

33145

Evaluation of Systematic Instruction
to aid West Indian Students

Eileen Marrett

A Thesis
in
The Department
of
Education

Presented in Partial Fulfillment of the Requirements for the
degree of Master of Arts in Educational Technology
Concordia University,
Montreal, Quebec, Canada

November; 1976

Light copy

Abstract

Eileen Marrett

Evaluation of Systematic Instruction
to Aid West Indian Students

Poor language comprehension may cause inadequate performance by many immigrant students whose mother tongue is not standard English. Glasgow school authorities (1970) and Bagley (1971) both found correlations between length of time in British schools and achievement levels. Bazatz (1968) indicates the importance of dialect interference in the education problems of black children but Rundell (1973) suggests otherwise. Based on hierarchical sequencing of thirteen related skills (Gagné, 1970), reading comprehension tests were administered to three Montreal classes, containing approximately 20% West Indian immigrants. Individualized instruction, followed by post-tests, then were given. For recent West Indian immigrants, results of the .05 level of probability show that:

- 1) individual diagnosis and remediation of language arts skills compatible with instructional sequencing would probably be beneficial to certain students; instruction was interpreted to be a significant co-variant.
- 2) some positive correlation exists between length of residence of West Indian students and their post-test results.
- 3) some negative correlation exists between pre-test scores and frequency of use of Creole.

ACKNOWLEDGEMENTS

It is with deep gratitude that I acknowledge the help of the following persons, without whose assistance it would have been impossible to complete this thesis:

Dr George Huntley - my major advisor who headed the FCAC project mentioned in this thesis.

Professor Arpi Hamalian - whose clear thinking often helped overcome the doubts which assailed me.

Professors Eric Holden and Norman Henchey for agreeing to serve on my thesis committee.

Professor Mona Farrell - senior colleague on the FCAC project, with whom many hours of discussion were shared.

Professor Ken Lorimer - for his incisive criticisms.

Diane Ludlow - of the Computer Centre, Concordia University, for her competent handling of the computer operations required.

Charles Dehoux - a fellow Research Assistant on the FCAC project.

Ivy Jennings, Bernie Baynes, Curtis George and Ian Herron - for their helpful co-operation.

Sandy King - my typist whose willingness to work under pressure helped me meet the deadlines set.

And most of all my family, whose unfailing love and support made this effort worthwhile.

TABLE OF CONTENTS

Abstract

Acknowledgements

1. The Problem..... 1 - 8.
 Context and Statement..... 1
 Summary..... 8

2. Review of Related Research..... 9 - 22
 Minority Student Performance within the
 School System..... 9
 Teacher Expectation and Student Performance.... 13
 Systematic Instruction..... 15
 Introductory Phase of Instruction..... 17.
 Guidance and Application Phases of
 Instruction..... 18
 Feedback Phase of Instruction..... 19
 Effects of Systematic Instruction..... 20
 Summary..... 22

3. Methodology..... 23 - 65
 Hypotheses..... 23
 Rationale for the Hypotheses..... 25
 Operational Definition of the Variables.... 27
 Operational Restatement of the Hypotheses.. 28
 Population and Sample..... 29
 Research Design..... 30
 Variables..... 31
 The Pilot Project..... 33
 Instructional Materials..... 34
 The Terminal Objective..... 34
 Task Analysis..... 36
 Preparation & Validation of Criterion
 Tests..... 40

TABLE OF CONTENTS

3. (cont)

- Item Analysis..... 42
- Sequencing..... 42
- Instructional Packages..... 43
- Post-Test..... 46
- Evaluation of Instructional Materials..... 46
- Statistical Procedures..... 49
 - Test Scoring..... 49
 - Data..... 49
 - Data Analysis..... 50
 - Results..... 53
- Summary..... 65

4. Discussion, Conclusion, Recommendations..... 65 - 80

- Summary of Results..... 66
- Discussion..... 66
- Conclusions..... 73
- Recommendations..... 78
- Summary..... 80

5. References..... 81 - 85

6. Appendix A..... 86 - 88

- (1) letter to teacher
- (2) Students questionnaire

Appendix B..... 89 - 104

- The Pre-tests

Appendix C..... 105 - 107

- Sample Post-tests

Appendix D..... 108 - 112

- Sample Unit of Instruction

TABLE OF CONTENTS

List of Figures

Figure I.....	37
Author's original tentative hierarchy for elementary reading skills - February 1976	
Figure II.....	38
Revised tentative hierarchy for reading skills - March 1976	

List of Tables

Table 1 - Nationality of Immigrant Pupils - Great Britain, Spring 1967,.....	11
Table 2 - Comparison of Pre-and Post-Test Means of Subjects.....	52
Table 3 - Co-variate analysis - West Indian vs Native-born - Pre-test, regarding age and language.....	54
Table 4 - Co-variate analysis - West Indian vs Native-born - Post-test, controlling for pre-test, age and language.....	55
Table 5 - Co-variate analysis - West Indians only - Pre-test, by Creole and SES, controlling for age and language.....	57
Table 6 - Co-variate analysis - West Indians only - Post-test by Creole and SES, controlling for pre-test, age and language.....	58
Table 7 - Co-variate analysis - West Indians only - Pre-test by Creole and SES - length of stay, controlling for age and language....	59
Table 8 - Co-variate analysis - West Indians only - Post-test by Creole, SES length of stay, controlling for pre-test, age and language.....	61

TABLE OF CONTENTS

List of Tables (cont)

Table 9 - Results of Multiple Regression Analysis
on scores of West-Indian students in-
cluding Creole as an Independent Variable... 62

Table 10 - Results of Multiple Regression Analysis
on scores of Native-born students, ex-
cluding Creole as an Independent Variable..... 62

Table 11 - Correlations between test scores of
West Indian subjects with length of
residence in Canada..... 64

Table 12 - Correlation between test scores of
West Indian subjects with degree
of Creole used..... 64

Table 13 - Variances in Population Scores..... 67

Table 14 - Relationship between post-test
scores of West Indian students and
length of Canadian residence..... 71

Table 15 - Relationship between post-test scores
of West Indian students and length
of Canadian residence..... 72

Table 16 - Regression Coefficients in School I -
white Canadian teachers vs School II -
West Indian immigrant teachers..... 74

Chapter 1

The Problem

Context and Statement

The problem studied concerns the type of instruction best suited to improve weaknesses in the language arts skills of West Indian children recently immigrated to Canada and entering the Canadian school system. Can systematic instruction, as advocated by Gagné and Briggs (1974), be utilised to ameliorate weaknesses in performance such as are described in d'Oyley (1976)? These problems may be unrecognised at the beginning of the child's school experience in this country; it is assumed that he is fluent in Standard English, having come from islands which formed part of the British Empire and where English is the official language. The immigrant pupil however, whose parents might have formed part of the wave of those entering the country during the last decade or two, may have come from areas where his exposure to Standard English was limited. The Creole language he speaks, based on a mixture of the African, English, Spanish and other tongues in varying degrees, may be all but incomprehensible to the teacher. Perhaps even more important, the English of the teacher may be all but incomprehensible to him. As will be shown, some of these difficulties may be explained by the gap in communication between teacher and student. Systematic instruction is proposed as one method whereby these core skills may be improved.

Although no official figures are available from the School Boards concerned, the interest of this researcher has been sparked by the uncommonly large numbers of these immigrants who appear in special classes from which they are never able to extricate themselves.

The problem under consideration has been studied in great detail (Stewart, 1964; Lavatelli, 1976; Baratz, 1968; Fasold and Shuy, 1970; Hess, 1971); however this researcher has yet to find evidence of any empirical exploration of different approaches to lessen the linguistic difficulties known to come about in conjunction with the use of a Creole language and the cultural factors thus suggested. The U.S. programme, Head Start, has been directed towards pre-schoolers, while others seem directed in one way or another, towards negating the effects of cultural deprivation. This proposal on the other hand is directed towards a problem which is known to exist, a possible explanation of that problem, and perhaps, a partial solution of one of many important aspects.

Constructing a profile of the average West Indian immigrant is a difficult task, as those who come here from the tiny Caribbean islands are as diverse as the countries themselves. Since Government documents no longer classify the source of the immigrants according to "country of birth" but according to "country of last permanent residence", West Indian immigrants therefore may be counted amongst those for whom Britain is listed as the source. The important factor to be recognised is that Federal Government statistics for 1973 (Information Canada, 1975) designate both Jamaica and Trinidad as being amongst the ten leading source countries of those who have chosen to start a new life in Canada. Many of these immigrants are the products of economic deprivation and consequential sporadic schooling. These are amongst those who have experienced the brunt of life in a part of the Third World, where colonising countries had made ineffectual attempts to use the capital drained from once wealthy islands for the education of the people.

Apart from such a likelihood and his immediately recognisable black skin, two other factors distinguish the West Indian immigrant from

immigrants who originated in the poor Eastern European or crowded Oriental countries. They are, one - his use of a Creole language which may not be recognised by his teachers as a totally different linguistic system with its own rules for syntax, intonation and stress - all of which may be concealed under the term "English"; two - his propensity for leaving his children in the care of female relatives, until they are old enough to attend school and return to a home where both parents are probably working. This latter factor has been noted by many observers, although only Nicol (1971) seems to have considered it important to results of work which he has done concerning anxiety in immigrant children.

At the age of eleven or twelve, therefore, the West Indian child, will be brought up to join parents who have become strangers, perhaps new siblings, and certainly an urban society with totally different pressures from any he has ever experienced up to that time. Integration into a new school system will be the factor which occasions the greatest frustration in a situation fraught with the most explosive potential. Failure in the school where he spends approximately six hours each day is likely to be the most obvious result of his increasing alienation. (Schools Council Working Paper, 1970).

In Britain which saw waves of migrants after World War II, the question of achievement by the children of these immigrants has occasioned much concern; while there have been relatively few organised attempts to deal with the problem in a practical way. In the U.S. both Shuey (1966) and Jensen (1969) suggested that the level of black students was hampered by their lower intelligence; and Houghton (1966) attempted to determine the I.Q., level of West Indian and English children of comparable economic status, all subjects being carefully matched. Results indicated the differences in scores to be statistically insignificant. As verbal skills had

played a significant part in the administration of these tests, parallel results appear to emphasize the stress which should be placed on linguistic skills within the schools.

The Glasgow School Board, unhappy with attainments of immigrants, conducted a study (1970) which attempted to compare the output of Indian and Pakistani immigrants with that of native-born children. The findings substantiated scores on earlier tests equating the longer British schooling with better performance. Long-stay immigrants (9 or more years) were found to be superior to Scots children on mean ratings of attainments and significantly higher in formal and problem arithmetic while there was a significant correlation between parental attitude to the host culture and measures of verbal reasoning and language attainments in the medium-stay group (4-8 years).

Other school councils in Great Britain have been concerned with the problem. One report published by the parent body (1970) describes a battery of tests administered to both immigrant and non-immigrants of West Indian parentage as well as white English children. Concerned with social, psychological, linguistic and educational adjustment as well as intellectual performance the researchers concluded that the Concept Learning and Language Function tests did not open up such large gaps in performance between the two major groups - English and West Indian - as did the tests of social adjustment and dialect interference.

To date very little has been done in Canada, but this gap is now being remedied by studies such as that on "Several Curriculum Variables in Inner-City Education" (Derevensky & Mitchell, 1975). Clark (1963) studied the effect of the pre-school programme on black children in Nova Scotia and concluded that these programmes had failed; children in

culturally deprived areas did not sustain the I.Q. increases made - a conclusion substantiated by U.S. findings that children in the Head Start programmes make early gains but lose them upon entering schools in culturally deprived neighbourhoods.

Although studies have been done on the language barriers of the culturally different (Berg, 1968) and on immigrant school children and their problems of adjustment (Triselotis, 1963) and in the comprehension abilities of speakers of Black English, there is little agreement on effective ways of tackling the problem (Rundell, 1972). Poor school achievement has been attributed, amongst other causes, to linguistic differences between BE (Black English) and SE (Standard English). Studies attest to this, but little has actually been done on methods of remedying such difficulties. The total problem is compounded by the fact that it has also been shown that testing, carried out by white testers on black subjects, can be adversely affected by the race of the tester. (Baratz, 1967; Johnson & Mihal, 1973).

Educational technology which is concerned with introducing "a high degree of professionalism and academic competence" into and "having a major impact upon educational theory, teaching, learning, and curriculum design and school organization" (Concordia University, Graduate Studies Calendar 75/6 - page 71) can do no better than address itself to a problem having implication in the fields of educational theory, teaching, learning, curriculum design and school organization.

All these facets could be affected by the use of such a programme as is being suggested. Gagné's (1970) theory of instruction, which utilises time - tested principles of repetition, contiguity and amplification as well as any previously-learned capabilities is put forth as a most useful technique for the teacher of the immigrant student; the guide for instruct-

ion which has been prepared and examples of which appear in Appendix D follows these requirements very closely indeed. Although neither the conscientious student nor the efficient teacher will wish to be confined within such narrow limits, as may seem suggested by this particular theory, its use is here recommended for those students who perhaps are not ready to cope with a freer type of instruction but who desperately need to be taught core skills in order to benefit from the education to which they are exposed. Thus the events of the lesson are carefully arranged according to the desired objectives; conditions for effective learning are inextricably intertwined with both the internal and external environment of the learner.

To date the use of performance objectives has not been so adequately researched that they may be unhesitatingly recommended. Studies such as the Texas experiment (Smith & Crittenden, 1972) suggest that the attitudes of those students who are informed of the objectives of each lesson are far more positive than would otherwise be the case. In light of this finding and that of the Schools Council (Working Paper 29, 1970) that "practically all the behavioural problems of the West Indians subsided once means were devised to cope with their learning difficulties" (p.24) this aspect of the proposed instruction is expected to be received most favourably.

Utilizing Gagné's (1970) theory of instruction also requires a somewhat different approach to curriculum design than tradition dictates, and pre-supposes that careful consideration be given to the desired outcome of instruction in order that the most effective use be made of media as an aid to the instructional event. Data derived from performance of the desired objectives has also been used to develop the instruction. Each student's performance therefore, undergoes a continuous process of evaluation and instruction based on his individual needs. Any decisions which are made in the early stages of instruction influence those made in later

stages, while later insights are used to modify the earlier plan.

The problem, then, can be stated in these terms: How might effective learning of core reading skills be facilitated by individual instruction based on diagnostic reading tests which have been arranged according to a hierarchy of skills?

West Indian and Canadian children may be viewed as members of widely divergent groups. The West Indians belong to a minority who regard the culture of the majority as threatening and alien - the much-desired life with its lure of material benefits may come about only after hurdles of unemployment and fragmentation of the family unity have been overcome. The generation gap may be accentuated by the adoption of different cultural norms; parental qualification may go unrecognised and unrewarded in the new environment. (Rex, 1972, Laferriere, 1975). For these reasons the stresses facing the immigrant pupil are additional to those facing native-born students. For both groups, schools as they exist may provide more questions than answers. Even if, as Paul Goodman suggests "the compulsory system has become a universal trap", with him we must agree that alternatives be applied without "the obligation of uniformity". (P. 198).

For both groups, despite the differing pressures which they be called upon to face, the necessity to learn core skills exists. It is proposed that one of the viable alternatives worth investigating is that of systematic instruction based on the identification of individual problems.

Hackett (1971) achieved interesting results with culturally-deprived children in California, where she used skills and objectives thus identified, to build a performance-based-curriculum in which the students could succeed.

Identification of specific areas of difficulty experienced by such students should make possible a much more effective job of lessening their

frustration, thus ensuring a more receptive attitude to school learning.

The population chosen for this study consists of fifty seven students living in two different areas of Montreal. Nineteen of these are West Indian and the schools are located in two areas of Montreal where many immigrants have chosen to live. Part of the study will be a comparison between the achievement of West Indian students and of those who are native-born, attend the same schools, come from similar socio-economic backgrounds, but do not use the Creole language to the same extent.

Summary

The present chapter has given an overview of the problem to be studied and shown the relationship of this problem to educational technology, indicating where it fits into this discipline.

Chapter Two describes the activities of instruction as organised by Gagné (1974). An attempt is made here to illustrate the importance of these activities by relating them to various studies which have been undertaken in this field. Large-scale experiments in California and Texas which have utilised Gagné's theories are described, as are the pressures facing immigrant children.

All the materials and procedures used to conduct this study are described in Chapter Three, while the final chapter contains the overall results; a discussion of these results, conclusions and recommendations based on this work.

Chapter 2

Review of Related Literature

This chapter reviews certain studies relevant to the problem of minority student performance within the school system. Although few in number, the conclusion appears to be that the achievement of the West Indian child does not justify the stereo-typed image often portrayed. His performance might be affected by the attitude of the teacher as it contributes to the learning environment. This attitude is now recognised for its importance to the child's achievement and the connection is illustrated hereunder. Systematic instruction as perceived by Gagné and Briggs is viewed as a potentially helpful undertaking, and the functions of instructions are described and grouped according to the phase of which each forms a part; these phases are related in turn to the concept of systematic instruction. Finally large-scale experiments using a performance-based curriculum are detailed.

Minority Student Performance within the School System

Like members of any other easily-distinguishable minority group, West Indian students have been stereo-typed according to a bewildering, even self-contradictory, array of images. The Schools Council Report (1970) suggested that "West Indian children are both unusually demanding of teachers' attention and, at the same time, indifferent to the good opinion of their teachers". They are seen as arrogant, yet having a low opinion of themselves. "They have natural rhythm and physical co-ordination, and yet they are clumsy. At school they exhibit a lack of enthusiasm, while managing to be exceptionally exuberant and keen. They are silent and inarticulate, and yet they talk too much." (page 22). Although some of the

Although no comparable figures are available for Canada, the large numbers of working-class West Indian who immigrated here (Information Canada, 1975) when entry into Britain was curtailed, suggest the possible repetition of the situation. Personal conversation with several West Indian educators reveal their conviction that larger numbers of their compatriots than warranted, are being shunted into practical classes. The objective of these classes is to teach survival in the school system rather than encourage excellence.

In a collection of papers Black Students in Urban Canada commissioned by the Ontario Ministry of Culture and Recreation, d'Oyley (1976) lists the most important difficulties facing the immigrant student. These are the need to adapt to a new environment and the intense difficulties associated with the use of their own language. According to this study, teachers of immigrants estimate that at least half these students experience such difficulties. The report does not differentiate between oral and written language, but the relationship between the two cannot be discounted. The non-literate person learning to read must be capable of relating certain written representations or graphic signals to the meanings of words with which he is familiar. In turn, such semantic interpretations must have significance for him.

D'Oyley also points out that large numbers of these students are placed in ESL (English as a Second Language) classes. The resentment of the immigrant child unexpectedly unable to communicate effectively in his mother tongue must lead to intense frustration. It is noteworthy in this connection that hostility to adults was measured as part of the Schools Council Project and reported in their document Teaching English to West Indian Children (1970) previously described. According to this study "practically all the behavioural problems of the West Indian children

contradictions suggested may be reconciled, it seems clear that such contradictory behaviour cannot be attributed to all the children at the same time. The teacher's perspective is obviously being used as a frame of reference; certain cultural and social factors of which he is ignorant may contribute to behaviour which he fails to understand.

Use of non-standard English does appear to contribute to difficulties experienced by newly-arrived immigrants. Results of the Dialect Interference Test, part of the battery given by the Schools Council mentioned above indicate that the English children scored higher on all sections. The Concept Learning tests, on the other hand revealed no significant difference in performance. The Language Function tests involving descriptive statement showed the English pupils scoring higher; those concerned with instruction and questioning revealed no significant difference in performance. In view of these findings the figures given by Coard (1974) showing that four out of every five children in ESN (Educationally Sub-Normal) schools are West Indian take on frightening overtones. The following table, culled by Coard from an Inner London Education Authority report, and quoted by him substantiate this claim:

Table 1

Nationality of Immigrant Pupils - Great Britain, 1967

<u>Nationality</u>	<u>Ordinary Schools</u>	<u>ESN Schools</u>
West Indian	54%	75%
Indian & Pakistani	10	14
Cypriot	16	13
Others	21	8
Total number of children	55.161	886

subsided once measures were devised to cope with their learning difficulties" (p.24). Another interesting conclusion of this study, in view of the direction to be taken in this project, is that "individual programmed work is one of the activities at which West Indians appear to do well" (p.48).

In Great Britain, as in Montreal, large numbers of newly-arrived immigrant pupils are to be found in certain central areas of the city where cheaper housing and ease of transportation help make the transition from one environment to another easier. Little et al (1967) conducted a study on Immigrant Pupils in Inner London, comparing the attainments of immigrant and English-born students. The conclusions were that significant differences existed between immigrant and non-immigrant groups, performance being related to knowledge of English, the country of origin and the length of education in the U.K. The conclusions that the instructional systems are not serving efficiently the needs of the pupils involved are similar to the findings of the Glasgow School Board and of Houghton previously described.

That the schools have failed the children may also be inferred from Clarke's study (1963). She attempted to determine the extent of probable school difficulty experienced by the culturally-deprived, many from immigrant families. She was also interested in assessing the effects of a pre-school programme on I.Q. test scores and academic performance. The standardised tests used showed that these children once they entered their neighbourhood schools did not sustain the gains made in compensatory pre-kindergarten programmes. Instructional methods used must be at least partly responsible.

Bagley (1971) went further in the study which he conducted in the U.K. He examined the I.Q. levels of 50 matched pairs of West Indian and English children, and found those of the West Indian children to be slightly superior, although not significantly so. Despite this however the second part of the study showed the following:

mean retardation level, English children 2.9 months

mean retardation level, West Indian children 6.48 months

While instructional methods being used on these children are obviously ineffective, Bagley also concludes the assumption of poor achievement of blacks held by many white teachers might be partly responsible for these results. In view of the importance of teacher expectation on the achievement of the child, it is worth while noting that most studies examined by the present author do not conclusively justify the image of the West Indian immigrant pupil as academically inferior.

Teacher Expectation and Student Performance

The importance of teacher expectation on the work of all students is now recognised to a greater extent than formerly. Among the best known studies on this subject is that by Rosenthal and Jacobson (1968). Their Pygmalion in the Classroom contains the results of an experiment wherein children who were labelled "achievers" without justification, and treated in this manner by their teachers did increase their level of achievement. Conversely, those labelled "slow learners" did in fact lower the standard which they had previously maintained. Although the results of this study have been extensively criticised as not being adequately proven, later studies such as those described below, have also linked teacher expectation and student achievement. Some of these have used speakers of non-standard English as their subjects. In all cases the teachers' perception

of the pupil has been important to his level of achievement.

Between 1969-1972, three studies investigated the importance of the child's language and the teacher's perception of his/her pupil. Semmel (1969) was concerned with the importance of Disability Labels and Dialect Differences on the Semantic Differential Responses of College Students. Semmel thus attempted an evaluation of the effect of labels on the child's school experience. Tapes were made of speech spoken by black and white students, matched as to home background, social behaviour and mobility. Semmel then attempted to co-ordinate academic ability as perceived by teachers and certain other personality characteristics with the characteristics of speech. His conclusion was that the non-standard features of the black child's speech had a significance on the way he was perceived by others; the ratings given him were far lower than those accorded his white peer.

A similar conclusion had been reached by Williams, Whitehead and Miller (1972) who had developed scaling techniques by presenting small groups of teachers with samples of continuous speech obtained from audiotapes of dialect speaking youngsters. 175 teachers were then asked to assign each child to a class level in each of nine different subjects. The findings showed a high co-ordination rate between teacher expectancy and evaluation of the child's language; also the more the subject matter involved language arts, the greater the rating of ethnicity-non-standardness served as a dominant predictor of teacher expectancy. The importance of the relationship of this study and the proposed topic to be examined is the connection shown between the use of non-standard languages and teacher expectancy. Although this project will not examine this relationship in depth, the degree of Creole or non-standardness English utilised in school by the West Indian immigrant student forms part of the rationale

underlying the present work.

Systematic Instruction

There are certain basic assumptions underlying Gagné & Briggs' (1974) discussion of systematic instruction and its effect on instructional design. Instructional planning is conceived as being conducive to the individual's development from child to adult. Instructional design also has phases not only immediate but long-range. Such long-range aspects of instructional design are concerned with the arrangement of individual units of instruction as part of a larger sequence of topics. It is this arrangement of topics which is highly demanding in terms of time and intellectual challenge to the teacher. Effecting such an arrangement is greatly facilitated by good instructional products.

Another basic assumption underlying the use of systematic instruction is that the design of such instruction ensures the opportunity for the development of the individual's talents to the fullest degree. Such a degree of development is brought about by the imposition of a planned direction of learning rather than the mere provision of an environment in which learning might be undertaken. The use of systematic instruction also assumes that one takes into account what is known about conditions under which learning is thought to take place most effectively.

It may readily be seen, therefore, that individualised instruction, such as that promoted by systems design, may have an important contribution to make to the success of the immigrant pupil. Since the child is given instruction only where needed, and regular testing takes place at the end of each unit of instruction, the idea of success is promoted. If the importance of teacher expectation is admitted, then we cannot discount the effect of such negative attitudes towards West Indians suggested by teacher

responses to the Bristol Social Adjustment Guide. Cagné & Briggs determined in analysing the activities of instruction that identification of the objective is the primary task. These objectives may be achieved by the instructor on a daily basis, and mastered gradually by the child.

Objectives might be divided into two parts. They might be considered the description of behaviours intended as outcomes and the description of situations or a stimuli to which these outcomes are considered correct responses. Thus instruction should be planned to maximize the transfer of such responses to other situations; such situations should entail the successive application of those skills needed to bring the behaviour under the learner's control.

Eisner (1969) has suggested the objectives are of two types which he calls 'instructional' and 'expressive'. Expressive objectives differ considerably from instructional objectives in that they identify "a situation in which children are to work, a problem with which they are to cope, a task in which they are to engage; but it does not specify what form that encounter, situation, problem, or task they are to learn".(p.99). Thus, it is unlike the instructional objective which is predictive in that it predicts the behaviour which it considers useful for children attaining the objective; the expressive objective serves as a theme around which skills and understandings may be brought to bear.

No doubt whatever exists that the school system which did not allow for such objectives would be an arid place indeed. However there is equally no doubt that the majority of immigrant students already work under the handicap of the language system which is often unaccepted and unacceptable. For these students coping with the new cultural values which are part of the new lifestyle entailed by immigration, instructional objectives, determined in accordance with skills considered necessary, are absolutely

required.

The steps which Gagné & Briggs (1974) consider essential for the systematic process and which are used in the present study are the following:

- 1) gaining the attention of the learner.
- 2) informing of his objective.
- 3) causing him to recall relevant learnings.
- 4) presenting the stimulus material.
- 5) providing the guidance necessary for learning to occur.
- 6) eliciting the necessary performance.
- 7) providing feedback as to the correctness of that performance.
- 8) assessing the performance.
- 9) helping retention and providing an opportunity for the transfer of such learning to a new situation.

While all these events do not invariably take place, nor should the order be considered inflexible, their object is to stimulate the internal process of learning. The actual events of the lesson depend on the type of learning involved, as the provisions for each type of skill differ. The effective teacher uses this knowledge to ensure effective instruction.

The Introductory Phase of Instruction

Of the events mentioned above, those external to the learner and supplied by the teacher (or text) make up the introductory phase of instruction. These events are concerned with gaining the attention of the student, informing the learner of the objective of the lesson and stimulating the recall of any previously learned capabilities relevant to the situation.

We might think of learning as a type of information-processing sequence occurring in various stages. This stage, therefore depends on the teacher's motivating the student, arousing his attention and stimulating him to

recall selectively material which had been previously learned. In this researcher's experience, the climate of the classroom should be such that right from the beginning the motivation to learn exists.

It may be readily seen that at this stage the attitude of the teacher would be critical. It is perhaps right at the beginning of the functions of instruction that the immigrant could be most affected by the teacher who perceives him negatively. Corey (1967) suggests that effective instruction depends largely on the attitude of the teacher as well as students and assumes that the decision by the learner to respond is usually a pre-requisite for admission to a course - in other words that attendance at a course of instruction is purely voluntary. While this may be true for college students, the same by no means holds for either elementary or secondary school students. They frequently have no choice in this matter.

Guidance and Application Phases of Instruction

The next tremendously important phases of instruction may be considered as guidance and application. The guidance which the instructor gives at this point through presentation of the stimulus material, as well as suggestions and 'prompts' for learning material may support learning. During this phase material may possibly be coded and stored in long-term memory. Such material is thought to be retained for retrieval when necessary if the instruction has been effective and the learning thorough. These latter processes are presumably set in action by the instructor when he moves into the application phase of instruction. During this phase, the instructor elicits the desired performance, helping the learner generalize behaviour and promote retention of the information. Use of a variety of different examples by way of illustration aids this process.

The Feedback Phase of Instruction

The final phase of instruction concerns itself most closely with performance and feedback. Measures by achievement levels in the school system, feedback is important not only to the instructor as an indicator that the instructional system is working, but also to the student who is thus enabled to judge his progress and reinforce his responses.

Feedback from the user of a Creole language system has been based on two types of tests: intelligence tests, and achievement tests.

Shuey (1966) believed that the level of I.Q. difference between blacks and whites was 15 points in favour of the whites and Jensen concluded, in a controversial article (1969), that these differences were genetic. Houghton's investigation and his findings that environment was of greater importance than heredity have been previously described as were the tests used by the Glasgow school boards and similar bodies. The general conclusion reached was that the instructional systems as they then existed were not serving the needs of immigrant children. Berg (1969) studying the Language Barriers of the Culturally Different, makes the interesting point that teachers of the advantaged are misled into thinking that their students do understand; teachers of the disadvantaged on the other hand, think that their students do not understand. Obviously such a suggestion could only be made when the instruction does not include valid tests as an integral part of design.

The shock which accompanies the new environment of the desegregated school, akin to the new environment of the immigrant was closely analysed by St. John (1970). She concluded that inadequate testing made it impossible to establish the achievement of the subjects over a period of time.

Bohwer, (1971) designed a study intended to evaluate tests which supposedly determined data relevant to developmental differences between

whites and blacks. He disagrees with Jensen's hypothesis that there are two types of learning ability - Level I, which is associative with little transfer of input, generally consisting of rote learning and memorization. According to Jensen, this level is equally distributed throughout the population. Level II, on the other hand Jensen describes as consisting of self-initiated elaboration and transformation of input; this level, he determines, is distributed differently in lower-and middle-S.E.S groups. Classifying the tasks used by Jensen in a different manner, Rohwer concluded that SES-related differences do not emerge regularly, and that all tasks seemed to use both associative and cognitive learning. Rohwer concluded therefore that low-SES children can be trained to learn more effectively, and that a major objective of the school curricula for such children in their early years should be mastery of learning skills.

Effects of Systematic Instruction

The intellectual skills are considered by Gagné & Briggs (1974) to be the core skills which make the human being competent. As such, they pervade the entire structure of formal education, ranging from the ability to compose a complete sentence to the advanced skills of engineering medicine and other disciplines. The very structure of intellectual skills suggests a manageable process for the teacher and a satisfying activity for the learner (Gagné & Briggs, p.108). The design of conditions for effective learning suggests the necessity of a learning hierarchy (Gagné & Briggs, 1974). The learning hierarchy is an arrangement of intellectual skill objectives into a pattern showing the relationships between them. Such a hierarchy must be carefully planned by the teacher, who carefully considers the components of the target skill of instruction. Researchers, however, have questioned the impact of such an arrangement or sequence of these skills.

Tobias & Duchastel (1972) attempted an investigation of the effects of objectives on achievement, sequencing, interaction of objectives and sequence, objectives and frame sequence on both task and state anxiety. They concluded that no main effects appear attributable to the objectives: while the literature suggests sequence is of little importance, scrambling frames appears to reduce achievement and increase errors.

Passmore (1974) also studied the effects of sequencing and concluded that although logic might lead to the construction of the hierarchy after analysis of the objectives, the function of the components might be a more important consideration than logic. One instructional objective might facilitate mastery of another by requiring identical behaviours; such transfer of training effect are important to basic research.

Smith & Crittenden (1972) report a comparison study, conducted in Texas and involving 56 teachers and 3200 fifth and sixth-graders. Using the behavioural-objectives and sequencing guides prepared for the music programme, teachers of the experimental group perceived a much higher degree of pupil participation in their classes than those in the control group. A pre-test, post-test research design was used to measure pupil achievement. The average gain for the 624 subjects in the experimental group was 7.70 points, compared with 4.12 points for the 515 subjects in the control group.

The whole concept of curriculum planning is an extension of that of sequencing, although there are many different approaches which may be used. In her book Success in the Classroom: An Approach to Instruction (1971), Hackett details her work as curriculum consultant for the Emery School District, Emeryville, California in 1968-69. Offered control of designing and implementing a performance-based system of instruction for the students, many disadvantaged, Hackett encouraged the teachers to redesign the curriculum.

according to objectives which they identified as necessary to the long-term goals they had established.

At the end of one year of instruction, the students showed that they had improved dramatically in all subjects. Learning faster and more efficiently than before, they showed an average gain of 1.7 in the state-wide, norm-referenced tests. Despite the fact that many of these tests ignore the culture of the minority student, these pupils almost doubled the state average of all those attempting the tests. It is a small series of objectives, similar to those planned and produced for this experiment which will be used for the immigrant subjects of this project. Both these studies which have been tested on large numbers of students suggest that this type of instruction may be most useful in situations such as that of the frustrated immigrant. No comparative studies have been undertaken, as far as this author has been able to determine, showing results accruing to immigrant pupils and native-born pupils as a result of this type of instruction.

Summary

Studies relating to the problem of minority groups within the school systems of host countries have been described. The effect of teacher expectation on the work of such pupils has also been shown, as has the relationship between such expectation and the spoken language of certain groups of students. Systematic instruction has been described as the functions of instruction analysed. It was shown that the introductory phases of instruction necessary for motivation are largely external to the student and intricately bound up with teacher expectation. The performance and feedback phases of instruction have given rise to the most controversial results, particularly interesting to designers working with minority groups.

Hackett's work in California was used as a successful example of systematic instruction.

Chapter 3

Methodology

In this chapter the hypotheses, the rationale for such hypotheses and all the materials and procedures used in this study will be described. Results will also be briefly reported.

Hypotheses

The hypotheses are based on the presumption that a sample population, randomly chosen from similar economic conditions, whether native - born or immigrant, should exhibit similar test results under most conditions. However it is also recognised that the social pressures under which a particular segment, such as immigrants, might operate, can easily result in significant differences in scores becoming readily apparent.

Arising out of the literature previously cited, (Glasgow School Board, 1970; Hackett, 1971; Rundell, 1973), the following predictions are made:-

- 1) Many newly-arrived West Indian immigrants speak a Creole language which is very different from Standard Canadian English speech patterns. Despite such language interference, individually-diagnosed and-corrected deficits in standard linguistic skills will yield post-test results comparable to those of native-born children having similar grades and of similar socio-economic status.
- 2) West Indian students who have lived in Canada for more than the median number of years of the sample and consequently have spent more time in the Canadian school system will require less instruction, doing better on both pre-test and post-test, than will those whose time in Canadian schools has been of shorter duration.

3) West Indian students are often the victims of weak instructional methods, which may in part be due to poor comprehension of their oral language by their teachers. As such, these students will show significantly greater improvement after systematic instruction compatible with a system of instructional sequencing than will students whose language abilities have presented no such difficulties.

Because teacher expectation plays an important role in the achievement of their students (Rosenthal and Jacobson, 1968; Williams, Whitehead and Miller, 1972) it is also suggested that the achievement of West Indian students taught by West Indian teachers in Canadian schools is often significantly better than that of West Indian students taught by Canadian teachers in the same schools. Such differences however might be modified by means of systematic instruction based on performance objectives.

The hypotheses rest on the use of individually-diagnosed and-corrected deficits in the regular language arts curriculum, and are important parts of the core of skills which must be available to any child if he is to benefit academically from the school experience. Individual diagnosis can only be made if a pre-test is given before instruction is attempted. In this way the student who has already mastered certain components of the terminal objective will be allowed to by-pass the instruction prepared for those components.

The final suggestion made above cannot be stated in the form of a hypothesis because the students from one of the schools concerned, who were taught by Canadian teachers during the year, will be taught by a West Indian teacher for the purpose of convenience in this study. As it was not possible to use an intact class in this case, and lest some selection bias was exercised in the choice of students taking part, the results will be

discussed in the light of the suggestion made. However it cannot be considered as an hypothesis.

Rationale for the Hypotheses

The rationale for the hypotheses may be presented both empirically and theoretically. The principal empirical justification for the study lies in the work of Hackett (1971) and of Smith & Crittenden, (1972), both of whom report large-scale use of performance objectives which improved previous poor results.

Smith's work only affected the music curriculum of several elementary schools in Texas. In that state, as in several others the music programme of the fifth and sixth grades concerned had been adversely affected by the popularity of all-pervasive rock music, emanating day and night from radio stations. That fact, in addition to the lack of self-direction which comes about when neither sequencing nor behavioural objectives are utilised, combined to produce a programme in which students did not participate fully. The difference which resulted in the change in curriculum was marked not only by higher achievement marks, but also by the difference in the teachers' perceptions of their pupils' participation in the programme.

Hackett's work in California has been described in some detail previously and the success of such performance objectives in all subjects is of special importance to this study. Disadvantaged minority groups who had often been considered non-achievers formed the largest percentage of that group.

The work of Houghton (1966) and Bagley (1971) suggests that students of certain minority groups in the schools are not as productive, despite equivalent I.Q's, as white students of comparable socio-economic status.

Rundell's work (1973) also, suggests that both groups should achieve at the same level.

The theoretical justification lies in the work done by Gagné (1968, 1970) which clearly indicates the need for individual diagnosis of problem areas in order to facilitate further learning. Gagné also suggests that identification of subordinate capabilities related to each other in an orderly way are related psychologically to the successful behaviour of the learner.

Such individual diagnosis may be made on the basis of performance in a hierarchy of skills, knowledge of each of which contributes directly to successful performance of the terminal skill being taught. As Gagné explains, the subordinate skills are the answer to the questions, "What would the individual already have to know how to do in order to learn this new capability simply by being given verbal instruction?" (Merrill, 1971, p.121).

The hypotheses are also rooted in the work of Piaget (1966) which suggests that the major stages of development are the same for all children and merge into each other. As such, there is no justification for thinking that one group is less likely to achieve or to learn, given equivalent circumstances. If the implications of Piaget's theory are utilised by the teacher, he will encourage the child's working ability on his environment in order to acquire the language skills he so desperately needs. Kagan is quoted in A Question of Competence: "Children quickly develop different expectations of success or failure in intellectual tasks. Unfortunately the most frequent and prepotent reaction to an expectancy of failure is decreased involvement in the task of subsequent withdrawal." (Fishbein and Emans, 1972, p.167).

It is suggested that systematic instruction of the type above described will do much to overcome the difficulties leading to the expectation of

failure on the part of immigrant West Indian children. Overcoming these difficulties should bring about the feeling of satisfaction and subsequent involvement of the type described by Smith & Crittenden (1972) and lead to success such as Hackett (1971) experienced in her work.

Operational Definition of the Variables

Age - measured in years and months.

Black English - used to describe the language of approximately 80% of American blacks. There are many similarities with the Caribbean Creole tongues.

Creole - the language which arises when a pidgin or lingua franca, having no native speakers, becomes the mother tongue of a speech community. The degree of Creole used is determined by both student and teacher and recorded on a scale of student usage in the total school environment.

Individually-diagnosed and corrected deficits - based on performance in criteria tests. The criterion used was accuracy in two out of three items in each of the skills tested.

Instructional sequencing - instruction based on elements of instruction, each of which is thought to be dependent on the foregoing skill.

Newly-arrived West Indian immigrants - Children who, according to student reports have immigrated to Canada from the West Indies directly, or via another country, and have been in the Canadian school system for less than the median number of years of immigrant subjects.

Performance objectives - a meaningful unit of performance within a wider work situation.

Skills known - number of skill tests passed by student in either pre-test or post-test.

Socio-Economic Status - defined by parents' occupation and measured according to Blisshen's scales (1964).

Standard curriculum - curriculum devised for students at this grade level.

Operational Restatement of the Hypotheses

With the previous definitions in mind, the hypotheses may be restated in the following ways:-

- 1) Many newly-arrived West Indian students whose native language interferes significantly with their understanding of Canadian English as shown by comparison with native-born children would benefit considerably from individual diagnosis and remediation of language arts skills such as are compatible with a system of instructional sequencing, based on pre-test scores and controlling for pre-test scores of native-born children having similar scores. Other important variables are SES and amount of Creole spoken.

However there may be two moderating variables as stated in the following sub-hypotheses:-

- 2) For West Indian students who have lived in Canada for fewer than the median number of years of the immigrant sample. A positive correlation exists between the time spent in this country and the degree of achievement in those schools as measured by results of a pre-test in the language arts skills, with the less recent immigrants doing generally better. The gap, however, between the two groups, will be lessened after systematic instruction such as is compatible with a system of instructional sequencing.
- 3) Achievement grades and pre-test results prior to systematic instruction of West Indian students in specific areas of language arts skills are negatively correlated with the degree of Creole spoken at home and at school by West Indian Students. These effects might be modified by means of systematic instruction based on performance objectives, and indicated by comparison of post-test results of West Indian students whose usage of Creole is low with those whose usage is high.

It is also suggested that achievement in the language arts skills of West Indian immigrants taught by native white Canadian teachers is significantly less than that of West Indian immigrants taught by black immigrant West Indian teachers, as comparison between the pre-test scores of both groups will show. However after systematic instruction in the language arts skills, the difference between the two groups will be significantly modified.

Population and Sample

Contract disputes in the Montreal area during the entire school year, 1975-76 made it extremely difficult to gain the interest of teachers in co-operating on the project, of which this study is a part. Sporadic walkouts or the closure of the entire system caused everyone to beware of undertaking any but the routine tasks. Once agreement to take part in the project had been arrived at, it was difficult to complete the instruction and tests.

The two schools which were involved contained significant numbers of West Indian students. One was an elementary school, the other a high school which included Grade VII students, where a Guidance Counsellor became interested in the project.

Both the elementary and high school are located in areas serving large immigrant populations. As of 1976-77, the elementary school will be removed from the list of inner-city schools. The high school is located in a suburb of the city also densely populated by Greek, Chinese and West Indian immigrants. Both schools have principals who work extremely well with their staffs.

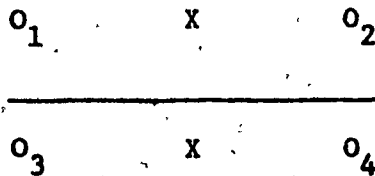
In the elementary school two intact classes, numbering about 50 students altogether took part in the project. One was a Grade V class,

the other Grade VI. The Grade VII sample consisted of 32 students, belonging to three different hom room groups and randomly chosen because their individual schedules allowed participation in this project with a Guidance Counsellor. Since no statistics are included for students who did not complete both the pre- and post-tests, nor for those born in countries other than Canada or the West Indies, the final sample consisted of:-

	West Indians	Native Born
Grade VII	5	13
Grade VI	7	16
Grade V	7	8
Total:	56 students	

Research Design

As the total number of students with whom this study is concerned is so small, West Indians numbering only 19, it is not feasible to have a control group. Students, therefore, have been used as their own controls and the following design has been utilised:



Pre-test observations (O_1 O_3) will include measures for previous achievement, socio-economic status for all students both Canadian and West Indian, as well as degree of Creole spoken, number of years lived in Canada for West Indians.

Thus the West Indian students will be classified in two groups when importance of length of residence in Canada is being considered, and in four groups according to the total amount of Creole spoken.

Variables

The following variables were considered important to the analysis and thus were tabulated; occupation of parents as an indicator of SES; age and previous language grades, being measured for the degree of influence they each exercise, whether individually or through interaction with each other on the work of the immigrant compared with that of the native-born student. For the immigrant student, the degree of Creole spoken and the length of time lived in Canada was the basis on which immigrants are divided into two groups according to the median number of years of residence for all these West Indian students.

The scale for the amount of Creole spoken, on the other hand is used as the basis for the division into two groups of all immigrants; 1-4; 5-9; 10-14; 15-20. For the purpose of the regression analysis, non-West Indians were assigned a score of 4, indicating as this would do in the case of the West Indian students, that they spoke Creole at no time whatsoever.

For the co-variates analysis the following variables were used:-

Hypothesis 1

Independent West Indian vs native-born subjects

Moderator Length of stay in Canada (median time 3.16 years)

Amount of Creole spoken (4 groups, 1-4; 5-9; 10-14; 15-20)

Data collected indicated the necessity for only 2 groups ≥ 11 - LOW
12 - HIGH

Socio-economic status (4 groups, 1-24; 25-49; 50-75; 75-100)

There were no representatives in either the lowest or the highest group in either of the schools.

Dependent Post-test results

Pre-test results

Co-Variates

Age

Previous language score

Pre-test scores

The multiple regression analysis was performed with the following:-

- Independent
1. Diagnosis based on -
 - (a) no of pre-test items answered correctly
 - (b) remediation of specific problems
 2. Degree of Creole used
 3. Length of time lived in Canada

Dependent Number of post-test questions answered correctly

Control Age of student (under 16)

Intervening Socio-economic status

Hypothesis 2

Independent Length of residence in Canada, as related to median

Dependent

1. Pre-test results
2. Post-test results

Hypothesis 3

Independent Degree of Creole spoken - two groups (1-10; 11-20)

Dependent Post-test scores

Pilot Project

During the Fall of 1975, a research team was assembled, and two teachers willing to volunteer their students for a pilot project were identified. The two schools concerned were quite different from each other. One school, largely consisting of anglophones one was located in a comfortable middle-class suburb of Montreal. The other was attended largely by immigrants from Eastern European countries. Both classes were intact; both teachers had at least five years' teaching experience each; both had variety of classroom media at their disposal which they frequently used.

After much discussion, the ultimate skill, "pronouncing short regularly spelled syllables on being presented with their written representations" was selected for this sequence. The reading hierarchy appearing in Gagné and Briggs (p.116) was used as a preliminary guide for this. Although hierarchical learning theory has not yet been verified, it appeals to teachers; a correct learning hierarchy implies an optimal instructional sequence. Use of a correct hierarchy also implies regular evaluation of a student's work and capabilities within a hierarchy in order to plan his subsequent instruction.

T-test analysis of the results revealed no significant differences between the means of pre-and post-test results. Since t was computed to have a value of 1.934 ($L=.05$) no significant difference appeared to exist between the means. Despite this, the teachers concerned were enthusiastic about continuing to participate in the project. They suggested that while they approved the individualistic approach to the basic skills, good instructional material was not necessarily available. The willingness of the teacher to manage regular classroom activities in such a way as to allow the use of such time-consuming techniques was also important.

Instructional Materials

Terminal Objective

One of the most important skills the student must master in reading is the selection of the main point in any passage, short or long, and teachers of language arts-related subjects consider this one of the central aims of their teaching. In his work English Today & To-morrow (1964) Guth analysed the network of skills necessary for such a task. Terming these the "logic of rhetoric" he lists as high on the list of priorities the "selection, interpretation and organization" of the writer's materials. (p.182).

This logic seemed uppermost in the minds of the teachers concerned in this study when their suggestions for terminal skills were analysed. Many of their suggestions were related to comprehension of reading material and ranged from structural analysis of the sentence to distinguishing between fact and fancy. The terminal skill "Identifying the Main Idea in a Paragraph" was selected because it was a skill relevant to reading at any age level and was particularly important to those who had not mastered, standard English.

As the major concern of this study was the effect of sequencing on learning instruction, a decoy skill was also included. Decoys are skills which may seem part of the same general area of instruction; apparently however, they do not transfer directly to any one of the other skills. The following is a list of the skills comprising the hierarchy:-

1. (Terminal Skill) Pronounce single regular syllables given in written form.
2. Choose proper soft-consonant pronunciation for a written letter.
3. Choose proper short-vowel pronunciation for a written letter.
4. Mimic orally-presented single syllables.
5. Choose proper hard-consonant pronunciation for a written letter.
6. Mimic orally-presented single-letter sounds.
7. Choose left-to right progression of letters in reading a nonsense word.
8. (Decoy Skill) Choose the written letter that represents a given oral sound.

Pass-or Fail scores were assigned each student on each test, based on a criterion of one less than the total number of items in a particular test. The pre-test showed that approximately 83% of the material was already known by the students. Several students required no instruction whatsoever.

Task Analysis

Gagné in a paper on "Learning Hierarchies" (1968) described a learning hierarchy as "a set of specified intellectual capabilities having, according to theoretical considerations, an ordered relationship to each other". (reprinted in Merrill 1971, p. 118). Having selected and clearly stated a terminal objective, compatible with the instructional goals of the teachers concerned, that objective was analysed into subordinate skills, most of which are presumed to "generate positive transfer to higher-order ones". Such analysis might be done by close observation of subjects carrying out the terminal skill. In this case analysis and identification of subordinate skills was done by group discussion. The group consisted of four persons, each of whom had extensive experience teaching language at different levels, ranging from kindergarden to college. The analysis, therefore, seems as thorough as possible. (See Figure 2 on page 38). The difference between that hierarchy and the first hierarchy which was postulated may easily be seen by comparison with Figure 1, on p. 37.

Identification of each of the subordinate skills was made by asking the question in turn of each task, "What would the individual already have to know in order to learn this new capability and assuming only verbal instructions are to be given?" This process is the basis of the learning hierarchy described in Gagné and Briggs (p. 109) which allows the arrangement of intellectual skill objectives in to a pattern which shows the prerequisite relationships among them, and which has been previously described. It is the same process advocated by Glaser (1966) in "Design Instruction", who suggests analysis of "the domain in terms of the performance competencies which comprise it" (Instructional Design p. 19). This was considered the most effective way of obtaining the desired information.

Figure 1
Author's original tentative hierarchy for
elementary reading skills
February, 1976.

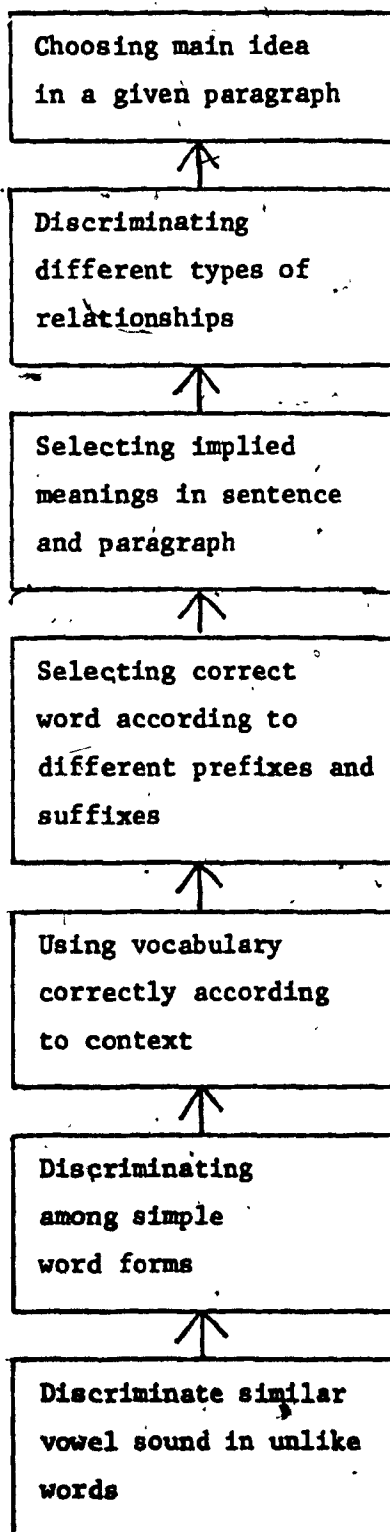
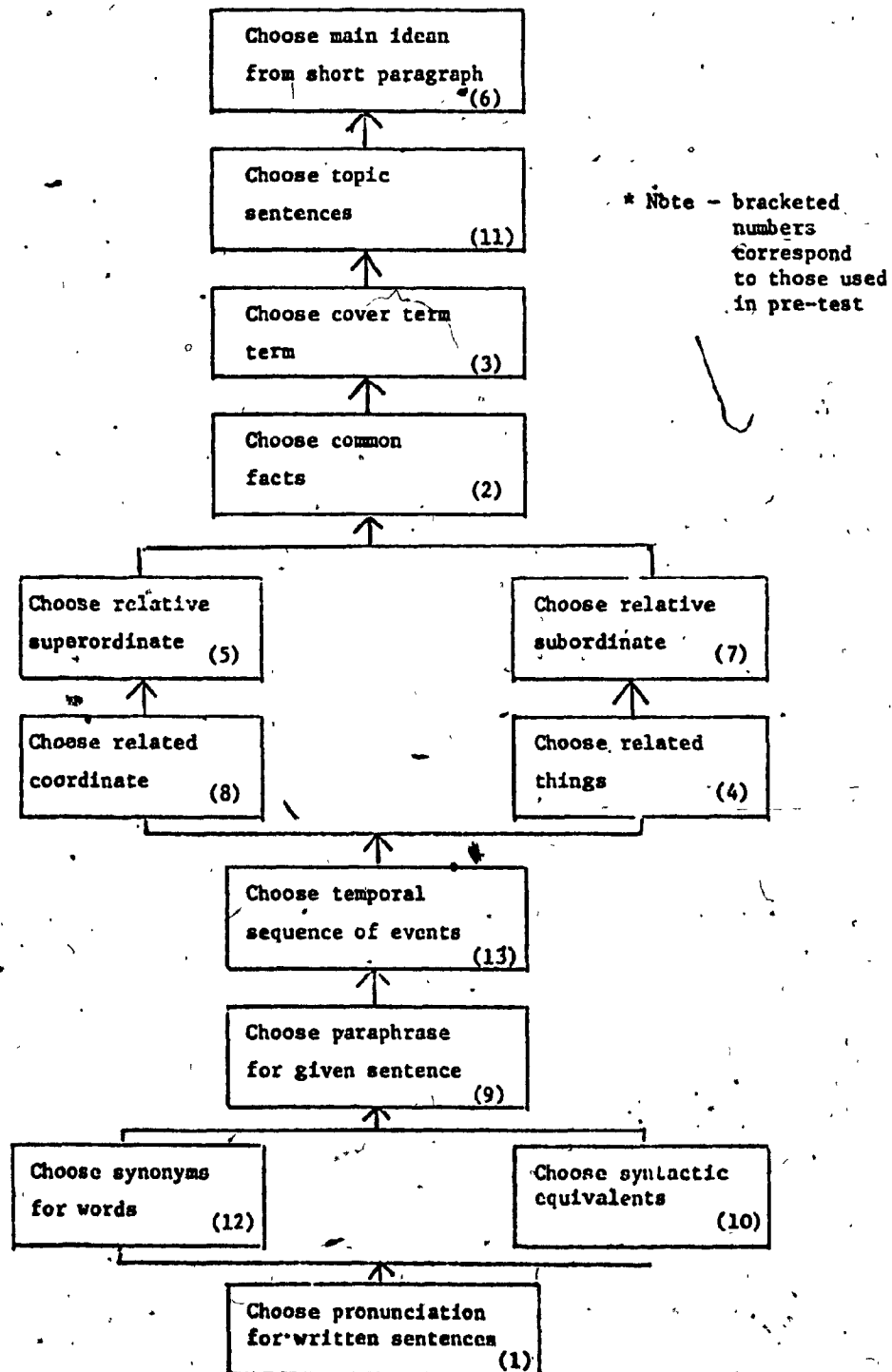


Figure 2
Revised tentative hierarchy
for reading skills
 March, 1976



As may be seen by examination of the hierarchy in Figure 1, certain skills considered equivalent to each other with respect to the superordinate skill, did not necessarily contribute to each other. For example, the subordinate skill concerning "Choosing synonymous phrases (12) and choosing syntactic equivalents (13) were each considered necessary to the skill of paraphrasing (9). However, it was not thought that any transfer took place between each of those subordinate abilities. The one oral skill, thought to be basic to all the material was the ability to "choose the oral pronunciation of written sentences". This illustrates the close ties between comprehension of written and oral speech mentioned previously. It was also argued that if the child was unable to comprehend written material when presented verbally, then he was not ready for the proposed instruction.

Other conditions were also set as entering competencies. These were:-

- 1) Grade Two written vocabulary (Taylor & Freckenpohl, 1960)
- 2) The ability to follow simple written directions
- 3) No perceptual or speech handicap
- 4) The ability to recite the alphabet

There were two reasons for deciding on what might at first appear to be very elementary entering competencies. First, based on the pilot project for "Systematic Prescription of Locally-Needed Curricula based on Hierarchically-Sequenced Scaling of Pre-Test Data", (Huntley et al, 1976) which had been limited to work at the Grade II level, these teachers had indicated interest continuing to participate in the study. Second, as many immigrants were involved in the classes which had agreed to participate, and teachers had mentioned their weaknesses, such a skill seemed particularly useful.

Preparation and Validation of Criterion Tests

Writing on the "Design of Instruction" reprinted in Instructional Design (Merrill, 1971) Robert Glaser defines achievement measures as "the assessment of criterion behaviour involving the determination of the characteristics of student performance with respect to specified standards" (p. 35). In many ways, this measurement of subject-matter competence at the beginning of the sequence of instruction was one of the most important processes in the study. Its importance was due to the fact that this was an instrument used to assess the performance of each student in each of the thirteen subordinate skills which task analysis had identified. This instruction was intended to provide remediation for areas of weakness exposed by the test. Though not individualized, in that students did not proceed on their own without the help of a teacher, it was as close to individualized as group instruction could get.

The pre-tests on which subsequent instruction was based, consisted of thirteen sub-tests with three items to each. Each item was multiple-choice; in most cases three, in some cases four, items were given. The criterion of performance arbitrarily chosen was one less item correct than the number in each sub-test. It was argued that using this criterion should ensure that guessing does not enable students to avoid needing instruction.

Great care was taken to match the items developed for each unit to the objective which had been identified as a result of the task analysis. Each item was thoroughly discussed by the four persons involved in the project. Despite the utmost care, it was realised after the pre-test had been given that two items were invalid. They were Part 9, Item 3, and Part 10, Item 3. Examination of Unit H, Item 1 and Unit F, Item 2 in

Appendix D will show the changes which were made. In both cases it was felt that the item involved did not measure knowledge of the specific objective being tested; the items were therefore improved for the post-test.

The criterion tests were off-set printed after being professionally typed. Spacing of items and test instruction enabling students to answer tests with as much ease as possible were a constant concern.

It should also be mentioned that throughout the time spent on the project one of the foremost requirements of the team was that the concepts introduced as components of the tests should not be foreign to the experiences of the testees. This is one of the criticisms of testing of students belonging to different social or ethnic groups, as Shuy points out in his foreword to Language Differences: Do They Interfere? (Laffey and Shuy, 1973, p. 9). As far as possible the researchers attempted to devise items which would not be restricted by the students' experience of Canadian middle-class values.

All test instructions were taped in order to standardize as far as possible the conditions under which the tests were administered. The pace at which they were delivered allowed adequate time for each item to be answered, and teachers were asked to ascertain that the examples given were correctly answered before the test items themselves were attempted.

These examples were so designed that the child, after being told what the test was attempting to measure, was then asked to complete the example, which illustrated in as unambiguous a manner as possible, the skill being tested. Teachers were instructed to turn off the tape recorders each time after the example was attempted, in order to answer any questions which might have arisen as a result of the example itself, and excluding of

course, the actual teaching of the skill. All test items, as well as examples, were constructed so that the student, having read a clearly marked sentence which was underlined to stand out from the rest of the material, marked the letter showing the correct answer for each item. The tests took approximately 45 minutes for completion.

Item Analysis

KR20 reliability (Tuckman, p.139), of the 3 criterion-referenced tests ranged from 0.08 to .67, with the median being .45. Except for Test 9 at the lower end of the scale, this range is considered acceptable for 3-item criterion-referenced tests such as these. However a better gauge of predictability for purposes of this study is the standard error of the mean, since means rather than individual students are being compared. Ranging from .0775 - .1078 with the median computed at .1026, the standard error indicates no instrumentation threat to validity.

Sequencing

As the research being described formed part of a larger project, sequencing of such instruction was one of the aspects being studied; the purpose was to determine what effect unique local conditions might have on the order in which instruction is given.

Although hierarchical learning theory has not yet been fully verified, it does have some empirical backing (e.g. Gagné, 1970) and leads one to conclude that such hierarchies imply optimal instructional sequences, as well as periodic individual diagnosis of a student's capabilities within such a hierarchy. The planning which would thus be needed is particularly important where an unstable population with dissimilar academic backgrounds exists. The recent influx of large numbers of immigrants from many parts of the world to the Montreal area contribute to such a situation locally.

By means of Transfer/Reversal/Deletion Analysis, one of the two methods described in the "Empirical comparison of two methods for devising learning hierarchies" (Huntley, 1974) as well as the "Interactive prescription of instruction by pre-test scaling" (Huntley et al, 1976), a sequence of instruction was devised for each of the three groups of students involved. The amount of time needed for instruction in each skill would thus be affected by the sequence imposed on each group, the theory being that prior instruction in certain skills was vital to the students' comprehension of later objectives. This aspect of the study is not being considered in connection with this thesis, and plays no part in the results later described. However, by means of the procedures above mentioned a sequence of instruction was devised for each group of students. The relevant sequence in each case was as follows:-

Grade Five: Skills 12, 8, 1 (4) 5, 10, 7, 2, 3, 6, 11, 13, 9

Grade Six: Skills 9, 13, 11, 2, 3, 6, 7, 10, 1 (4) 5, 8, 12

In neither of these classes was Skill 4- Relatedness at Different Levels of Generality - necessary.

Grade Seven: 1, 12, 10, 9, 13, 8, 4, 5, 7, 2, 3, 11, 6

This last mentioned is the rational hierarchy which was developed by task analysis, while inspection of the sequences for Grades Five and Six will show that the sequences employed were largely in reverse order to each other.

Instructional Packages

Instructional packages were delivered to participating teachers for each of the pre-determined skills. Each package consisted of a suggested design for each of thirteen lessons, the names of the students for whom the instruction was intended and a brief test of the material taught in

that unit. As each of the participating teachers had indicated on an earlier questionnaire the availability of overhead projectors, extensive use was made of this equipment in addition to the blackboard. Games of varying levels of complexity were also used to re-inforce the instruction offered.

The events of instruction in each case were tightly ordered in the sequence described by Gagné and Briggs (1974) as being most effective. It was felt by the designers that informing the learner of the objective of each unit as well as the immediate feedback on performance were the most vital aspects of this instruction. The importance ascribed to informing the learner of the objective of each lesson is fully described by Smith & Crittenden (1972); teachers in the Texas experiment involving 3,200 students were united in their perception of a higher degree of pupil participation largely attributed to pupil awareness of objectives.

Despite the fact that teachers were asked to make specific comments on the adequacy of instruction it was very difficult to persuade them to do this. Part of the reason for this was the timing of the entire project: Sporadic disruptions took place through the entire school year, becoming more frequent after Christmas. This limited the period which could be devoted to instruction and at times threatened to cut short the entire project.

At the end of the instruction, teachers were asked to evaluate the guidance they had been given, using for this purpose an instrument developed by a group of post-graduate students and appearing in "Evaluating Education Materials" (Walberg, 1974). Analysis of four aspects of the study was carried out - objectives, organization of the material, methodology and evaluation.

The instructional objectives were clearly stated in behavioural terms, specifying both the type of behaviour expected and the conditions under which such behaviour would occur; the emphasis was oriented towards both cognitive development and subject matter, thus fulfilling the demands of the subject as well as those of the child.

The illustrative material was organised on a scale of complexity, starting with the simplest, and progressing towards those more difficult to grasp. Instruction for Part Eight will illustrate. The learner's attention is first attracted by the concrete representation of familiar objects on the screen. Dogs, cats and flowers appear, each group consisting of four examples with one being different from the rest. The instructional guidance then required that stimulus material should be presented based on discussion of some of the familiar objects with which the student was surrounded. For example the teacher placed the word 'room' on the board, and the concept thus illustrated might be expanded to include others such as 'windows, floors and doors', all of which might be easily seen. However should a word like 'students' be added to the list thus taking shape, this term would be unacceptable. Discussion should clearly indicate why students, though present in the room in large numbers, were not part of the picture in the same way as windows, floors and doors.

Worksheets were passed out when it was felt that the concept had been thoroughly grasped. The worksheets contained groups of words, one of which, was related at a different level to the others.

This exercise helped provide the student with immediate feedback on his performance - an important instructional event, as did the next event in the lesson, a game designed to test the students' understanding of the skill being taught. The teacher wrote one word on the board, the students

adding as many related terms as possible. Points were allocated on the basis of rapid recognition of incorrect examples.

Post-Tests

Post-test items almost identical to pre-tests were randomized before being administered. Items within each sub-test were also randomized thus ensuring the most accurate results possible, preventing rote memory based on the pre-tests.

Two items were changed: Part H, Item 1, A, B and C were improved to correspond more closely with the objective being tested as was Part F, Item 2A corresponding to Part 10, Item 3A. That unit, previously designated "Syntactic Equivalence" was also re-named "Syntactic Change" - a more accurate description of the desired objective. Recordings of the tests were once again made, in order, as previously, to control as far as possible the conditions under which the tests were administered.

Evaluation of Instructional Materials

The format developed and used for each unit of instruction was designed so that the learner could proceed from "where he is" to the achievement of the skill identified as the objective of that particular lesson. For each lesson within the hierarchy of instruction, instructional guides were developed which followed very closely the steps outlined by Gagné & Briggs (1974) as being the most useful method of achieving the desired outcome. These steps are based on research and sound theory. Gagné & Briggs' suggestions concerning contiguity, repetition and reinforcement in developing instruction fit well with the experience of those teachers involved in planning the instructional guides, each of whom has taught for several years. As will be discussed in greater detail, the instruction was also

liked by the teachers participating in the project.

Evaluation of the instructional guides was carried out by means of an instrument which had been developed by a group of graduate students interested in the evaluation of instruction materials (Eash, 1974). The instrument itself is noteworthy for the clear divisions into four constructs-objectives, organisation of material, methodology and evaluation. At the end of each construct, the rater is asked to use a seven point scale to render judgement on each of the constructs, in addition to a comprehensive judgement on the overall worth of materials. The instrument also is designed to progress through analysis of different aspects of the materials to judgement of its overall success.

All scores given fell between five and seven, thus indicating that the instruction had been satisfactory as far as the teachers were concerned. Unfortunately, the additional comments which were made did not clarify specifically the improvements which would have made their tasks easier. One teacher mentioned that his difficulty was caused principally by the small group work which had to be done, a task which both he and his students found difficult to undertake.

Two of the three teachers considered the organization excellent as far as both sequence and scope were concerned while one thought the sequence may not have been adaptable to a wide range of students.

All three teachers affirmed, however, that the materials provided for variation among students, using several approaches to encourage the learning motivated by the students' awareness of the desired goal. Two of the three noted that a combination of both active and passive participation by the students was called for, while one teacher neglected this area of concern altogether. The methodology used was not considered to require unusual skills and allowed for some variation in presentation. Two teachers

considered it successful for most of their students while a third judged that approximately half of his students had achieved success.

Despite the fear of inhibiting teachers by too detailed an expansion of the instructional material, two of the three teachers admitted that they would have liked additional examples to illustrate the skills being taught; one on the other hand enjoyed the freedom for creativity of expression which the guidance provided, and felt sufficiently secure to use the instruction in this way.

There was general agreement on the success of the evaluation procedures which had been developed as part of the instruction. All three teachers agreed that these procedures were compatible with the objectives, provided immediate feedback for the pupil, and gave attention to both product and process learning. The many suggestions and helps in evaluation provided for the teacher were noted, as was the use throughout of criterion-referenced procedures. The assistance given students by means of feedback and immediate evaluation were also considered useful.

As far as the quality of the instruction was concerned, it was viewed as having both strengths and weaknesses. While two teachers considered it slightly better than average, one judged the material excellent and would recommend it highly with its strong theoretical base and consistency of design. As will be shown, it did have definite effects.

Additional criticisms made were mainly concerned with the timing of the project which did not allow the instruction to be spread over a period of several weeks, but required intensive instruction over a short period of time. Teachers generally would have preferred a longer period allowing for continual practice of the skills being taught. The local disruptions of the school year attributable to labour problems did not allow for such practice.

Statistical Procedures

Test Scoring

Scoring of pre-test and post-test was done by two persons individually. This method ensured accuracy of scoring as discrepancies were checked by both markers wherever they arose. Each item was marked Pass or Fail, based on a criterion of one less than the total number of items in each test. In addition a tally was kept of the number of correct answers given by the student for each unit. This analysis enabled a pre-test item analysis to be conducted in order to discover the over-all validity of each item.

Data

As shown in Appendix A, questionnaires were distributed to all subjects, in order to develop adequate profiles on each one. These questionnaires gave information on the date and place of birth, occupation of parents, and in the case of immigrants, degree of Creole spoken and year of arrival in Canada.

Teachers were asked to provide a language achievement grade mark for the previous term, as well as to make some judgement on the frequency of use of Creole in the school situation. The latter score was used, along with that assigned himself by the student, to specify the degree of Creole used by the student. It also provided some verification for that figure. Surprisingly, perhaps, there was a high percentage of agreement. These scores were then summed, so that in the case of the West Indian a total of 20 points was possible for the person who always used Creole. For non-West-Indians, a score of 4 indicated that they spoke Creole at no time whatsoever.

The score for Socio-Economic Status was the result of matching in-

formation given on the questionnaire with Blishen's Occupational Class Scale, (1964). Unfortunately the rank and group accorded these occupations were based on census information gathered in 1951; current data would doubtless yield somewhat different scores for the different occupations, but no comparable scale is available.

Where separate occupations were given for each parent, it was possible, with the help of the scale, to average the score assigned for Socio-Economic Status. In many cases, however, the occupation of only one parent was given; in others the occupation of the mother was listed as 'housewife' for which no comparable category existed on the scale being used. In these instances, the score assigned was based on the occupation of the single parent employed.

In three cases no occupation was given. As this information was impossible to obtain from the teachers concerned, the average computed for the population of that school was used. With very few exceptions, most occupations fell into Class 5 of the Blishen Scale, although there were some placed in Class 4, and a very small number in Class 3. As Class 5 largely consists of blue-collar occupations, this seems an accurate reflection of the neighbourhoods in which the schools are located.

Data Analysis

Questionnaires as shown in Appendix A were distributed to all subjects, in order to develop adequate profiles. These questionnaires enabled information on date, place of birth as well as occupation of parents to be registered for all students. West Indian students, were also asked to register the frequency with which they used Creole both at home and at school, and the date of arrival in Canada.

Teachers provided a language achievement score as well as making some judgement on the frequency of use of Creole in the school situation. The latter score provided some means of verifying that which the student had assigned himself. Interestingly, in no case did the teacher's assessment disagree widely from the student's self-assigned scores. These scores were then summed, so that in the case of 11 West Indians, a high of 20 was possible on this scale. For non-West Indians the score of 4 indicated that they spoke no West Indian whatsoever. Data indicated that the West Indian subjects should then be divided into two categories not four as originally intended.

The score for occupation of parent was the result of matching information given on the questionnaire to Blishen's Occupational Class Scale (1964). Where separate occupations were given each parent it was possible with the help of the scale above mentioned to average the score. In many cases the occupation of only one parent was given; in others the occupation of the mother was listed as housewife, for which no comparable category existed in the scale being used. In those cases the score assigned was based on the occupation of only one parent. In three cases the occupation of neither parent was given, therefore the score assigned was that computed from the average of all parents in that school.

All statistical testing was done with $\alpha = .05$. Data consisted of measurements constructed from information on age, language, percentage of life spent in Canada, degree of Creole used at home and at school, previous language scores and scores based on criterion tests. The small number of subjects dictated that age and percentage of life lived in Canada be examined in terms of the median of each.

Correlation coefficients were computed in order to estimate the re-

Table 2Comparison of Pre- and Post-Test
Means of Subjects

	Pre-Test Means	Post-Test Means
Entire Population	11.000	11.000.
West Indians	10.6316	10.6316
Native-Born	11.1892	11.1892

relationship between length of residence in Canada and post-test and pre-test scores. The relationship between frequency of use of Creole and these scores was also estimated in this way.

After means and standard deviations had been constructed for each group, a multiple regression analysis was run with post-test scores (O_2 , O_4) considered the dependent variables. For purposes of this analysis, all other variables previously mentioned were considered independent.

A co-variance analysis was also performed. This was intended to determine the individual effects of each factor, by adjusting for all other effects of each variable in turn (see Nie et al, 1975, p. 407). As these authors explain, each of the variables in such a problem is of interest; therefore in such a case, it is necessary to correct for all factors and co-variates, and to assess the effect of each factor and co-variate; to assume in other words, that the co-variate by factor interaction is zero. In order to ensure that such an assumption is correct, a regression analysis is run as a prelude to analysis by co-variance.

Results

The results of the co-variate analysis designed to test certain aspects of Hypothesis One are described in the following sections:

1. Co-variate analysis ($\alpha = .05$) of all pre and post-test results was performed on the scores of all students - both native - born and West Indian. No significant differences were found between any of these results. Table 2 shows these results. It will be noted from this table that the sum of the pre-test raw scores in each of the three groups, total number of students, West Indian and native-born is equal in each case to the equivalent post-test score. These figures

Table 3
Analysis of Variance
on Post-Test Scores

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Covariates	40.897	2	20.448	12.9349	.001
X6 Age	1.854	1	1.854	1.120	.295
X2 Previous Language Score	40.862	1	40.862	24.676	.001
Main Effects	2.995	1	2.995	1.809	.181
X1 Status	86.108	52	1.656		
Residual	130.000	55	2.364		

56 cases were processed
 0 cases (0 pct) were missing

West Indians vs Native-born - Pre-test,
 disregarding age and language

Table 4
Analysis of Variance
on Post-Test Scores

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariates	127.274	3	42.425	28.963	.001
X3 Pre-Test	29.275	1	29.275	19.986	.001
X6 Age	.519	1	.519	.354	.999
X2 Previous Language Score	25.303	1	25.303	17.275	.001
Main Effects	.023	1	.023	.016	.999
X1 Status	.023	1	.023	.016	.999
Residual	74.703	51	1.465		
Total	202.000	55	3.673		

56 cases were processed

0 cases (0 pct) were missing

West Indians vs Native-borns - Post-test, controlling
for pre-test, age and language

were checked and re-checked, but remain the same for each group.

Post-test scores of West Indian and native-born students likewise reveal a t - value of -1.3887 indicating no significant differences between the means of both groups. It would therefore be justified to conclude that neither group, West Indian nor native-born, differs from the other in terms of ability. The systematic instruction appears to have had no effect on the total score of the group, although variances differ considerably

2. Analysis of the dependent variable, Status (West Indian vs Canadian), with age and language scores controlled may be seen in Table 3. This shows that the joint effect of the co-variates age and previous language scores, to be significant at the 95% confidence level, with language scores being the more important variable. The status of the subjects, West Indian or native-born, appears to be of no significance as far as pre-test results are concerned. Reference to the table will verify this,
3. Similar results were noted in the analysis of post-test results by the independent variable, Status, with age, pre-test results and previous language grades being co-variates. As Table 4 shows, there appears to be no significant difference between the groups attributable to either age or status, while the additive effects of the co-variates, was significant. This table also indicates each of the co-variates, pre-test and previous language scores to be significant when considered individually. It might thus be concluded that the instruction did have some effect on the post-test.
4. Table 5 shows the results of the next step in the analysis. The effect on the pre-test results of the degree of Creole spoken, in conjunction

Table 5
Analysis of Variance
on Post-Test Scores

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariates	29.969	2	14.985	8.147	.005
X6 Age	1.025	1	1.025	.557	.999
X2 Previous Language Score	27.572	1	27.572	14.991	.002
Main Effects	8.267	2	4.134	2.247	.144
X7 Creole	7.756	1	7.756	4.217	.058
X8 SES	1.618	1	1.618	.880	.999
2-Way Interactions	.274	1	.274	.149	.999
X7 Creole X8 SES	.274	1	.274	.149	.999
Residual	23.911	13	1.839		
Total	62.421	18	3.468		

19 cases were processed

0 cases (0 pct) were missing.

West Indians only - Pre-Test by Creole and
SES, controlling for age and previous
Language score

Table 6
Analysis of Variance
on Post-Test Scores

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariates	62.951	3	20.984	12.382	.001
X3 Pre-Test	11.184	1	11.184	6.599	.023
X6 Age	.263	1	.263	.155	.999
X2 Previous Language Score	8.127	1	8.127	4.796	.047
Main Effects	.550	2	.275	.162	.999
X7 Creole	.525	1	.525	.310	.999
X8 SES	.004	1	.004	.002	.999
2-Way Interactions	2.582	1	2.582	1.524	.239
X7 Creole X8 SES	2.582	1	2.582	1.524	.239
Residual	20.337	12	1.695		
Total	86.421	18	4.801		

19 cases were processed

0 cases (0 pct) were missing

West Indians only - Post-test, by Creole and SES,
controlling for pre-test, age and previous
language score

Table 7
Analysis of Variance
on Post-Test Scores

Source of Variation	Sum of Square	DF	Mean Square	F	Signif of F
Covariates	29.969	2	14.985	9.529	.003
X6 Age	1.025	1	1.025	652	.999
X2 Previous Language Score	27.572	1	27.572	17.534	.001
Main Effects	12.009	3	4.003	2.546	.101
X5 Length of stay	3.742	1	3.742	2.380	.144
X7 Creole	4.419	1	4.419	2.810	.115
X8 SES	.000	1	.000	.000	.999
Residual	20.442	13	1.572		
Total	62.421	18	3.468		

19 cases were processed
 0 (0 pct) were missing

West Indians only - Pre-test by Creole, SES,
 length of stay, controlling for age and
 previous language score

with the SES of the parents of the 19 West Indian subjects was sought, with age and previous language experience controlled experimentally. As preliminary tests had revealed that the amount of Creole spoken by the West Indian students lies within the 95% confidence interval of 8.008-13.78, the subjects were divided into two categories - one group whose score of 11 or less revealed that their usage of Creole was relatively infrequent; the other group, scoring more than 11 on this variable, used Creole more frequently.

Examination of SES scores for both native and West Indian students showed that both groups lay within the confidence limits 47.5-50.4. The mean score for the West Indian group was 48.94; for the native students 48.94. Two groups were therefore identified, those having a score up to and including 50, and those whose SES scored more than 50.

As Table 5 shows, previous language scores were shown to be a significant factor in pre-test results in the degree of Creole spoken.

5. Table 6 shows the analysis which utilises the same categories described above to give similar information with regard to post-test results as the dependent variable. In this latter case, the additional variable, pre-test results, was included as a co-variate and are shown to be significant. Interestingly enough, this table does not indicate that the degree of Creole is significant in determining the difference between results of each group.
6. A technical difficulty intervened to prevent an analysis of pre-test or post-test results by the independent variables, Creole, SES, length of stay, controlling for age, language achievement and in the latter case pre-test results, and showing interaction results. As the

Table 8

Analysis of Variance
on Post-Test Scores

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariates	62.951	3	20.984	11.511	.001
X3 Pre-test	11.184	1	11.184	6.135	.028
X6 Age	.263	1	.263	.144	.999
X2 Previous Language Score	8.127	1	8.127	4.458	.054
Main Effects	1.594	3	.531	.291	.999
X5 Length of stay	1.044	1	1.044	.572	.999
X7 Creole	.415	1	.415	.228	.999
X8 SES	.219	1	.219	.120	.999
Residual	21.876	12	1.823		
Total	86.421	18	4.801		

19 cases were processed
0 cases (0 pct) were missing

West Indians only - Post-test by Creole, SES, length
of stay, controlling for pre-test, age and previous
language score

Table 9

Results of Multiple Regression Analysis on
scores of West Indian students including
Creole as an Independent Variable

Variable	Reg. Coef.	Std. Error Coef.	Computed T	Beta Coef.
Previous Language Score	.08101	.03390	2.38960	.47011
Pre-test	.74071	.26819	2.76189	.60588
Length of residence	-.06304	.12472	-.50543	-.08600
Creole	.04125	.07021	.57283	.10956
Intercept		-2.13532		
Multiple Correlation		.86387	Adjusted R -	.81744
Std. Error of estimate		1.28380	Adjusted SE -	1.41468

Table 10

Results of Multiple Regression Analysis on
scores of West Indian students excluding
Creole as an Independent Variable

Variable	Reg. Coef.	Std. Error Coef.	Computed T	Beta Coef.
Previous Language Score	.05767	.01813	3.18141	.43660
Pre-test	.52175	.17360	3.00539	.39398
Length of Residence	.20737	.19303	- 1.07428	-.13083
Intercept		4.37094		
Multiple Correlation		.74840	Adjusted R -	.72119
Std. Error of estimate		1.22010	Adjusted SE -	1.25548

interaction terms are probably very similar, this is possibly the reason for the presence of a singular matrix which appeared to have this effect on the programme. (Table 7).

7. A significant difference however, may be noted due to the effect of previous language scores as well as of the pre-test results on the post-test. In both cases, the additive results are significant while the main effects, length of stay and degree of Creole spoken, do not appear to be. (Tables 7 & 8).
8. An attempt was then made to determine by means of a multiple regression analysis the effect of the instruction on post-test results. The three assumptions which allow a regression scheme to be used are all present. These are linearity, homoscedasticity or approximately equal spread of scores and normality of criterion scores (Popham, p.107). Addition of the criterion variables, previous language grades, length of residence in Canada, degree of Creole spoken and pre-test results aid to accuracy of the prediction, as does the high correlation. Based on these facts, it is shown that the standard error should be no more than 1.283 (Table 9).
9. Table 10, showing the results for native students under comparable circumstances, except for the use of Creole, substantiate these results and appears to validate the effectiveness of the instruction; the SE is here shown as 1.220. As Popham (1967) explains "the size of the standard error increases as the size of the correlation coefficient decreases". In other words, the stronger the relationship between the predictor and criterion variables, the smaller the error of prediction (p.108).

Examination of Table 9, the first part of which includes consideration of the use of Creole indicates the negative nature of the relationship of the factors, previous language scores, pre-test scores,

Table 11
Correlations Between Test Scores of West Indian
Subjects With Length of Residence In Canada

Status	Correlation of Coefficient	Standard Error
All subjects		
Pre-test	r - .417	1.740
Post-test	r - .294	2.155
<hr/>		
Short-stay (≤ 3.16) years		
Pre-test	r - .324	1.711
Post-test	r - .617	1.947
10 subjects	(Table value - .632)	
<hr/>		
Long-stay (> 3.16) years		
Pre-test	r - .167	1.912
Post-test	r - .197	1.864
9 subjects	(Table value - .666)	

Table 12
Correlations Between Test Scores Of West Indian
Subjects With Degree of Creole Used

Status	Correlation of Coefficient	Standard Error
All subjects (19 subjects)		
Pre-test	r - .686	
Post-test	r - .410	(Table value \pm .456)
<hr/>		
High Creole (11 subjects) ≥ 10		
Pre-test	r - .732	
Post-test	r - .606	(Table value \pm .602)
<hr/>		
Low Creole (8 subjects) < 10		
Pre-test	r - .690	
Post-test	r - .078	(Table value .707)

length of residence in Canada and use of Creole, to the dependent variable, post-test scores. When consideration of Creole is omitted, the entire cast of the relationship is changed from negative to positive.

(Table 10). For all these reasons it seems fair to conclude that Hypothesis One tends to be confirmed.

Hypothesis Two which is based on the assumption that length of residence affects school grades at the .05 level of significance was tested by means of a simple correlation. Table 11 shows these results. It seems fair to conclude that there is some correlation between the post-test results and the length of residence of West Indians who have been here for less than 3.16 years. None of the other factors appear to be correlated.

Hypothesis Three on the other hand, suggests that at the .05 level of probability there may be a negative correlation between the pre-test scores of West Indian students and the frequency with which they use Creole. The pre-test scores of those students speaking Creole at least half the time both at home and at school are negatively correlated, though post-test results do not show the same effects. Pre-test results of students using Creole infrequently on the other hand shows a much weaker degree of correlation, while their post-test results have no correlation whatsoever. (See Table 12).

Summary

This chapter has detailed all the procedures which are related to the methodology of the study which was undertaken. The hypotheses were stated and the variables described. Also reported was the basis on which the instruction was developed, beginning with the task analysis and proceeding through criterion testing to the undertaking of instruction and the post-tests.

Evaluation of the instruction as well as all statistical procedures were described; in addition the results were reported.

Chapter 4

Discussion, Conclusion, Recommendations

This chapter includes a brief summary of the results obtained, discussion of the empirical testing described in the preceding chapter, as well as conclusions and recommendations based on these results.

Summary of Results

Hypothesis 1. Co-variance analysis revealed the significance of interaction between age and language grades on both pre-test and post-test results. No significance was noted between the results of West Indian and native students although post-test results seem to indicate a difference which may be attributed to instruction. Degree of Creole spoken appeared a significant factor in the pre-test results of West Indians though not in the post-test, while length of stay does not seem as important as suggested by the hypothesis.

Hypothesis 2. Some correlation appears present between post-test results of West Indians and the length of residence in Canada for short periods (fewer than 3.16 years).

Hypothesis 3. A negative correlation appears to exist between the pre-test scores of all West Indians and the amount of Creole which they speak; such a correlation does not appear true of post-test results and use of Creole.

Discussion

The very sophisticated techniques which were designed to test Hypothesis One were not altogether successful, due no doubt to the small size of the sample population. Despite this, it is possible to draw some

conclusions from the analysis which was done. No significant differences attributable to status were noted in the pre-test results of this smaller group when compared with the larger group of native Canadians. Consequently, it seems fair to assume that the West Indians constituted a representative group of students. The instruction did not have the impact which had been hoped would be shown by differences arising between post-test and pre-test scores. It seems fair to conclude however, that the more sensitive co-variate analysis does indicate some instructional effectiveness.

Both Tables 4 and 6 show pre-test results as a significant co-variate in relation to post test results. This is true for both the combined population of 56 students (Table 4) and the smaller group of West Indians (Table 6). Since the systematic instruction which was the focus of the study was the major link between pre-test and post-test, it may be concluded that this instruction was the reason for the significant effect of the co-variates.

Further examination of the raw score also indicates a relatively high mean for both groups, therefore comparatively few of the subordinate skills were unknown. Manual examination of the scores obtained shows that in most cases the students who did have most to learn, did learn most, but that there was some regression on the part of these whose pre-test scores were better. The following table gives the relevant variances:

Table 13
Variances in Population Scores

	Pre-Test Variance	Post-Test Variance
Entire Population	2.3636	3.6727
West Indians	3.4678	4.8012
Native-Born Canadians	1.7688	3.1021

In his review of studies on aptitude-treatment interaction, Salomon (1971) notes that in both remedial and compensatory models, proficient learners experience boredom and interference in learning when provided with mediators which they can provide for themselves. This leads them to do poorly on subsequent tests. If this is the case then it is possible that the similarity of pre- and post-test means may be attributed to this factor. Although the individualised instruction should have averted such interference, this instruction is only meant to take place within an environment dedicated to learning. The high mean score, although indicating good over-all knowledge of the ultimate skill also indicated very few students with perfect scores. This meant several different blocks of free time for the pupils. Until a pattern for effective use of that time is established, it may be wasted, or poorly used. One of the teachers concerned mentioned this as a problem he had difficulty solving. It seems highly likely that the post-test results of the better students then, might regress rather than improve. Examination of the scores obtained confirms that this happened in several cases.

The degree of Creole spoken seems a definite factor in the success which the West Indian student meets in school. Several reasons may be advanced for this. First and foremost, the use of this language may constitute a source of much confusion between the child and the teacher. The child who speaks in this way may be expected to have some difficulty communicating with a teacher unfamiliar with these language forms.

Second, the emphasis on the use of Standard English may indicate to the child the negation of his own self-esteem (Phillips, Dunham, Brubaker and Butt, p. 48). Since this is the most overpowering of his needs, he possibly reacts by refusing to give up the identity which is being subtly

challenged. As Smith expresses this concept: "Emotional commitment to established patterns of behaviour is apt to be profound, not just because of some ethno-centric notion that this is the only, or best way to do something, but because doing it this way has important survival value" (Language Attitudes: Current Trends and Prospects, p.108 ed. Shuy & Fasold 1970).

Third, as shown by both Semmel (1969) and Williams, Whitehead and Miller (1972), the use of certain language forms often leads to a pre-conceived notion by the teacher of a child's ability. This experiment has already been detailed and discussed.

'Interference in comprehension' then may be seen to constitute an unrecognised factor which precludes both the child's understanding the teacher, and the teacher understanding the child. The type of instruction proposed has many advantages, the most obvious perhaps, being the degree of success which may be attained in each unit. The size of the unit of learning encourages mastery, and the structure of each lesson ensures that such mastery is attained by all who need this help. Thus the student becomes accustomed to achieving success rather than failure and is encouraged by such positive feedback.

Another factor to be considered in evaluating the success of the type of instruction proposed, is the monitoring possible by the teacher who is able to identify exactly the concepts which are occasioning difficulty; for this reason, the job of teaching becomes both easier and more effective. The task analysis performed at the beginning of the instruction helps ensure mastery of the total concept.

Validity of this assumption of effective instruction is also supported by the results of the correlation analysis performed in connection with Hypothesis Three. This analysis shows that while the greater the frequency

of use of Creole by West Indians, the stronger the correlation with their pre-test scores, but no such correlation exists between post-test scores and degree of Creole used. As instruction was the interposing factor, it may be concluded that the type of instruction described is important in clarifying areas of weakness which may not be uncovered by other systems.

In view of these findings, Hypothesis One, which states that systematic instruction of the type proposed would do much to nullify the negative effects of the Creole language on the achievement scores of West Indian immigrant children, appears justified.

No clear-cut results asserting a definite correlation between time spent in Canada and degree of achievement in Canadian schools were uncovered. It is possible that a larger sample of West Indians might have resulted in a different conclusion. One school of thought holds that the longer the West Indian child remains removed from his native environment, the more certain his work is to be affected by the conflicts he endures. This is the basis of the argument set forth by Coard (1974). Although this may seem unlikely to the immigrant parent whose desire for a better education and lifestyle for himself and his children have driven him to emigrate, my conclusion that length of residence does not appear to affect the outcome of the student's work to any significant degree, is also shared by members of the Schools Council Project: Teaching English to West Indian Children (1970).

According to the results of the correlation analysis, very little may be attributed to the length of residence of those students who have been here for less than 3.16 years, correlation with pre-test results being .324. A similar statement may be made for those students who have been here for more than 3.16 years, correlation with the number of pre-tests passed in this case being .167, while for the entire group corre-

lation between pre-test and length of residence was .354.

A similarly low correlation exists between post-test results and length of residence of the immigrants. Despite this, however there is a higher degree of correlation between the shorter residence and post-test scores, correlation in this case being .617, fractionally below the table value of .632 which would suggest significance.

Cross-tabulation shown as follows confirms this trend:

Table 14
Relationship Between Post-Test Scores of
West Indian Students and Length of Canadian Residence.

No of post- test items passed	Long (7-11 years)	Medium (2-7 years)	Short (< 2 years)	Total
High ≥ 10	5	4	3	12
Low < 10	2	1	4	7
Total No of Students	7	5	7	19

As indicated thereon approximately 56% of those students who have been here for less than two years do poorly on the pre-test while only 16% of those who have lived here for seven or more years achieve comparable results. When the median is used for grouping the results are similar:

Table 15
Relationship Between Post-Test Scores of
West Indian Students and Length of Canadian Residence

No of post- test items passed.		Long (7-11 years)	Medium (3.16-7 years)	Short (\leq 3.16 years)	Total
High \geq 10		5	4	4	13
Low $<$ 10		1	1	4	6
Total No of Students		6	7	7	19

Although speculation concerning these results might suggest that this type of instruction is particularly effective with those whose short periods of residence might parallel their motivation to succeed, the sample is too small to reach any specific conclusion. However it is quite probable that the frequency of feedback is particularly effective for students who have lived here for relatively short periods of time.

In the case of Hypothesis Three, all analyses performed indicate the importance which ought to be attached to the West Indian's use of Creole. The co-variance analysis clearly showed that Creole was a significant factor in pre-test results, whether considered as a main effect or acting jointly with length of residence and previous language scores.

The correlation analysis performed substantiated this viewpoint. The post-test scores of those who speak Creole frequently are not particularly interesting from this viewpoint. In all cases it may be noted that post-test results do show a weaker correlation with the frequency of use of Creole. One may not conclude that the impact of Creole on

on the post-test was lessened by the systematic type of instruction undertaken.

Although not put forth as a hypothesis, the suggestion was made earlier that some attention would be given to any differences which might show up between those students whose teachers are white Canadians and those of teachers who, like their students, had emigrated from the West Indies. Examination of Table 16 will reveal an interesting fact. Regression coefficients for Variables 4 and 6 in School 1, whose students were all taught by white Canadian teachers, seem to be opposed in the emphasis placed on length of residence and SES (Variables 4 & 6) from that in School 2, where the teachers had both emigrated from the West Indies. These factors appear to suggest that for each of these groups the same variables take on different degrees of importance, which may or not not be related to the native culture of the teacher in question. The question should be pursued in greater depth; some interesting conclusions may perhaps be drawn from a study designed to test such a hypothesis. In any case, the training of teachers of immigrant students ought to include some in-depth analysis of the problems likely to be faced by specific ethnic groups.

Conclusions

Factors contributing to external validity were controlled as far as possible. Since only one treatment was used there could be no interference from others. Intact classes in two of the three groups of students prevented the subjects' reacting unduly to the study, while manipulation of the moderator variables enabled their effect to be studied selectively.

Factors contributing to internal validity were also controlled. All subjects experiencing the same treatment based on their individual needs controlled for history. Maturation should have been of little consequence

Table 16

Regression coefficients in School I (A)
White Canadian Teachers vs School II (B)
West Indian Immigrant Teachers.

Variable	Reg. Coef.	Std. Error Coef.	Computed T	Beta Coef.
Previous Language Score	.01944	.01619	1.20101	.09277
Pre-Test	.77393	.09763	7.92720	.57245
Length of residence	.39631	.08080	4.90503	.37905
Creole	-.05319	.03574	-1.48824	-.09086
Variable	Reg. Coef.	Std. Error Coef.	Computed T	Beta Coef.
Previous Language Score	.09894	.02481	3.98879	.61696
Pre-test	.70928	.15052	4.71215	.62359
Length of residence	-.05894	.10568	-.55777	-.07653
Creole	.08328	.05891	1.41364	.16394

as the period between pre-test and post-test was merely six weeks and the importance of pre-test performance on the subsequent post-test would be lessened by all students taking both tests. Intact classes would also negate the importance of selection bias and statistical regression on post-test results. Invalidity of results was also prevented by objective testing. There was a certain degree of experimental mortality; however the only statistics used were for those students who completed both pre- and post-tests. Bias due to stability was controlled for by the application of appropriate statistical tests showing the improbability of the findings being due to chance.

Despite the inherent limitations of the study, some interesting conclusions may be drawn. These might affect the curriculum of schools wherever large numbers of immigrants attend, and may be especially useful to students of mediocre ability. As previously described those students were the ones who seemed to profit most from the instruction, while the better students appeared to regress somewhat.

The type of instruction described here might be of greater importance than many of us have been willing to concede. Eisner's division of objectives into instructional and expressive classes (Merrill, 1971), each adding another dimension to the total school experience, ought to be closely considered by the teacher. This instruction is directed towards the attainment of certain objectives and makes no pretence otherwise. In other words, this method of instruction is not foreseen as being the only type which should be used in the schools. However it is suggested as one way in which the important core subjects may be taught, and taught successfully, to groups which may suffer one disadvantage or another.

That the development of criterion tests is time-consuming may be obvious. What may not be as obvious is that adequate time must be allowed

for practice of concepts taught in this way. This method is not designed to save time, although it is directed towards efficiency. The lack of time which hampered this study may be one of the reasons why the post-test results do not show the gains that were anticipated. Individual differences amongst students might also account to some extent for these results but the importance of continual re-inforcement cannot be under-estimated as any competent teacher knows. Use of Gagne's theory with its emphasis on lesson structure and use of objectives does not imply that such re-inforcement is unnecessary.

The degree of Creole spoken by many West Indian immigrants must be considered as an important factor in their educational experience. It has been suggested that the single most important ingredient in the learning experience is interaction between teacher and student (Phillips, Dunham, Brubaker and Butt, 1970, p.152). If communication between teacher and student is to be effective, then the teacher of immigrant children will have to be prepared to overcome any handicaps that use of Creole might present. This is the type of interaction which will restore confidence in a system all too frequently regarded as ineffectual.

This study does little to support the belief that West Indian immigrants do not perform as well in the school system as their native-born counterparts, despite the impediment of either length of residence or frequency of use of Creole, when testing is based on analysis of individual difficulties. If this is so, it seems difficult to understand why, despite the refusal of the responsible school board to release specific figures of West Indian students attending special classes, black educators estimate that approximately one-third of the students attending these classes are black. Sylvia Ashworth in Immigrant Children and Canadian Schools (1975) refers to a study of the Ontario Institute for Studies in Education which

shows that more than sixty percent of those enrolled in secondary institutions were enrolled in vocational schools (p.163). This is a similar situation to that existing in Britain where schools for the educationally sub-normal (ESN) appear to be populated largely by immigrants from former colonies, as described in studies such as Coard's (1974). The situation here is not yet as extreme. However, the potential for problems might be dissipated if open acknowledgement of its existence were followed by an intelligent approach to the situation.

Thorough manual inspection of pre-test and post-test after completion was possible because of the small number of subjects. This inspection showed that five of the high school subjects were not able to follow test instructions. No elementary level students had this problem despite the test having been developed originally for the lower grades. Another unexpected result was that the lowest score on both pre-test and post-test was received by two of the high school students. Although the limited number of subjects involved precludes far-reaching conclusions being drawn, the fact should be noted. It seems to suggest that West Indian immigrants as well as native born, attending high schools, probably need the type of individual instruction described herein, even more than the elementary student.

The choice and training of teachers for immigrant students seems a grave consideration. Those teachers who are sent into such schools contrary to their own desires often request transfers as soon as possible; instability and inexperience thus combine to frustrate any efforts being made to upgrade the achievement of the child. (Derevensky & Mitchell, 1975). Personal conversation with recent graduates of local educational institutions who are now teaching in the schools also reveals their dissatisfaction with the courses now being given at the present time. They

say that there is far too much reliance on U.S. information; the situation here is different and merits different treatment. This complaint, which can only be relieved by local research, is also made by Bowen (1976).

The continuing education of such teachers should be considered a sufficiently high priority that time should be allowed for courses during the regular school day, or for specific periods during the year, rather than left to the end of a fatiguing day, or be allocated as part of the weekend's activities. If this were done, then practical solutions to problems might be discussed in workshops which are of equal importance with the more theoretically-based seminar. All these proposals of course, are totally dependent on the School Board's acknowledging the existence of a problem in immigrant education.

Recommendations

Based on this study, the following recommendations are therefore made:

- 1) West Indian immigrant students may be experiencing difficulty in schools due to their use of Creole. Should this appear to be the case, then for a period of approximately three months corresponding to the first term's schooling, these students should be exposed to systematic instruction such as has been described, before undertaking the study of the second official Canadian language. The potential difficulties which would thus be solved in the period suggested, should allow for better progress to be made in all subjects.
- 2) Teachers at the secondary level ought to be particularly apprised of the necessity for this type of instruction for students of low ability and its value to the core skills. Conversation with high school teachers leads one to realise that they frequently believe that these skills have been mastered at the primary level. Con-

sequently, in planning their programmes, they may not allow for the time necessary for instruction in the core skills, especially for recent immigrants. Until these skills are mastered, the students, particularly those whose weaknesses may not be readily apparent, become more and more confused by work which he is unable to do. Clarification of these difficulties should do much to help the student overcome problems which threaten to swamp him.

- 3) Further research should be instituted in order to uncover any hidden attitudes on the part of his teacher which might add an unidentified burden to the lot of the immigrant student. Length of residence and socio-economic status of these students might play a more dominant part in shaping the thinking of the teacher than realised at present.

After much reflection and discussion with many of the teachers who are working with immigrant students the author also recommends that.

- 4) Teachers of immigrant students should be selected on the basis of their own interest and desire to contribute to this type of student, with the special problems he presents.
- 5) Education of these teachers should include some in-depth analysis of the problems likely to be faced by specific ethnic groups. This would be most useful when carried out by members of such groups competent to consider all aspects of this question.
- 6) Technological expertise in order that the problems of the Creole-speaking student might be minimised; auditory training for teachers of such students would be particularly important.

This study has been hampered by the small number of subjects, which for reasons mentioned from time to time, it was possible to use. How-

the results are sufficiently interesting to suggest that replication would be worthwhile.

Replication with a large number of subjects would allow the use of a control group. In this way a more accurate conclusion might be reached with regard to the efficacy of the instruction. It would be preferable for at least 50 West Indian students to be identified, probably involving a total of approximately 200-250 students; most teachers are unwilling to allow the use of any but intact classes. Use of classes at both the secondary and elementary levels, would also allow study of different age groups in different environments, which might prove interesting in itself.

Replication should also allow more time for instruction. Realisation of the importance of each of the individual units will enable more thorough mastery of the ultimate skill, whatever that may be.

Summary

This chapter has discussed the conclusion reached with regard to each hypothesis tested in this thesis. The frequency of usage of Creole was shown to be a significant factor in the pre-test results of West Indian immigrants, though apparently not affecting post-results. Some positive correlation appeared present between post-test results of West Indians and recency of arrival; a negative correlation seems to exist between pre-test scores of West Indians and the amount of Creole spoken.

Evaluation of the instructional material given by the teachers was also undertaken, based on an assessment of the material by the teachers concerned.

The chapter concludes with some practical recommendations which, if followed, might help motivate immigrant students to achieve better standards.

REFERENCES

- AERA Monograph - A Measure of Standard English Proficiency of Inner-City Children, 1970, 29-40.
- Ashworth, Mary - Immigrant Children and Canadian Schools, Toronto, McLelland & Stewart Ltd, 1975.
- Austin, G.R et al - The effects of Summer compensatory education, Review of Educational Research, 1972, 42, 2, 1971-180
- Bagley, C. - Comparative study of social environment and intelligence in West Indian and children in London. Social and Economic Studies, 1971, 420-430.
- Baratz, J. - Language barriers of the culturally different. Boston. College Reading Association, 1969.
- Baratz, J. and Shuy, R. - Teaching black children to read. Washington Centre for Applied Linguistics, 1969.
- Baratz, J. - Bi-Dialectal Task, 1968. U.S. Dept of Health & Education & Welfare, Washington, 1968.
- Berg, P. - The Psychology of Reading Behaviour. Paper presented at National Reading Conference, Los Angeles, 1968.
- Blishen, B.R. - Construction and use of an occupational class scale. Canadian Society: Social Perspective, Toronto, Bryant, 1964.
- Bowen, G. - Cognitive Development in d'Oyley Black Students in Urban Canada, 1976, 71-80.
- Clark, B.S. - Pre-School programmes and black children in immigrant groups ed. J.N. Elliott, Canada, Prentice Hall, 1971.
- Coard, B. - How the West Indian Child is made Educationally Sub-Normal in the British School System, London, New Beacon Books Ltd, 1974.
- Corey, S.M. - Definition of instructional design, Instructional Design Readings, ed. M.D. Merrill, New Jersey, Prentice-Hall, 1971, 5-17.
- Derevensky, J & Mitchell, D. - Several Curriculum Variables in Inner City Education, (Unpublished paper, 1975).
- d'Oyley, V. ed. Black Students in Urban Canada - Ontario Ministry of Culture and Recreation, 1976.

- Durojaiye, S. - Social Context of Immigrant Pupils' Learning English
ed. Research, 1970, 13, 179-184.
- Eisner, E.W. - Instructional and expressive objective, 1966.
Instructional Design: Readings, ed. M.D. Merrill,
New Jersey, Prentice-Hall, 1971, 5-17.
- Fasold, R.W & Shuy, R. - Teaching Standard English in the Inner City,
Urban Language Series 6, Washington,
Centre for Applied Linguistics, 1970.
- Fishbein, J. Emans, R. - A Question of Competence; language,
intelligence and learning to read, Chicago,
Science Research Associates, 1972.
- Gagné, R.M. - The Condition of Learning, N.Y. Holt, Rhinehart and
Winston, 1970.
- Gagné, R.M & Briggs, L.J. - Principals of Instructional Design, N.Y.
Holt, Rhinehart and Winston, 1974.
- Gagné, R.M. - Educational Technology and the Learning Process, Jan.
1974, 3-8.
- Glaser, R. - Design of Instruction, Instructional Design, ed. M.D. Merrill,
New Jersey, Prentice-Hall, 1971, 18-37.
- Glasgow School Council - The Abilities and Attainments of Immigrant
Children - Research in Education, 4, 1970, 73-80.
- Goldman, R & Taylor, F. - Coloured/Immigrant children, Educational
Research 8, 1966, 3, 163-183.
- Goldman, R. - Research and the teaching of Immigrant Children. Paper pre-
pared for Commonwealth Immigration Soc., 1968.
- Godman, P. - The Universal Trap in Selected Educational Heresies, ed.
W.F. O'Neill, Scott, Foreman and Co., U.S.A. 1969, 187-197.
- Hackett, M. - Success in the Classroom, N.Y. Holt, Rhinehart and Winston,
1971.
- Hess, K.M. - Dialects and dialect learning - programming strategies,
New York, Nat. Soc. for Programmed Instr., 1971.
- Houghton, V.P. - A report on the scores of West Indian immigrant children
and English children on an individually-administered test.
Race, 8, 1, 1966, 147-156.

- Huntley, G.M. - Empirical Comparison of two methods for devising learning hierarchies. Paper presented at the Symposium Measurement Aspects of Instructional Sequencing, AERA annual meeting, Chicago, 1974.
- Huntley, G.M., Farrel, M,
Marrett, E & Dehoux, C. - Interactive Prescription of Instruction by Pre-Test Scaling - Paper presented at the Second Canadian Symposium on Instructional Technology, Quebec City, 1976.
- Information Canada Highlights from the Green Paper on Immigration and Population (1975).
- Jensen, A.R. - How much can we boost I.Q. and scholastic achievement? Harvard Educational Review, 39, 1, 1969.
- Krathwohl, D.R., Bloom, B.S.,
& Masia, B.B. - Taxonomy of Educational Objectives. Handbook II: Affective Domain, New York, McKay, 1974.
- Laffey, J.L., and Shuy, R. - Language Differences do they interfere? Newark, Int'l Reading Association, 1973.
- Lavatelli, C.G. - Problems of dialect - summary of discussions at the National Language Conference on English, Chicago, 1967.
- Merrill, M.C. - ed. Instructional Design: Readings, New Jersey, Englewood Cliffs, 1971.
- Merrill, M.C. - Classes of instructional outcomes, Instructional Design, New Jersey, Prentice-Hall, 1971, 173-184.
- Nicol, A. - Psychiatric disorders in the children of Caribbean immigrants Journal of Child Psychology and Psychiatry, 1971, 12, 273-287
- Nie, N.H., Hall, C.H.,
Jenkins, J.G., Steinbrenner, D.H. - Statistical Packages for the social sciences, McGraw Hill, New York, 1975.
- Passmore, D.L. - Sequencing Learning Invents in Performance - based Instructional Systems. Paper presented at the Annual Meeting of the Rocky Mountain, ed. Res. Assoc, 1974.
- Phillips, Dunham, Brubaker & Butt - Oral Communication and the Classroom Teacher, Indianapolis, Bobbs-Merrill Company Inc.
- Popham, W.J. - Educational Statistics Use & Interpretation, New York, Harper & Row, 1967.

- Quay, L. - Language, dialect, reinforcement and intelligence tests performance of negro children. Child Development, 1971, 42 5-15.
- Rex, John. - Nature vs Nature: The Significance of the Revised Debate in Race and Intelligence, ed. Richardson K and Spears M - Penguin, U.S.A. 1972.
- Rohwer, W.D. Jr. - Learning Race and School Success Review of Educational Research, 1971, 41, 3, 191-209
- Rosenthal, R., Jacobson, L. - Pymalion in the Classroom: teacher expectation and pupils' intellectual development, New York, Holt, Rhinehart and Winston, 1968.
- Rundell, E. - Studies in the comprehension of Black English, PhD Dissertation - Univ., of Texas et Austin, 1973.
- Rystrom, R. - Reading, Language and Nonstandard Dialects; A research report in Language Differences;
- Salomon, G. - Heuristic Models for the Generation of Aptitude Treatment Interaction Hypothesis - Hebrew Univ., of Jerusalem, Oct. 1971.
- St. John, N. - Desegregation and Minority Group Performance, Rev Res. 40, 1, Feb. 1970, 111-133.
- Schools Council: Teaching English to West Indian children, London, Evans/Methuen Educational, 1970.
- Semmel, N.I. - The importance of disability levels and dialect differences on the semantic differential responses of college students Centre for Research on Language and Language Behaviour, 1969.
- Shuey, A.M. - Testing negro intelligence, 2nd ed. Social Science Press, 1966.
- Shuy, R., Fasold, R. - Language Attitudes: Current Trends and Prospects. Washington, Georgetown University, Press, 1973.
- Smith, J.C. & Crittenden, W.B. - A Performance Test of Curriculum Guides using Behavioural Objectives and Structural Sequencing. Final report, Nat. Centre for for Ed Res & Dev. Washington, D.C., 1972.
- Taylor, S.E & Freckenpohl. - A Core Vocabulary EDL Research and Information Bulletin, No. 5, 1960.

- Tobias, S., and Duchastel, P. - Behavioural Objectives, Sequence and Aptitude Treatment Interactions in CAI - Florida State Univ., Computer Assisted Instruction Centre - 1972.
- Triselotis. 63 - Immigrant Schoolchildren and their problems of adjustment. Case Conference, Jan 1963.
- Tuckman, B.W. - Conducting educational research, U.S.A., Harcourt, Brace, Jovanovich, 1972.
- Tuppen. - Measurements of teachers' attitudes. Educational Research, 1966, 8, 1, 142-145.
- Walberg, H. - ed. Educational Performance, California, 1974. McCutcheon Publishing Co. 128-137.
- Williams, F., Whitehead & Miller - Relations between language attitudes and teacher expectancy American Educational Research, 1972, 2, 263-277.
- Winer, B.J. - Statistical principles in experimental design. New York, McGraw-Hill, 1962.

Appendix A

- (1) Letter to teachers
- (2) Students' questionnaire

Appendix A

As you know, this research is partly directed towards the difficulties which West Indian children might have in school because of problems associated with language. Please have all your students fill out the enclosed questionnaire the day before doing the test.

- 1) a general achievement mark (%) for each student based on the first term's work.
- 2) the degree of Creole (see questionnaire) used by the student when speaking to you. Should you be aware of any wide gap between the way the student speaks to you in school and the way he seapks to family/friends, I would appreciate your drawing this to my attention.

Thank you very much indeed for the help which are are giving.

We hope that the results of the study will prove useful.

Appendix A

Please give us the information requested as carefully as possible. This information will be used only for the purposes of a study being conducted into the education of immigrant children.

All information will remain confidential.

Name _____

Date and place of birth _____

Year of arrival in Canada _____

Occupation of father _____

Occupation of mother _____

For West Indian students Only:

How much Creole do you speak? Please circle a number

in school with teacher	1 (never)	2	3 (sometimes)	4	5 (always)
in school with friends	1	2	3	4	5
at home	1	2	3	4	5

Thank you for helping us.

Appendix B
The Pre-tests

Directions: In this part you will choose the right way to say a written sentence. You will see one sentence and hear three. Only one of the sentences that you hear is the same as the one that you will see on the page. Mark an X through the letter that goes with the right way to read the sentence that you see. I will repeat the three sentences. Do the example now.

EXAMPLE: Do come here.

The right way to say that sentence is:

- A.
 - B.
 - C.
-

Did you put an X through B? That is the letter that goes with the right way to say the sentence "Do come here".

The teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now, try to do the three items of this part in the same way. Remember to put an X through the letter that goes with the right way to say that sentence. If you finish early, please sit quietly. Do not turn the page until the teacher says so.

1. Your sister loves music.

The right way to say the sentence is

- A.
- B.
- C.

2. Do you always use cream in your coffee?

The right way to say the sentence is

- A.
- B.
- C.

3. What a great car!

The right way to say the sentence is

- A.
 - B.
 - C.
-

End of part 1. Do not turn the page until your teacher tells you to do so.

Directions: In this part you will select the one phrase or sentence which does not fit with the first word presented in each item. You will be given one word followed by the phrases or sentences A, B, and C. Two of these tell us something about the word. Put an X through the letter beside the sentence or phrase which does not tell us anything about the word. Try the example now.

EXAMPLE: Windows

The fact that does not belong is:

- A. The sunlight comes through them.
 - * B. We open them during the summer.
 - C. We invite people to come through them.
-

Did you mark an X through letter C? That was the right answer because the sentence C. "We invite people to come through them", does not give us any information about the word "Window".

Your teacher should turn off the recorder now to answer your questions, and then turn it back on when everyone is ready to start.

Now, do the others in the same way.

1. Airplanes

The fact that does not belong is:

- A. Some travel hundreds of miles each hour.
- B. The person who guides them is called the driver.
- C. Things look small from their windows.

2. House

The fact that does not belong is:

- A. Where you buy groceries.
- B. The place where you live.
- C. Has doors and windows.

3. Table

The fact that does not belong is:

- A. People sit at it to work.
 - B. People eat meals at it.
 - C. People cook meals on it.
-

End of part 2. Do not turn the page until your teacher tells you to do so.

PART 3 : CHOOSING A COVER TERM

Directions: In this part you will choose the one name which tells why some facts belong together. You will be given some facts, that belong together, followed by a list of four words A, B, C and D. One of the words tell us why all those facts belong together. Put an X through the letter beside the correct word. Do the example now.

EXAMPLE: Facts: Every week may I take the bus. Some people take the metro to go to work. The roads are always crowded with cars.

The word that tells why those facts belong together is:

- A. Travel
- B. Bus
- C. Work
- D. Metro

Did you put an X through A? That was the letter beside the word travel which tells us why all those facts belong together.

The teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now, try to do the three items of this part in the same way.

1. Facts: Summer time is good for gardening. Plants and flowers grow nicely. The grass has to be cut often.

The word that tells why these facts belong together is:

- A. Grass
- B. Gardens
- C. Flowers
- D. Meadow

2. Facts: It has beautiful rooms. Through the windows I can see the streets. Rugs cover the floor.

The word that tells why these facts belong together is:

- A. Garage
- B. Window
- C. House
- D. Factory

NOW GO RIGHT ON TO THE NEXT PAGE.

3. Facts: I like hot dogs a lot. Sometimes I prefer a hamburger or a Pizza.
Some people go to bed hungry.

The word that tells why these facts belong together is:

- A. Hot dog
- B. Food
- C. Hamburger
- D. Supper

End of part 3. Do not turn the page until your teacher tells you to do so.

PART 4 : RELATED THINGS

Directions: In this part you will choose one of four words which does not belong in that group. Read the four words and you will see that three belong together. Mark an X through the letter beside the word which does not belong in that list. Do the example now.

EXAMPLE: The word that does not belong is:

- A. Leg
 - B. Man
 - C. Head
 - D. Net
-

Did you mark an X through the letter D. That letter goes with the word net which does not belong in the list leg, Man, Head.

The teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now, try to do the three items of this part in the same way.

1. The word that does not belong is:

- A. brick
- B. wood
- C. building
- D. walk

2. The word that does not belong is:

- A. arm
- B. cap
- C. coat
- D. dress

3. The word that does not belong is:

- A. wool
 - B. leather
 - C. paper
 - D. fur
-

End of part 4. Do not turn the page until your teacher tells you to do so.

PART 5 : RELATIVE SUPERORDINATE

Directions: In this part you will choose one word out of four which includes the other three words. You will be given four words next to the letters A, B, C and D. One of these words includes everything else in that list. Put an X through the letter next to that word. Do the example now.

EXAMPLE: The one word that the other three can be part of is:

- A. Leg
 - B. Arm
 - C. Head
 - D. Body
-

Did you put an X through the letter D, next to the word body? That was the right answer because the other three words are names for parts of the body.

Your teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now, try to do the three items of this part in the same way.

1. The one word that the other three can be part of is:

- A. Twig
- B. Bark
- C. Tree
- D. Leaf

2. The one word that the other three can be part of is:

- A. Fruit
- B. Apple
- C. Pear
- D. Banana

3. The one word that the other three can be part of is:

- A. Sun
 - B. Sky
 - C. Moon
 - D. Star
-

End of part 5. Do not turn the page until your teacher tells you to do so.

PART 6: MAIN IDEA

Directions: In this part you will choose the main idea of a short paragraph. You will be given a short paragraph followed by three phrases A, B and C. One of these phrases tells us the main idea of the paragraph. Put an X through the letter beside the phrase that tells us the main idea of the paragraph. Do the example now.

 EXAMPLE: Fish do not all sleep in the same position. Some burrow into sand, buried right up to the mouth. The trigger fish lies down on its side. Others sleep suspended in mid-water. Some fish sleep standing on their tails. One fish sleeps standing on its head.

The story mainly tells:

- A. Why fish like to sleep.
- B. How fish sleep.
- C. How to catch fish.

 Did you put an X through B? That was the phrase which tells us which the main idea in the paragraph is.

The teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now, try to do the three items of this part in the same way.

- 1. In 1850, eight English sparrows were brought to New York City. The birds didn't fare well. More were brought over two years later. Year after year these birds increased their numbers. Today there are millions of English sparrows in the United States.

The story mainly tells:

- A. How the number of sparrows has grown.
- B. What the sparrows are like.
- C. Where the sparrows come from.

2. When we think of salt water, we think of the world's oceans and seas. When we think of fresh water, we think of ponds, lakes, rivers and streams. Yet a large amount of fresh water is often found at certain places in the sea.

The story mainly tells:

- A. Why fresh water is found in rivers.
- B. How much salt water there is.
- C. Where fresh water and salt water are found.

 NOW GO RIGHT ON TO THE NEXT PAGE.

3. The tail of a bird helps the bird keep good balance. It also gives the bird an extra lifting surface while in flight. Some birds use their tails for support when they are digging for insects.

The story mainly tells:

- A. Why birds need good balance
- B. How tails help birds
- C. How birds dig for insects.

End of part 6. Do not turn the page until your teacher tells you to do so.

PART 7: RELATIVE SUBORDINATE

Directions: In this part you will choose one word from a list. This word is a part of the first word in each item. You will be given one word followed by three other words next to the letters A, B, and C. One of the words, A, B, or C, belongs with the first word, and is a part of what that word means. Put an X through the proper letter. Do the example now.

EXAMPLE: Family

A part of what that word means is:

- A. uncle
- B. Santa Claus
- C. kitten

Did you put an X through the letter A? That was the right answer because the word "uncle" is a part of the idea of "Family".

Your teacher should turn off the recorder now to answer your questions, and then turn it back on when everyone is ready to start.

Now, do the others in the same way.

1. Seasons

Part of what that word means is:

- A. Winter
- B. Farm
- C. Earth

2. People

Part of what that word means is:

- A. Cat
- B. Child
- C. House

3. Birds

Part of what that word means is:

- A. Duck
- B. Dog
- C. Cat.

End of part 7. Do not turn the page until your teacher tells you to do so.

PART 8 : COORDINATE LEVELS

Directions: In this part you will choose one word which does not belong in each list of words. You will be given a list of four words A, B, C, and D. One of those does not belong in that list. Put an X through the letter beside the word which does not belong on that list. Do the example now.

EXAMPLE: The word that does not belong is:

- A. Leg
 - B. ~~Arm~~
 - C. Head
 - D. Man
-

Did you mark D? That was the letter beside the word man, which did not belong in that list.

The teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now, try to do the three items of this part in the same way.

1. The word that does not belong is:

- A. twig
- B. bark
- C. leaf
- D. tree

2. The word that does not belong is:

- A. fruit
- B. apple
- C. pear
- D. banana

3. The word that does not belong is:

- A. sun
 - B. sky
 - C. moon
 - D. star
-

End of part 8. Do not turn the page until your teacher tells you to do so.

PART 9: PARAPHRASE

Directions: You will choose one of three sentences A, B, C. which has the same meaning as the first sentence in each group. You will be given a sentence followed by three sentences, A, B, and C. One of those three sentences means the same as the first sentence. Do the example now.

EXAMPLE: Cars jammed the streets.

The sentence that means the same is:

- A. The cars spread jam on the streets.
- B. The cars moved slowly along the roadway
- C. The roadways were crowded with cars.

Did you put an X through C? That was the sentence that means the same as the first sentence "The cars jammed the streets".

The teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now, try to do the three items of this part in the same way.

1. He looked at the grey clouds.

The sentence that means the same is:

- A. He saw the grey sky.
- B. He saw the rain falling.
- C. The clouds were gathering.

2. The zipper on the jacket wouldn't hold.

The sentence that means the same is:

- A. The jacket didn't have a zipper.
- B. The jacket zipper was broken.
- C. The jacket wouldn't close.

3. The ice is frozen into strange shapes.

The sentence that means the same is:

- A. The water is frozen strangely into ice.
- B. The ice is taking on strange shapes.
- C. Ice shapes are often strange.

End of part 9. Do not turn the page until your teacher tells you to do so.

PART 10: SYNTACTIC EQUIVALENCE

Directions: You will choose one of three sentences A, B, or C, which means the same as the first sentence in each group. You will be given one sentence followed by three other sentences, A, B, and C. One of these sentences means the same as the first sentence. Put an X through the letter beside the sentence which has the same meaning as that first sentence. Do the example now.

EXAMPLE: The hen picked up the grains.

The other sentence that means the same is:

- A. The hen chose the food.
 - B. The grains were picked up by the hen.
 - C. The hen used her beak when eating.
-

Did you put an X through B? That was the letter beside the sentence "The grains were picked up by the hen". This means the same as "The hen picked up the grains".

The teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now, try to do the three items of this part in the same way.

1. The cows were munching the hay.

The other sentence that means the same is:

- A. The cows liked munching the hay.
- B. The hay was being munched by the cows.
- C. The cows spent the day munching.

2. John has a book that belongs to me.

The other sentence that means the same is:

- A. That's my book.
- B. John is reading my book.
- C. John has my book.

3. I like twilight best.

The other sentence that means the same is:

- A. Twilight is my favourite time.
 - B. Twilight comes just before dark.
 - C. Twilight is a restful hour.
-

End of part 10. Do not turn the page until your teacher tells you to do so.

Part 11: TOPIC SENTENCE

Directions: In this test you will choose one sentence which best says the main idea in a group of four sentences. You will be given four sentences A, B, C and D, that belong together. Put an X through the letter beside the sentence that means the main idea in that group of four sentences. Do the example now.

EXAMPLE: The main idea is:

- A. Dogs were everywhere.
- B. They wandered into houses, schools, and banks
- C. They were even around grocery stores.
- D. Men were always having to drive them outside.

Did you put an X through the letter A? That was the right answer because "Dogs were everywhere" is the main idea of those four sentences.

Your teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now, try to do the three items of this part in the same way.

1. The main idea is:

- A. Great elms line its streets.
- B. Here are the oldest buildings.
- C. There are the newest homes.
- D. Fredericton is still a peaceful spot.

2. The main idea is:

- A. Sports played for fun are called amateur sports.
- B. Sports played for money are professional sports.
- C. Many sports are both amateur and professional.
- D. You may play on a baseball team for fun.

3. The main idea is:

- A. The firemen answered the call.
- B. He struggled to guide the huge hose.
- C. The water spurted out in a long spray.
- D. In a short time the fire died down.

End of part 11. Do not turn the page until your teacher tells you to do so.

PART 12 : SYNONYMY

Directions: You will choose one sentence which means the same as the first sentence given in each item. You will be given one sentence followed by three others, A, B, C. Put an X through the letter beside the sentence which means the same as the first sentence. Do the example now.

EXAMPLE:- The city was stirring.

The sentence that means the same is:

- A. The villagers were not asleep.
- B. The great town was wakening.
- C. The townsmen were afraid.

Did you put an X through B? That was the sentence which was closest in meaning to "The city was stirring".

Your teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now do the others in the same way.

1. The men must push on through the icy winter darkness.

The sentence that means the same is:

- A. The workers had to continue through the cold winter night.
- B. The people pushed the car up the slippery slope.
- C. The workers had to push through the windy darkness.

2. The cars came whizzing by.

The sentence that means the same is:

- A. Autos drifted along the road.
- B. Cars came rolling by.
- C. Cars went speeding along.

3. He jumped to his feet shouting "Hurray!"

The sentence that means the same is:

- A. The man leapt up yelling "Hurray".
- B. He jogged around the track shouting.
- C. The man stood up waving his arms.

End of part 12. Do not turn the page until your teacher tells you to do so.

PART 13: TEMPORAL SEQUENCE OF EVENTS

Directions: In this test you will choose the sentence that happened first, second, or last in the group to which it belongs. You will be given three or four sentences next to the letters, A, B, C, D. For each item you will be asked to put an X through the letter next to the thing that happened first, second or last in that group. Read the sentences in the example. Mark with an X the letter beside the sentence referring to the last thing that happened.

- EXAMPLE:**
- A. John is carrying a little wooden box.
 - B. John picked up the box.
 - C. Mother gave John that box last week.
-

Did you put an X through A? That was the last thing that happened within that group of sentences.

Your teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now do the others in the same way.

1. The first thing that happened is:

- A. She seemed lost.
- B. She told us her teacher's name.
- C. Bob showed her where to go.
- D. A new girl came to school.

2. The second thing that happened is:

- A. My little brother is crying because I teased him.
- B. Yesterday he cried because I hid his toy truck.
- C. Mom told me then that I should not make my brother cry.

3. The last thing that happened is:

- A. The sun was warm.
 - B. Each of them hooked a large fish.
 - C. They had had fish for dinner the night before.
 - D. The boys bought me fishing rods.
-

This is the end of the Elementary Reading Test.

Thank you very much for helping us by taking these tests.

Please hand in your booklets to your teacher.

Appendix C
Sample Post-tests

PART F: SYNTACTIC CHANGE

Directions: You will choose one of three sentences A, B, or C, which means the same as the first sentence in each group. You will be given one sentence followed by three other sentences, A, B, and C. One of these sentences means the same as the first sentence. Put an X through the letter beside the sentence which has the same meaning as that first sentence. Do the example now.

EXAMPLE: The hen picked up the grains.

The other sentence that means the same is:

- A. The hen chose the food.
 - B. The grains were picked up by the hen.
 - C. The hen used her beak when eating.
-

Did you put an X through B? That was the letter beside the sentence "The grains were picked up by the hen". This means the same as "The hen picked up the grains".

The teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now, try to do the three items of this part in the same way.

1. John has a book that belongs to me.

The other sentence that means the same is:

- A. That's my book.
- B. John is reading my book.
- C. John has my book.

2. I like twilight best.

The other sentence that means the same is:

- A. Twilight is the time I like best.
- B. Twilight comes just before dark.
- C. Twilight is a restful hour.

3. The cows were munching the hay.

The other sentence that means the same is:

- A. The cows liked munching the hay.
 - B. The hay was being munched by the cows.
 - C. The cows spent the day munching.
-

End of part F. Do not turn the page until your teacher tells you to do so.

PART H: PARAPHRASE

Directions: You will choose one of three sentences A, B, C. which has the same meaning as the first sentence in each group. You will be given a sentence followed by three sentences, A, B, and C. One of those three sentences means the same as the first sentence. Do the example now.

EXAMPLE: Cars jammed the streets.

The sentence that means the same is:

- A. The cars spread jam on the streets.
- B. The cars moved slowly along the roadway.
- C. The roadways were crowded with cars.

Did you put an X through C? That was the sentence that means the same as the first sentence "The cars jammed the streets".

The teacher should turn off the tape-recorder now to answer your questions, and turn it back on when everyone is ready to start.

Now, try to do the three items of this part in the same way.

1. The ice is frozen into strange shapes.

The sentence that means the same is:

- A. The shapes that the ice is taking on are strange.
- B. The frozen water is taking on strange shapes.
- C. Ice shapes are often strange.

2. He looked at the grey clouds.

The sentence that means the same is:

- A. He saw the grey sky.
- B. He saw the rain falling.
- C. The clouds were gathering.

3. The zipper on the jacket wouldn't hold.

The sentence that means the same is:

- A. The jacket didn't have a zipper.
- B. The jacket zipper was broken.
- C. The jacket wouldn't close.

End of part H. Do not turn the page until your teacher tells you to do so.

Appendix D

Sample Unit of Instruction

PART VIII - RELATED COORDINATE
INSTRUCTION GUIDE
OBJECTIVE

Given a list of 4 words, the student chooses the one not at the same level of generality.

MATERIALS INCLUDED

- 1 transparency.
- students' work sheets.
- student's answer sheets
- Teacher's log
- Teacher's instruction guide.

GAINING ATTENTION

Show transparency of groups of dogs, cats, flowers - in each case 3 similar, 1 different.

(Transparency VIII - 1)

INFORMING LEARNER OF OBJECTIVE

What do you notice about each of these groups (each consists of 3 examples of some thing and 1 different.) The ones that are the same are called Co-ordinates.

STIMULATING RECALL

You remember that everything belongs to a family, but not necessarily the same family..... How many different families do you see?

PRESENTING STIMULUS MATERIAL

Let us take a look around this room (Place word ROOM on board.) What are some of the things that you see? (Windows, floor, doors, students). Which word does not belong in the family shown by the word room (students).

PROVIDING GUIDANCE

Here are some groups of words. Can you select the one which does not belong in each list?

dog	cat	cow	lizard
mouth	eye	body	ear
gold	metal	copper	silver
book	pencil	food	pen

(work sheets)

PROVIDING FEEDBACK
ENHANCING RETENTION

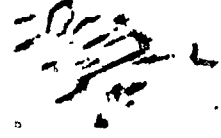
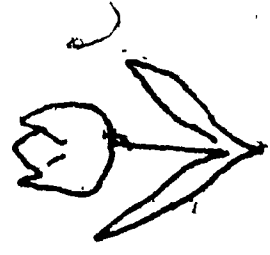
Let's play a game now. I will write one word on the board and each team will take it in turns to give another word which is closely related. We will keep a score of the right words and the first person to raise his hand if a wrong word goes on the board will also get a point for his side. (Keep track of incorrect words and discuss why these were wrong)

TEST

Key to test correction

the right answers are:

- 1. d.
- 2. d.
- 3. b.
- 4. c.
- 5. b.



TEST - PART VIII - CO-ORDINATE LEVELS
STUDENT ANSWER SHEET

NAME _____

Directions. In this part you will choose one word which does not belong in each list of words. You will be given a list of four words A, B, C, and D. One of those does not belong in that list. Put an X through the letter beside the word which does not belong on that list.

1. The word that does not belong is

- A. worm
- B. lizard
- C. snake
- D. bird

2. The word that does not belong is

- A. tuna
- B. pike
- C. perch
- D. eagle

3. The word that does not belong is

- A. morning
- B. summer
- C. night
- D. noon

4. The word that does not belong is

- A. Marmaduke
- B. Charlie Brown
- C. Trudeau
- D. Hy and Lois

5. The word that does not belong is

- A. Sesame Street
- B. Television
- C. Maude
- D. Captain Kangaroo