysis of Variance (reported in Table I), reveals that ethnic density was the only significant variable in this experiment. (F=6.30, which is significant at the .05 level of confidence and also significant at the .01 level of confidence, or greater). Sex (F=.03), and the interaction of sex and ethnic density (F=1.27), were not significant in the overall statistical analysis.

TABLE I.-

Summary of Analysis of Variance Indicating

The Influence of Experimental Variables on Auditory-Vocal

Automatic Scores for the Sample Population

Source of Variance	SS	df	Estimate of Variance	F
Sex	.03	1	.03	.03
Density	9.67	2	4.84	6.30 [a, b]
Interaction	1.95	2	.98	1.27
Within	50.65	66	.77	
Total	62.30	71		

a significant at p=.05
F = 2.99 significant at p=.05

b significant at p=.01
F = 4.60 significant at p=.01

The Analysis of Variance indicates that the null hypothesis regarding ethnic density must be rejected and that in this experimental design, ethnic density was a variable significantly related to scores on the Auditory-Vocal Automatic subtest of the ITPA. The null hypothesis regarding sex cannot be rejected as sex was not significantly related to scores on the Auditory-Vocal Automatic subtest. Nor were the test scores related to the interaction of sex and ethnic density measures used in this design.

Statistical measures indicate that in this design, Auditory-Vocal Automatic subtest scores are different for different ethnic density groups. As there was no significant sex difference, means for males and females were collapsed and plotted according to ethnic density. (See Figure 1). Inspection of this figure indicates that there is little if any difference between the medium and high density groups, but that there is a difference between the low and medium density groups, as well as between the low and high density groups.

In regard to sex, a closer look at standard deviations and means of individual cells, (see Table II), reveals that means for males and females do not follow the same pattern.

Following the Analysis of Variance, a post hoc procedure, Tukey's (a) Procedure, a test for non-additivity, was applied to the data on density.

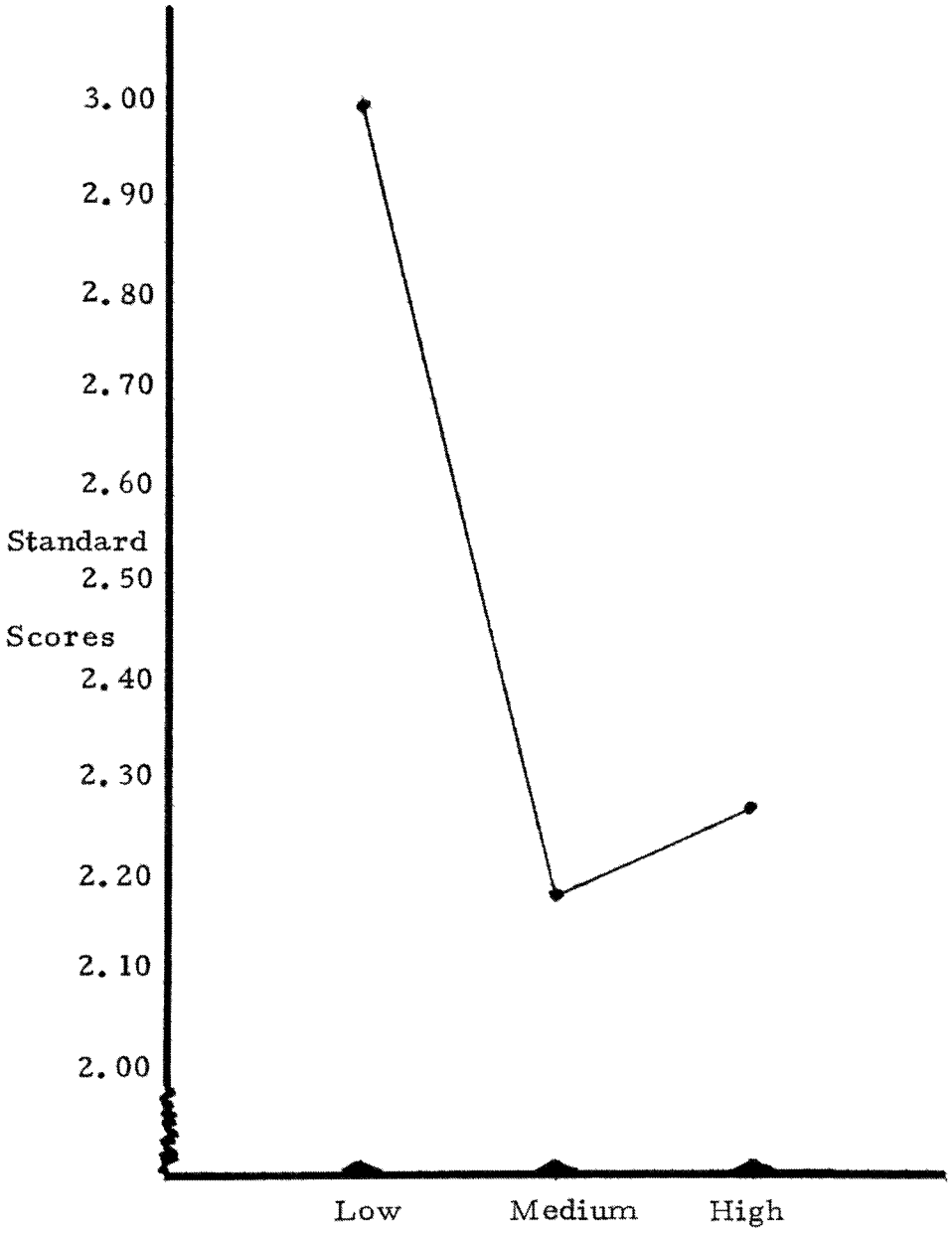

Figure 1. -

Comparison of Means of Auditory-Vocal Automatic Scores for the Sample Population, by Density Grouping

TABLE II.-

Standard Deviations and Means of Cells

of Auditory-Vocal Automatic Scores for the Sample

Population, Classified by Density and Sex

		Density			Mean of Total Sex Groups
		Low	Medium	High	
Males	Standard Deviation	1.33	.79	.56	
	Mean	2.93	2.00	2.48	2.47
Females	Standard Deviation	.74	.64	.74	
	Mean	3.08	2.38	2.07	2.51
	Mean of Total Density Groups	3.005	2.19	2.275	

The purpose of this test is to probe the nature of the difference between treatment means, following a significant overall F. The summary of Tukey's Procedure, (see Table III), reveals significant differences between the low and medium density groups (.8716) and between the low and high density groups (.7303), since the critical value at the .05 level is .6062 . The results of the Tukey Procedure give statistical confirmation of the observations made in regard to Figure 1.

The statistical results of this experiment indicate that the first hypothesis regarding ethnic density must be rejected, and that the second hypothesis regarding sex cannot be rejected.

2. Discussion of Results

The results of this experiment will be discussed in terms of the two null hypotheses, beginning with the first hypothesis which was rejected. Following this, some comments will be made on the experimental data.

The Analysis of Variance indicates that ethnic density was the only significant variable in this experiment (see Table I), and that different density groupings did show a relationship to Auditory-Vocal Automatic scores on the ITPA. Thus, the acquisition of the inflectional endings of English grammar appears to be related to the ethnic density of the group.

TABLE III.-

Table of Differences on the Density Factor

For Auditory-Vocal Automatic Scores

Of the Sample Population

Tukey (a) Procedure, adapted for use in factorial experiments:

a post hoc procedure

Table of Differences

	Medium	High	Low
Ordered Means of Density Groupings	2.1874	2.2747	3.005
Medium	-	.0873	.8176[a]
High		-	.7303[a]
Low			-

a significant at p = .05

qr = .6062 significant at p = .05

The low density group, which had the fewest Italian language speakers, received higher Auditory-Vocal Automatic scores than the medium density group, which had a moderate number of Italian language speakers. (Figure 1 and Table II). The difference between these two groups was statistically significant, as indicated by the results of the Tukey procedure. (Table III). The medium density group received lower scores than the high density group, which had the most Italian language speakers. (Figure 1 and Table II). The difference between these two groups was not significant, nor did it approach significance, as indicated by the results of the Tukey Procedure. (Table III). The low density group received higher scores than the high density group. (Figure 1 and Table II). The difference between these two groups was significant, as indicated by results of the Tukey Procedure. (Table III).

In this experiment, it appears that above a certain level, density is no longer a significant factor showing a relationship to the acquisition of English grammatical inflections as revealed by Auditory-Vocal Automatic scores.

These findings give some experimental support to the hypotheses that more opportunities for practice in listening and speaking are available in classrooms with fewer non-English speakers and that the rate of acquisition of new oral language patterns is related to the number of children in the class also learning the new language. A greater amount

of peer interaction probably occurs in classrooms with fewer non-English language speakers in terms of language contacts, and it may be that language interaction decreases rapidly as the number of non-English speakers in the group rises.

Indirect support is also given to the hypotheses that more adequate language models are available, and that opportunities for correction by the teacher are greater in class rooms with fewer non-English speaking children. Greater numbers of native English speaking children should possess more adequate speech patterns, and the teacher is more aware of errors heard as well as having more time to give to those children needing assistance. In classes where the majority of children are making the same developmental errors, the more immature and incorrect patterns are the norm, and the teacher's emphasis is on trying to get the children to speak in any way that they can. Both of these hypotheses would need investigation, however. Investigation would also be needed to determine the influence of the teacher's speech on the child's development of oral language proficiency, as well as the influence of peers' speech on this development.

Support for the foregoing is not unequivocal, however: while the low density group received higher scores than both medium and high density groups, and the differences were significant, the medium density group received lower scores than the high density group, although

findings were not significant, or approaching significance. A greater, if not significant difference, between medium and high density groups, might have been expected.

A look at Figure 1 indicates that the curve is not a linear relationship inversely proportional to ethnic density, but is somewhat J shaped, with the high group receiving slightly higher scores than the medium group.

Males and females were not equal in numerical density in classroom groupings. Perhaps each classroom percentage should have been computed separately for males and females. This did not seem necessary at the outset since previous psycholinguistic studies have not shown significant differences for males and females.

There may, however, be differential patterns of social interaction for males and females in the classroom, which might influence the acquisition of English grammatical inflections. Choice of activities and/or playmates was not considered in this study. Such interaction might well change the actual as opposed to the apparent ethnic density of the classroom, since it could influence the opportunities, or lack of them, for particular children.

Composition of kindergarten classes may also be a factor. In this study, classes were variously composed on the basis of: a) age groupings only; b) age groupings and maturity; c) streaming according

to ability and maturity; d) streaming according to ability and age groupings; e) segregation of Junior Kindergarteners; f) segregation of Junior Kindergarteners and maturity of Senior Kindergarteners; g) division by number only (according to the total number of children and the number of classes to be made up). In some cases, the divisions resulted in a very small number of non-English speaking children or children from non-English speaking backgrounds, in the class. In this way, density may have been manipulated to some degree to introduce a particular bias, or other factors unrelated to ethnic density may be influencing test results.

It may also be possible that for some children in the community at large, exposure to English language influences is greater than for others, in spite of the density of the ethnic group. (See Chapter II, Sections 1 and 2). This in turn would influence the ethnic density of the classroom for such children.

With regard to the second hypothesis, the Analysis of Variance indicates that sex was not a factor showing a relationship to Auditory Vocal Automatic scores in different ethnic density groupings, (see Table I), and therefore the null hypothesis regarding sex cannot be rejected. However, Table II indicates that the means of individual cells do not follow the same pattern for males and females. It would appear that although sex is not significant, it is producing a differential pattern

of Auditory-Vocal Automatic subtest scores.

If plotted, the mean of the density groups for females describes an almost linear relationship, inversely proportional to ethnic density, but the mean of the density groups for males describes a J shaped curve, (more pronounced than that of Figure 1), with the high group receiving considerably higher scores than the medium group.

The considerations presented in relation to ethnic density seem relevant here also, as far as differential patterns of scores are concerned.

Two possibilities might account for the finding that ethnic density is a significant factor showing a relationship to the acquisition of English grammatical inflections, and yet is no longer significant above a certain level. First, a certain number of peers may be necessary to act as "models" in order to provide frequent opportunities for listening and speaking, and at a certain density level (here classified as medium), peers may no longer contribute significantly to the learning of this particular linguistic skill. Perhaps at this level, they are a) not numerous enough, and/or b) not adequate enough in skills. Secondly, the acquisition of English grammatical inflections may be a "taught" skill: i. e., children may not "pick up" grammatical inflections merely by hearing and imitating them, but in order for them to be learned, the endings may have to be pointed out in some way. Thus, above a certain

level of classroom density, the teacher may not have sufficient time or opportunity to teach the correct English grammatical inflections. It was noted in four classes that children achieved a greater number of correct answers at the earlier levels of the test. When the teachers were questioned, they reported that they had been teaching the correct endings in informal group situations. However, the number of classes was not numerous enough for statistical analysis or to make comparisons with the remainder of the classes.

Further investigation of the number of peers required and the adequacy of their linguistic skills would contribute to greater understanding of the relationship between ethnic density and the acquisition of English grammatical inflections. Direct teaching versus acquisition of these skills by normal classroom exposure to them is another area in need of investigation. Both questions would make logical followups of this study.

In this study it appears that the children lack the "automatic" or overlearned habits presupposed by the theory; in many cases the habits have not been established, so that there is little or no basis for prediction from past experience. Active attention and direction to the "meaning" of the elements under consideration seems to be required, from whatever source it comes. As the authors stated in their discussion of validity, "The Auditory-Vocal Automatic subtest appears to be more

general in nature and more meaningful than intended and to relate minimally to 'grammatical' prowess." [1]

A few suggestions have been made as to possible factors affecting this study. These along with the hypotheses presented as background material, which are given some confirmation by the experimental findings, could provide a basis for further research. In addition, comparison of groups of native and non-native speakers of English could be made to determine the length of time required for non-native speakers to acquire and use English grammatical inflections with the same facility as native speakers, and the rate at which the gap closes. The acquisition pattern of these inflections could also be compared. Factors affecting the length of time, the rate of closure, and the pattern of acquisition, (e. g., the personality differences suggested by Métraux, or parental attitudes toward learning a second language), could be further subjects of investigation.

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1 James J. McCarthy and James L. Olson, Validity Studies on the Illinois Test of Psycholinguistic Abilities, University of Wisconsin and University of Wisconsin - Milwaukee, 1964, p. 22.

SUMMARY AND CONCLUSIONS

The need to investigate scientifically the rate of acquisition of oral language patterns in second language learning, as it relates to the number of children also establishing new oral language patterns in the classroom, prompted this study. The study was designed to investigate the acquisition of English grammatical inflections of young children learning English as a second language. No previous experimental investigations concerned with this aspect of second language learning could be found in the literature. Psycholinguistic studies indicate that the internalization of grammatical rules in one's native language increases steadily with age, and that the most common and frequent rules are internalized first.

It seemed probable that the rate of acquisition of oral language patterns would show a relationship to the number of children in the class also in the process of establishing new oral language patterns, even though all children had a common background of school experience in terms of attendance and programme.

The Auditory-Vocal Automatic subtest of the Illinois Test of Psycholinguistic Abilities, which was designed to sample the development of English grammatical inflections in young children, was used to assess the acquisition of inflections for the experimental group.

It was hypothesized that neither of the independent variables, ethnic density or sex, would show a relationship to scores obtained on the Auditory-Vocal Automatic subtest of the Illinois Test of Psycholinguistic Abilities, the dependent variable.

The subjects in this study were Canadian born Italian speaking children, between the ages of 5/8 and 6/4. The children were in 36 Senior Kindergarten classrooms, having both male and female subjects, and all subjects had had a year's prior Junior Kindergarten experience.

The results of the experiment were analyzed by an Analysis of Variance. Prior to this, a test for Homogeneity of Error Variance indicated that findings were not significant. The Analysis of Variance indicated that ethnic density was the only significant variable showing a relationship to Auditory-Vocal Automatic scores. Ethnic density was then analyzed by Tukey's Test for non-additivity, a post hoc procedure. The results indicated that there were significant differences between the low and medium density groups and between the low and high density groups. The difference between the medium and high density groups was not significant.

It appeared that above a certain level of density, density was no longer a significant factor showing a relationship to the acquisition of English grammatical inflections as revealed by Auditory-Vocal Automatic scores.

The findings give some experimental support to the hypotheses that more opportunities for practice in listening and speaking are available in classrooms with fewer non-English speakers, and that the rate of acquisition of new oral language patterns is related to the number of children in the class also learning the new language. Indirect support is also given to the hypotheses that more adequate language models are available, as are more opportunities for correction by the teacher, in classrooms with fewer non-English speaking children. A greater, if not significant difference, between the medium and high density groups, might have been expected, however.

Factors influencing the results might have been:
1) unequal numbers of males and females in classroom groupings, resulting in differing percentages of ethnic density for each sex group; and 2) differential patterns of social interaction for males and females, such as choice of activities and/or playmates, which might influence the acquisition of English grammatical inflections. These areas could provide the basis for further research.

Other considerations for research, which would further extend this study, would be a comparison of groups of native and non-native speakers of English: 1) to determine the length of time required for non-native speakers to acquire and use English grammatical inflections with the same fluency as native speakers; 2) to determine the rate at

which the gap closes between the two groups; and 3) to determine the patterns of the acquisition of English inflections of the two groups. Factors in relation to length of time, the rate of learning, and the patterns of acquisition, such as personality differences or parental attitudes toward learning a second language, could provide topics for further studies.

Two possibilities may be related to test findings: 1) the necessity of a certain number of peers as "models" who have a certain level of competency in linguistic skills; 2) direct teaching of English grammatical skills versus normal classroom exposure to them. Both areas of investigation would be a logical extension of this study.

BIBLIOGRAPHY

Anisfeld, Moshe and C. Richard Tucker, "English Pluralization Rules of Six-Year-Old Children", in Child Development , Vol. 38, 1967, p. 1201 - 1217.

Several studies on the productive and receptive control of noun plurals in six year olds. Uses and extends the techniques of Berko, and Fraser, Bellugi and Brown.

Berko, Jean, "The Child's Learning of English Morphology", in Word, Vol. 14, 1958, p. 150-177.

A pioneer study in English morphology, using elements within the framework of young children's vocabulary to explore their ability to apply morphological rules to new words. Four to seven year olds were asked to inflect, derive and compound words, as well as to analyze compound words. The author devised a test of pictures with nonsense words, following rules for possible sound combinations in English. Its influence can be seen on the development of the Auditory-Vocal Automatic subtest of the Illinois Test of Psycholinguistic Abilities.

Braine, Martin D.S., "The Ontogeny of English Phrase Structure: The First Phase", in Language, Vol. 39, 1963, p. 1 - 13.

From a longitudinal study of three children from age eighteen months on, the author derives a theory of grammatical structure: the characteristic structure contains two parts of speech, a pivot class and complementary (or X) class. He theorizes on how this occurs.

_____,"On Learning the Grammatical Order of Words", in Psychological Review, Vol. 70, 1963, p. 323 - 348.

The author presents his concept of "contextual generalization" as an explanation for the acquisition of grammatical structure, particularly those aspects having to do with word order. In a series of experiments, children learned miniature artificial languages to explore this theory. The last part of the paper confronts theory with known facts about the structure of natural languages, and modifies the theory slightly.

Brown, Roger and Ursula Bellugi, "Three Processes in the Child's Acquisition of Syntax", in the Harvard Educational Review, Vol. 34, 1964, p. 133 - 151.

Describes a study of the development of two young children's language over a year. The processes which the authors describe and discuss in relation to findings are: imitation and reduction; imitation with expansion; and induction of the latent structure. Rules for a generative grammar are written for the third phase.

-------- and Jean Berko, "Word Association and the Acquisition of Grammar", in Child Development , Vol. 31, 1960, p. 1 - 14.

Describes a study of children in Grades One to Three, relating their tendency to give homogeneous (same part-of-speech) word associations, to their ability to make correct grammatical use of new words after hearing them in a couple of sentences. Compares the results with that of a group of adults. Evaluates the development of children's syntax, as it relates to the use of English parts of speech in the two areas tested.

-------- and Colin Fraser, "The Acquisition of Syntax", Chp. 5, in Verbal Behaviour and Learning: Problems and Processes , C. N. Cofer and Barbara S. Musgrave, Eds; New York, McGraw-Hill, 1963, p. 158 - 197; also in "The Acquisition of Language", Monographs of the Society for Research in Child Development, Ursula Bellugi and R. W. Brown. Eds; Serial No. 92, Vol. 29, 1964.

States the thesis that grammar is both the sentences of a language and a programme for generating sentences, i. e., construction rules. Three sections discuss the development of sentence generating grammar in children. One section reviews studies with invented linguistic materials which show that children do have rules of word and sentence construction. A second section discusses techniques for inducing a child's generative grammar from a large collection of the child's utterances, based on an intensive case study. The third section analyses the results of the records of thirteen two to three year olds whose speech, the authors state, is characterized as a systematic reduction of adult speech.

Carroll, John B., "Determining and Numerating Adjectives in Children's Speech", in Child Development, Vol. 10, 1939, p. 215 - 229.

Perhaps the original published study on a psycholinguistic approach to the study of grammar. He states that his analysis is one of the first to investigate the development of a specific set of grammatical phenomena and that this is basic to understanding grammatical processes. A linguistic classification (Bloomfield's) is used. Studies were made on two and one half to four and one half year old nursery and kindergarten children, in "free" and "controlled" speech situations. He attempts to ascertain significant trends in frequency, and the direction of trends, as well as to describe grammatical development in terms of these trends.

Ervin, Susan M. and Wick R. Miller, "Language Development", Chp. 3, in Child Psychology, Sixty-Second Yearbook, Part I, H. W. Stevenson, Ed., National Society for the Study of Education, Chicago, Chicago University Press, 1963, p. 108-143.

Discusses theory and research on the two levels of language, phonological and grammatical, with reference to young children. Includes a good bibliography of English and other language references.

Ervin, Susan, "Imitation and Structural Change in Children's Language", in New Directions in the Study of Language, Eric H. Lenneberg, Ed., Cambridge, Mass., M.I.T. Press, 1964, p. 163 - 189.

Theorizes as to how children learn language. Reports a small study comparing the imitated and free utterances of young children and discusses this in relation to the theory. States the different views of child language development, and reports the 1964 study of Miller and Ervin. Data on plurals, past tenses and syntax are used from this study to examine and compare the different views of child language development. A good theoretical article.

Ervin-Tripp, Susan, "Language Development", in Review of Child Development Research, Vol. 2, Lois Wladis Hoffman and Martin Hoffman, Eds., New York, Russell Sage Foundation, 1966, p. 55 - 105.

A comprehensive survey of language development of young children. Gives an historical point of view, but mainly concerns current theory and research in many aspects of language. Includes an extensive bibliography of English and other language references. An excellent survey and reference, with a theoretical and conceptual framework.

Ferguson, Edith, Newcomers in Transition, A Project of the International Institute of Metropolitan Toronto, 1962-1964, 128 p.

Describes historical, social and economic background of Italian and Portuguese immigrants to Canada; their adjustment in major life areas; areas of origin, numbers, and settlement in Toronto.

-------- , Newcomers and New Learning, A Project of the International Institute of Metropolitan Toronto, 1964-1966, 114 p.

Describes educational and vocational backgrounds of Greek, Italian and Portuguese immigrants to Toronto; their areas of origin, numbers and present settlement; their educational and vocational adjustments; and the Institute's project to assist them with these adjustments.

Fraser, Colin, Ursula Bellugi and Roger Brown, "Control of Grammar in Imitation, Comprehension, and Production", in the Journal of Verbal Learning and Verbal Behaviour, Vol. 2, 1963, p. 121-135.

Describes a study with twelve three year olds to test the assertion that understanding precedes production in language development. A test of sentences, containing one grammatical contrast per pair, and accompanied by appropriate pictures, was devised. Understanding required correct identification of pictures named by contrasting sentences. Imitation required correct repetition of the contrast heard. Production required that the child name the contrast appropriately when the examiner pointed to the picture. Production or appropriate naming was less advanced than understanding, and imitation was more advanced than understanding. The authors theorize as to the psychological operations involved.

Kernan, Keith T. and B. G. Blount, "The Acquisition of Spanish Grammar by Mexican Children", in Anthropological Linguistics, Vol. 8, 1966, p. 1-14.

Describes a study with Spanish speaking Mexican children, aged five to twelve years, to study the acquisition of Spanish morphology. Berko's technique of nonsense words presented orally in sentences, accompanied by a picture, was adapted. Grammatical categories chosen were representative of Spanish grammar or corresponded directly to English categories chosen by Berko. Age group differences were compared and developmental trends reported. The study appears to be the first research of its type in a language other than English, and allows for cross-cultural and language comparisons. It also uses a different socio-economic and cultural group than do most research studies.

Kirk, Samuel A. and James J. McCarthy, "The Illinois Test of Psycholinguistic Abilities-An Approach to Differential Diagnosis", in the American Journal of Mental Deficiency, Vol. 66, 1961, p. 399-412.

The initial article published on the Illinois Test of Psycholinguistic Abilities, which the authors describe as an attempt at developing a psychometric instrument in the psycholinguistic field, for diagnosis as a prelude to remediation. Describes the theoretical models on which the present test model is based, and the subtests derived from the test model. Describes the construction and standardization of the test, and gives case studies of its clinical use. Test theory and its relationship to subtests, particularly the Auditory-Vocal Automatic subtest, is discussed in Chapter II, Section 3.

Lambert, W. E. and J. Macnamara, "Some Cognitive Consequences of Following a First-Grade Curriculum in a Second Language", in Journal of Educational Psychology, Vol. 60, 1969, p. 86-96.

Describes a community sponsered project to develop skill in the use of French as a second language, by using it as the only language of instruction with first grade children whose native language is English. Audio-lingual and reading skills, and mathematics were tested in both languages, as well as language learning capacity in an unfamiliar language, and general intelligence. Oral language production is of interest to the present study.

Lovell, K. and E. M. Dixon, "The Growth of the Control of Grammar in Imitation, Comprehension, and Production", in the Journal of Child Psychology, Psychiatry and Allied Disciplines, Vol. 8, 1967, p. 31-39.

Describes a study using the procedures of Fraser, Bellugi and Brown with British urban children of a lower socio-economic class. The purpose was to trace the growth of the control of grammar in imitation, comprehension and production in two to six year old children. The test was slightly adapted, A second purpose was to confirm that the order found by Fraser et al exists at all age levels, both among normals and educationally retarded six and seven year olds in special schools.

A third purpose was to evaluate the rank order of difficulty of task items for all variables. One hundred two to six year olds, and eighty six and seven year olds in special schools for the educationally retarded were tested. Findings confirm those of Fraser et al, at all age levels, with both normals and educationally retarded. The authors relate findings about rank order of difficulty to Piaget's views regarding the nature of the relationship between language and thought.

Mackintosh, Helen K., Ed., Children and Oral Language, Association for Childhood Education International, Association for Supervision and Curriculum Development, International Reading Association, National Council of Teachers of English, 1964, vii-38 p.

The area of interest to this study is the statement of the need for effective communication, and the discussion on the importance of listening and speaking in relation to these needs. Suggestions are made to develop listening and speaking skills and the findings from research are reported and discussed.

Malrieu, Ph., "Les Formes Temporelles du Verbe Chez le Jeune Enfant", in the Journal de Psychologie Normale et Pathologique, Vol. 61, 1964, p. 385-404.

A longitudinal study of thirteen French children of various socio-economic backgrounds, whose language was recorded and evaluated at monthly intervals from the end of their first year until age four years. Purpose of the study is to examine the time dimension in the appearance of verb tenses as it relates to the child's behaviour. As a group, verb tenses and persons appear in a well defined order even though there are marked differences in their time of appearance for individuals. Examination of the present, future and past tenses and their persons, the conditions under which they occur, their significance for the child, and the change in thought process accompanying the use of these forms, make up the major part of the article.

May, Frank B., "The Effects of Environment on Oral Language Development: I", in Elementary English, Vol. 43, 1966, p. 587-595.

Discusses the relationship of the home environment to oral language development and research studies done. Sections on kind of parenting, sibling relationships, child rearing practices, socio-economic status, sex differences, and parental language habits are included. Valuable background material for this study and a good source of hypotheses to be tested.

--------, "The Effects of Environment on Oral Language Development: II", in Elementary English, Vol. 43, 1966, p. 720-729.

Discusses the relationship of the school environment to oral language development and research studies done. Sections on teacher behaviour, school peers, administrative organization, and curriculum and instruction. Also of value as background material for this study, and a good source of hypotheses to be tested.

McCarthy, Dorothea, "Factors That Influence Language Growth: Home Influences", in Elementary English, Vol. 29, 1952, p. 421-428.

Discusses individual differences in language skills, mother-child relationships and speech, differences in home atmosphere, bilingualism, interdependence of home and school atmospheres, language disabilities and remedial work; cites research where available, and makes suggestions for the teacher.

McCarthy, Dorothea, "Language Development in Children", in Manual of Child Psychology, 2nd Ed., Leonard Carmichael, Ed., New York, John Wiley and Sons, Inc., 1954, p. 492-630.

Extensive survey on language development with reports of research studies and bibliography. Of direct interest to this study is the discussion on the importance of language to the individual.

McCarthy, James J. and Samuel A. Kirk, Examiner's Manual, Illinois Test of Psycholinguistic Abilities, Experimental Edition, Institute for Research on Exceptional Children, University of Illinois, Urbana, Illinois, 1961, vii-130 p.

Describes the historical development of the test and its relationship to existing tests. Also describes the test's theoretical model of psycholinguistic abilities and its relationship to the subtests, discussed in Chapter II, section 3. Further describes the clinical use of the test, and briefly, the construction and standardization of the test. Gives instructions, scoring, norms and interpretation of the test instrument, also used in this study.

--------, The Construction, Standardization and Statistical Characteristics of the Illinois Test of Psycholinguistic Abilities, University of Wisconsin and Institute for Research on Exceptional Children, University of Illinois, Urbana, Illinois, 1963, vii-90 p.

Describes the general theory and its application to the test, the construction and development of subtests, the standardization procedures, and the statistical analysis and characteristics of the test. Discussed in Chapter II, section 4, as an evaluation of the Auditory-Vocal Automatic subtest's reliability and validity; also mentioned briefly in Chapter II, section 3, for a description of the Auditory-Vocal Automatic subtest.

--------, and James L. Olson, Validity Studies on the Illinois Test of Psycholinguistic Abilities, University of Wisconsin and University of Wisconsin-Milwaukee, 1964, viii-106 p.

Describes the test's historical development, the test model, and the subtests based on the model. Describes the correlational study undertaken to evaluate the various kinds of validity on which tests are evaluated. Discussed in Chapter II, section 4, as an evaluation of the validity of the Auditory-Vocal Automatic subtest, and mentioned briefly in Chapter III, section 2.

McNeill, David, "The Capacity for Language Acquisition", in The Volta Review, Vol. 68, 1966, p. 17-33.

Discusses the acquisition of syntax. Defines syntax, discusses generative and transformational grammar, and linguistic theory in relation to them. Discusses the acquisition of linguistic competence and recent studies on child language, with particular reference to the work of Braine, Brown et al, and Ervin. The last section deals with the findings of these studies and their application to language acquisition by deaf children.

Métraux, Ruth W., "A Study of Bilingualism Among Children of U.S. - French Parents", in The French Review, Vol. 38, 1965, p. 650-665.

A study of forty-seven children whose parents were interested in educating them in two languages. Personal characteristics divided the children into two very clear categories those who learn languages more rapidly, and those who take longer to become bilingual. The author lists the characteristics of each group. She concludes that for preschool and primary children, one of the most important considerations in the learning of a second language is the personality of the child itself.

Miller, Wick and Susan Ervin, "The Development of Grammar in Child Language", in "The Acquisition of Language", Monographs of the Society for Research in Child Development, Ursula Bellugi and R.W. Brown, Eds., Serial No. 92, Vol. 29, 1964, p. 9-34.

Describes a longitudinal study, from ages two to four years, of children's language. Describes their first grammatical systems, the system with word class markers, and the developmental sequences of linguistic features. Also describes tests developed, similar to Berko's, on plurals, pronouns and two forms of a discourse agreement test. Theorizes concerning findings.

Noell, Doris I., "A Comparative Study of the Relationship Between the Quality of the Child's Language Usage and the Quality and Types of Language Used in the Home", in the Journal of Educational Research, Vol. 47, 1953, p. 161-167.

A study of children from differing socio-economic backgrounds. Findings point to the frequency and quality of parental language as determiners of the quality of children's language usage, and the necessity of parental cooperation with the school to improve the child's quality of language.

Research Department, Study of Achievement: An Outline of a Longitudinal Study from Junior Kindergarten Through the Elementary Grades, The Board of Education for the City of Toronto, 1964, 8 p.

Describes the purpose, and outlines the research study named above.

--------, Study of Achievement: Junior Kindergarten: Who is Served and Who Goes, The Board of Education for the City of Toronto, 1965, 32 p.

Discusses the Junior Kindergarten population, their characteristics, and socio-economic findings from the study of achievement.

Sievers, Dorothy Jean, "Development and Standardization of a Test of Psycholinguistic Growth in Preschool Children", Ph. D. Thesis, University of Illinois, Urbana, Illinois, 1955, published in the Doctoral Dissertation Series, Publication No: 15,271, University Microfilms, Ann Arbor, Michigan, 1963, viii-124 p.

Doctoral thesis which attempts to devise a series of tests to measure the various aspects of language in preschool children and to provide normative data on the test scale with a sample of average children. Tests are derived from a psycholinguistic analysis of the language process according to a theory of communication postulated by Osgood. Of interest to the writer's study is the test of "Vocal Cloze" which the author says attempts to tap all the speech facilities. This test is the forerunner of the Auditory-Vocal Automatic subtest, as the entire battery is the forerunner of the Illinois Test of Psycholinguistic Abilities. A comprehensive theoretical and practical work.

Strickland, Ruth G., "Factors That Influence Language Growth: School Influences", in Elementary English, Vol. 29, 1953, p. 474-481.

Discusses the emotional factors involved in the meeting between the language of the school and that of the home and neighbourhood. The major topics covered discuss . . the importance of the teacher, the peer group, the school environment, books and reading, and the interrelationship of the language arts. Research findings are cited where available.

Tucker, G.R., W.E. Lambert, Alison d'Anglejan and F. Silny, "Cognitive and Attitudinal Consequences of Following the Curricula of the First Four Grades in a Second Language", mimeograph, McGill University, Feb. 1971, ii-55p.

Presents a critical evaluation of four years' progress for an experimental class with bilingual (French-English) instruction, and of three years' instruction for a second follow-up class, with the major emphasis given to French. Evaluates language skills and mathematics in both languages, and also intellectual and attitudinal effects. Oral language production is of interest to the present study.

Valette, Rebecca M., "Some Reflections on Second-Language Learning in Young Children", in Language Learning, Vol. 14, 1964, p. 91-98.

Reports a case study for a nine month period, of a young boy (aged 3/3 - 4/0) learning French at nursery school. Records the child's acquisition of language; pronunciation and accent; learning of grammatical forms and vocabulary; and the place of English in his life. Discusses the child's learning in relation to some aspects of theories of second language learning.

Wells, Charlotte, "Factors That Influence Language Growth: The Child's Equipment for Language Growth", in Elementary English, Vol. 29, 1952, p. 348-355.

Discusses physical, psychological, and environmental factors and their interaction, which are necessary for language learning. Gives a developmental history of speech. Discusses school factors that facilitate the child's use of "equipment". Discusses the necessity of these abilities in the use of language and the use of language for living.

APPENDIX 1

DATA SURVEY SHEET COMPILED BY TEACHERS

SURVEY OF SENIOR KINDERGARTEN CLASSES

School _____

Teacher's name _____ Rm.# _____

Check whether AM _____ PM _____ Class

NAMES	I English only spoken at home	II (a) Italian only spoken at home	II (b) Italian & English spoken at home	II (c) Cannot Classify as either II(a) or II(b)	III (a) Foreign Language (except Itl.) spoken at home	III (b) Foreign Language (except Itl.) & English Sp. at home	III(c) Cannot Classify as either III(a) III(b)
1.							
2.							
3.							
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11.							
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17.							
18.							
19.							
20.							
21.							
22.							
23.							

OR ITALIAN SPEAKING CHILDREN ONLY

) n ge t Itl ish home	a) in y	IV (b) Born in Canada	IV (c) Attended Jr. Kindergarten 1965-66	IV(d) Date of Entry into Canada (if known)	IV (e) Check if any serious Physical or other handicap

APPENDIX 2

QUESTIONNAIRE CONCERNING LANGUAGE USE USED WITH SUBJECTS

NAME_____ Father_____ Mother_____

Date of birth_____ Sex_____

School_____

Teacher_____

Room No._____ Date of Test_____

Date of Entry into Canada_____

Father's occupation_____

_____

"Name everyone who lives in your house"

_____

_____

_____

Check their relationship to the child -

What language are we talking now ?_____

Do you know its name ?_____

Do you use the language we're talking now at home ?

What language do you talk at home?_____

_____

If your father said "Sit down",how would he say it ?_____

In English ?_____

Does your father tell you to do anything in English ?_____

If your mother said "sit down", how would she say it ?_____

In English?_____

Does your mother tell you to do anything in English ?_____

In what language do you talk to your brothers and sisters ?_____

To your playmates ?_____

Do you play with anyone who speaks another language ? _____

Do you watch TV ? _____What Programmes ?_____

_____

Do you listen to the radio ?_____What Programmes ?_____

_____

Do you have any picture books ?_____ In English ?_____

APPENDIX 3

TABLES OF CLASS PERCENTAGES OF ETHNIC DENSITY, STANDARD SCORES, AND AGES OF SUBJECTS

CLASS PERCENTAGES OF ETHNIC DENSITY, STANDARD SCORES, AND AGES OF MALE SUBJECTS

School	Class	Percentage	Student Number *	Score	Age
Ch	1	65%	015	-2.91	5/10
			016	-2.59	5/10
Ch	2	76%	022	- .74	6/3
			023	- .74	6/4
			024	-2.59	6/3
Ch	3	86%	010	-2.22	6/3
Ch	6	89%	005	-3.00	5/8
			006	-1.94	6/0
Cl	8	58%	027	+ .34	6/2
			028	+ .73	6/4
			029	-2.73	5/8
Cl	9	95%	039	-1.28	5/10
Cl	10	76%	044	- .31	6/3
			045	+ .72	5/9
			046	-1.94	6/3
			047	1.61	6/3
			048	-1.94	5/10
			049	-2.26	5/11
			050	+ .02	6/0
Da	11	64%	051	-1.94	6/3
			052	- .74	6/4
Da	12	50%	058	+ .02	6/1
Da	13	67%	061	-3.00	6/2
Da	15	64%	065	-2.91	5/11
De	16	53%	066	-3.00	6/4
			069	- .96	6/3
De	17	36%	072	-2.41	5/9
Ea	18	85%	075	- .31	6/0
			076	+ .02	5/11
			077	-1.28	6/2
			078	+ .34	6/0
Ea	20	88%	082	+ .02	6/0
			083	- .45	6/4
			084	-2.59	6/2
			085	-1.94	6/2

* Numbers assigned according to original alphabetical order o schools and the order in which classes were tested

MALE SUBJECTS (continued)

School	Class	Percentage	Student Number	Score	Age
Ea	21	88%	088	-1.61	6/2
			089	-1.28	6/3
Ea	22	80%	092	-1.63	6/4
GM	23	53%	096	- .85	5/9
			097	-2.59	6/1
GM	26	35%	105	-1.28	6/2
Gr	27	67%	106	-2.22	6/4
			107	-1.61	6/2
Gr	28	79%	114	-1.28	5/11
			115	-2.81	6/4
			116	-2.59	5/10
Gr	29	80%	124	+ .34	6/0
			125	-2.26	6/0
			126	-2.91	6/2
Gr	30	88%	128	+ .02	6/1
			129	-2.91	6/3
			130	-1.47	5/9
LL	32	27%	136	+ .44	6/4
MM	33	41%	138	-3.00	6/2
MM	37	69%	149	-2.26	6/0
MM	38	33%	152	- .53	5/8
MM	39	85%	153	-1.16	5/8
Pl	43	65%	159	-2.26	6/3
Pu	44	25%	162	+ .67	6/2
Pu	45	41%	165	- .63	6/2
			166	.53	5/9
Pu	46	79%	169	- .63	6/3
			170	-1.28	5/10
			171	-2.26	6/0
			172	- .31	6/2
			173	- .96	5/11
			174	- .02	6/3
			175	-3.00	6/3
			176	-1.28	5/10
Pe	47	33%	177	-2.91	5/11
Pe	49	71%	183	-3.00	5/10
RR	52	71%	191	1.94	6/2
			193	.96	5/11
			194	-1.92	6/4
Sh	54	16%	197	+ .99	6/1

CLASS PERCENTAGES OF ETHNIC DENSITY, STANDARD SCORES, AND AGES OF FEMALE SUBJECTS

School	Class	Percentage	Student Number *	Score	Age
Ch	1	65%	013	-1.28	5/10
			014	-2.41	5/9
Ch	2	76%	017	-2.81	6/4
			019	-3.00	6/4
			020	.15	6/4
			021	-2.22	6/3
Ch	3	86%	009	-1.16	5/9
Ch	6	89%	001	-3.00	6/0
			002	-1.61	5/11
			003	+ .34	5/11
			004	-3.00	6/0
Cl	8	58%	033	-2.26	6/0
			034	- .63	6/3
			035	-1.61	6/3
			036	- .96	5/10
Cl	9	95%	037	-3.00	5/9
Cl	10	76%	041	- .63	5/11
			042	- .31	5/11
			043	-1.94	5/11
Da	11	64%	053	- .74	6/4
Da	12	50%	057	- .96	5/11
Da	13	67%	059	-2.91	6/3
			060	+ .02	6/3
Da	15	64%	064	-2.41	5/9
De	16	53%	067	+ .44	6/4
			068	-3.00	6/1
De	17	36%	071	-1.28	5/10
Ea	18	85%	074	-1.61	6/2
Ea	20	88%	086	-1.28	6/3
Ea	21	88%	087	.96	6/1
Ea	22	80%	090	- .96	6/3
			091	- .74	6/4

* Numbers assigned according to original alphabetical order of schools and the order in which classes were tested

FEMALE SUPJECTS (continued)

School	Class	Percentage	Student Number	Scores	Age
GM	23	53%	095	-2.26	6/3
GM	26	35%	104	- .96	6/2
Gr	27	67%	108	-1.61	6/0
Gr	28	79%	109	-2.41	5/8
			110	-2.59	5/10
			111	-2.26	5/10
Gr	29	80%	117	-2.91	5/11
			118	- .96	6/3
			119	-3.00	6/0
			120	-3.00	6/1
			121	-1.28	6/2
			122	- .31	5/11
			123	-2.91	5/11
Gr	30	88%	127	-2.73	5/8
LL	32	27%	135	-1.61	6/2
MM	33	41%	137	- .63	5/10
MM	37	69%	145	- .22	6/1
			146	- .63	6/1
			147	- .96	6/1
MM	38	33%	150	- .31	6/1
			151	- .63	5/10
MM	39	85%	154	-3.00	6/0
Pl	43	65%	160	-1.63	6/4
Pu	44	25%	161	+ .67	5/10
Pu	45	41%	163	-1.61	6/1
Pu	46	79%	167	-1.94	6/1
			168	-2.59	6/3
Pe	47	33%	178	- .15	6/4
Pe	49	71%	182	-2.91	6/3
RR	52	71%	188	-1.94	6/0
Sh	54	16%	197	- .63	6/1
			198	- .31	6/2

APPENDIX 4

TABLES OF AVERAGED SCORES FOR SUBJECTS

AVERAGED SCORES OF CLASSES FOR MALES

School	Class	Average Score of Class	Score with Constant (+4.00) Added
Ch	1	-2.75	1.25
Ch	2	-1.3566	2.6434
Ch	3	-2.22	1.78
Ch	6	-2.47	1.53
Cl	8	- .5533	3.4467
Cl	9	-1.28	2.72
Cl	10	-1.0457	2.9543
Da	11	-1.34	2.66
Da	12	+ .02	4.02
Da	13	-3.00	1.00
Da	15	-2.91	1.09
De	16	-1.98	2.02
De	17	-2.41	1.59
Ea	18	- .3075	3.6925
Ea	20	-1.24	2.76
Ea	21	-1.445	2.555
Ea	22	-1.63	2.37
GM	23	-1.72	2.28
GM	26	-1.28	2.72
Gr	27	-1.915	2.085
Gr	28	-2.2266	1.7734
Gr	29	-1.61	2.39
Gr	30	-1.4533	2.5467
LL	32	+ .44	4.44
MM	33	-3.00	1.00
MM	37	-2.26	1.74
MM	38	- .53	3.47
MM	39	-1.16	2.84
Pl	43	-2.26	1.74
Pu	44	+ .67	4.67
Pu	45	-1.16	2.84
Pu	46	-1.2175	2.7825
Pe	47	-2.91	1.09
Pe	49	-3.00	1.00
RR	52	-1.6066	2.3934
Sh	54	+ .99	4.99

AVERAGED SCORES OF CLASSES FOR FEMALES

School	Class	Average Score of Class	Score with Constant (+4.00 Added)
Ch	1	-1.845	2.155
Ch	2	-2.045	1.955
Ch	3	-1.16	2.84
Ch	6	-1.8175	2.1825
Cl	8	-1.365	2.635
Cl	9	-3.00	1.00
Cl	10	- .96	3.04
Da	11	- .74	3.26
Da	12	- .96	3.04
Da	13	-1.445	2.555
Da	15	-2.41	1.59
De	16	-1.28	2.72
De	17	-1.28	2.72
Ea	18	-1.61	2.39
Ea	20	-1.28	2.72
Ea	21	- .96	3.04
Ea	22	- .85	3.15
GM	23	-2.26	1.74
GM	26	- .96	3.04
Gr	27	-1.61	2.39
Gr	28	-2.42	1.58
Gr	29	-2.0528	1.9472
Gr	30	-2.73	1.27
LL	32	-1.61	2.39
MM	33	- .63	3.37
MM	37	-.6033	3.3967
MM	38	- .47	3.53
MM	39	-3.00	1.00
Pl	43	-1.63	2.37
Pu	44	+ .67	4.67
Pu	45	-1.61	2.39
Pu	46	-2.265	1.735
Pe	47	- .15	3.85
Pe	49	-2.91	1.09
RR	52	-1.94	2.06
Sh	54	- .47	3.53

APPENDIX 5

TABLES OF CLASS SCORES FOR SUBJECTS, ARRANGED IN DENSITY GROUPINGS

CLASS SCORES FOR MALES ARRANGED IN DENSITY GROUPINGS

High	Medium	Low
1.7734	3.4467	4.99
2.7825	2.66	4.67
2.37	1.09	4.44
2.39	1.25	3.47
3.6925	1.74	1.09
2.84	1.00	2.72
1.78	2.085	1.59
2.76	1.74	1.00
2.555	1.00	2.84
2.5467	2.3934	4.02
1.53	2.6434	2.28
2.72	2.9543	2.02

CLASS SCORES FOR FEMALES ARRANGED IN DENSITY GROUPINGS

High	Medium	Low
1.58	2.635	3.53
1.735	3.26	4.67
3.15	1.59	2.39
1.9472	2.155	3.53
2.39	2.37	3.85
1.00	2.555	3.04
2.84	2.39	2.72
2.72	3.3967	3.37
3.04	1.09	2.39
1.27	2.06	3.04
2.1825	1.955	1.74
1.00	3.04	2.72

APPENDIX 6

ABSTRACT OF

The Relationship Between Ethnic Density and the Acquisition of English Inflections in Italian Speaking Kindergarten Children

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ABSTRACT OF

The Relationship Between Ethnic Density and the Acquisition of English Inflections in Italian Speaking Kindergarten Children[1]

Oral language is of importance to the development of an individual as a means of communication with other people and with the world around him; because it is a tool for thought; and as a foundation for formal learning. If an individual is expected to use a language other than one with which he is familiar, such as speaking one language at home and learning a second at school, the situation is complicated.

The need to investigate scientifically the rate of oral language patterns in second language learning, specifically, the acquisition of English grammatical inflections of young children learning English as a second language, provided the basis for the present study. It seemed probable that the rate of acquisition of oral language patterns would show a relationship to the number of children in the class also establishing new oral language patterns. No previous research on this aspect of second language learning could be found in the literature.

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1 Joan Iris Honsberger Siemens, Master's thesis presented to the School of Graduate Studies of the University of Ottawa, 1974. x - 93 p.

The subjects were Canadian born Italian speaking children between the ages of 5/8 and 6/4 in 36 Senior Kindergarten classrooms with both male and female subjects. The Auditory-Vocal Automatic subtest of the Illinois Test of Psycholinguistic Abilities was administered individually to assess the acquisition of English grammatical inflections.

The results of the experiment were analyzed using an Analysis of Variance, and indicated that ethnic density (the percentage of one language group per class) was the only significant variable showing a relationship to test scores. Ethnic density was further analyzed by Tukey's Test, a post hoc procedure. The results indicated significant differences between low and medium density groups, and between low and high groups, but that the difference between medium and high density groups was not significant. The results suggested that above a certain level, density was no longer a significant factor influencing the acquisition of English grammatical inflections as revealed by Auditory-Vocal Automatic scores.

The findings gave some experimental support to hypotheses that smaller numbers of non-English speakers in a class allow more opportunities for practice in listening and speaking, and that the rate of acquisition of new oral language patterns is related to the

number of children in the class also learning the new language. They gave indirect support to hypotheses that more adequate language models, and teacher help for correction, are more available in classrooms with fewer non-English speaking children. Nevertheless, a greater difference might have been expected between medium and high density groups.

It was concluded that differing percentages of ethnic density for each sex group, and differential patterns of social interaction for males and females, might have influenced the acquisition of English grammatical inflections. These areas should be investigated, as well as the question of number of peers and adequacy of linguistic skills required as "models", and the question of the direct teaching of grammatical inflections, in contrast to their acquisition by normal classroom exposure.