

THE UNIVERSITY OF MANITOBA
THE EFFECTS OF AN INTENSIVE
REMEDICATION PROGRAM ON MINORITY
STUDENTS - PORTUGUESE AND NATIVE CANADIANS

by

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The Effects of an Intensive Remediation Program on
Minority Students--Portuguese and Native Canadians.

by David Katz

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ABSTRACT

The Effects Of An Intensive Remediation Program On Minority Students - Portuguese and Native Canadians

The purpose of the study was to evaluate the effectiveness of an intensive remediation program on minority students (Portuguese and native Canadians). The study attempted to answer questions concerning: the effectiveness of intensive remediation in assisting minority native and Portuguese students experiencing academic lag; the effectiveness of intensive remediation as a practical intervention in a simulated classroom setting.

Thirty students, male and female, of native and Portuguese background, ranging in age from eight to twelve, enrolled at Pinkham Elementary School in the Winnipeg School Division No. 1 participated in the study. From January 8 through March 21, 1974, they completed a program dealing with the effectiveness of intensive remediation for minority students. Fifteen subjects were assigned to the experimental group on the basis of being priority candidates for resource assistance. The control group, which was representative of the norm for this

school, consisted of students matching the experimental group with respect to ethnic background, age and sex. They were selected from the same classrooms as their counter-parts in the experimental group. The instrument employed for pretest, midtest and posttest was the Metropolitan Achievement Test, measuring academic performance in the intensive remediation program and in the regular classroom setting.

Matrix of intercorrelations and a 2X3 analysis of variance for repeated measures were used for the analysis of the data. This analysis indicated that an intensive remediation program aided handicapped minority students to approach the rate of learning of the average student.

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CHAPTER I

THE PROBLEM

I. Introduction

This study dealt with one facet of a more complex problem -- the problem of minority group children in the public school system. The problem associated with minority groups in the public school system has been stated by Hawthorne:

Traditionally the public schools have tended to emphasize and propagate those cultural values which are primarily evolved by the middle class majority. The upper class has not been threatened by such emphasis and in fact shares most of the dominant values of the middle class. The lower classes and non-Caucasian minorities have had a difficult time adjusting to and finding a place for themselves in the public school. The degree of success of the children of minority groups in merging into the cultural stream of the school has depended in part on the degree of deviance of their own culture from the majority culture. The process of acculturation has been singularly a one way process with the accommodations being made by the students of the minority group and almost never by the schools or by the majority.¹

¹H. B. Hawthorne, (ed.), A Survey of the Contemporary Indians of Canada - Volume II (Indian Affairs Branch, Ottawa) October, 1967, p. 119.

The children of the minority groups considered in this study were enrolled in a school which reflected the middle class values of the majority of the society and of the school system as a whole. The situations encountered by these children, in the classroom and in the school generally, posed a problem of adjustment both socially and academically for a large number of them.

II. Statement Of The Problem

Experience as a classroom teacher and as a resource teacher, as well as information from the literature on minority students and remedial programs led this writer to the formulation of the following hypothesis:

An intensive remediation program in, reading and mathematics produces significant academic growth to decrease the learning deficit encountered by minority students (Portuguese and native Canadians).

III. Definition of Terms

Several terms require definition to set the study in its proper context. They are defined as follows:

Native Canadians: refers to children of Indian or Metis background.

Portuguese: refers to children of families who have immigrated to Winnipeg from Portugal within the past ten years. These families come principally from the Azores.

Azores: refers to a group of nine islands in the mid-Atlantic belonging to Portugal. These islands are basically rural in setting.

Resource Program: refers to a program which provides appropriate individualized or small group learning opportunities for a limited number of children (maximum twenty) who are identified as having special academic needs that cannot be met fully within the regular classroom.

Intensive Remediation Program: refers to a program which provides for learning experiences with specific emphasis on reading and mathematics. This program is provided in a simulated classroom situation (maximum twenty) where growth is measured by the Metropolitan Achievement Test.

Academic Growth: refers to growth as measured by the Metropolitan Achievement Test. Other terms synonymous with it are: 'academic achievement', 'academic gain', 'academic progress'.

Division: refers to all public schools and related administrative offices situated within the boundaries of Winnipeg School Division No. 1.

Elementary School: refers to a school which offers instruction in kindergarten and in grades one to six.

Culturally Deprived: refers to children deprived of a way of life that encourages them to take on the cha-

racteristics, mores and values of the middle class.

Other terms synonymous with it are: 'educationally deprived', 'lower socio-economic class', 'culturally different', 'lower class', 'disadvantaged', 'culturally depressed'.

Minority: refers to individuals who are socially and/or culturally distinguishable from the majority of society.

IV. Enlargement Of The Problem

The Portuguese and native Canadians generally move to the city centers, usually from rural areas, in hopes of securing a better life. However, their lack of familiarity with the urban setting poses difficulties for them. Both suffer cultural and social shock. The Portuguese, however, cannot easily return to their place of origin. In order to reduce these shock experiences they tend to locate themselves in a certain area of the city and create their own ghettos.

Although the native Canadians have social and cultural qualities which distinguish them greatly from the major group in society, the native Canadians do not suffer the shock of displacement to the same degree as the Portuguese. The native Canadians can usually return to their reserves or rural environment quite easily. Their motive to struggle for either a community or for acculturation is

therefore weakened.

On entering the school system Portuguese immigrant children and native Canadian children experience many problems in common. Both groups of children come from families who are unfamiliar with the English language and who have limited vocabulary in their native tongue relative to the English language. The educational level of the parents is low and so is their level of literacy. As a result, they have little understanding of the demands of the school on their children. The low socio-economic status of the Portuguese and native Canadians is largely due to their lack of education and of marketable skills. This low socio-economic status is likely to limit their aspirations for themselves as well as for their children.

In regard to native Canadian children and their experience in elementary schools, the Hawthorne Survey states:

Samples taken through the provinces show that approximately 80 percent of Indian children repeat grade one. Many Indian children repeat grade one three times. Others are promoted after failing grade one; they usually manage to complete grades two and three but fail grade four. The failure pattern then remains² consistent through to grade eight.

²Ibid., p. 132.

Because the Portuguese children are relatively new to the Canadian school system, such statistics are not available but Susanne Mowat and Christine St. Lawrence in reporting teachers' responses to a questionnaire in Toronto, quoted one teacher as saying:

You might find out why the differences in learning enthusiasm within various new Canadian nationalities exist. Why are some like the Chinese (mostly) so eager and quick, and others³ such as the Portuguese so indifferent?

His experience as a teacher and his study of the professional literature relating to the native Canadian and the immigrant Portuguese in urban settings led the writer to formulate the following questions:

1. Is the school meeting the needs of native Canadian children and of Portuguese immigrant children?
2. Is the school effectively integrating our native Indian and Metis children and the immigrant Portuguese children?
3. What type of program would reverse the apparent trend of scholastic regression and enable the students to gain academically and compete successfully with their peers in the public school?

³Susanne Mowat and Christine St. Lawrence, New Canadian Activities: Summary of Teachers' Responses to a Questionnaire, the Board of Education for the City of Toronto, Research Department, March, 1969, p. 4.

V. Significance Of The Study

Educators have recently been developing programs and techniques to fulfill the special academic needs of minority students, and thus prevent cumulative learning deficit. These programs often must be performed on a one-to-one basis. Where possible, more practical group methods have been used, such as integrated classrooms, bilingual instruction, language fluency classrooms and verbal concept development programs. Another group method used in varying degrees in a variety of situations and locales is the intensive remediation program in reading and mathematics. This program, employed in this study, is practical because it utilizes materials readily available to all classroom teachers and skills well within the ability of the professional educator.

VI. Setting Of The Study

The study was conducted in Pinkham Elementary School, an inner core school in Winnipeg School Division No. 1. This school is located in a lower working class district, which borders on the poorer areas of the City of Winnipeg. The Portuguese and native Canadians have established themselves in this vicinity for a variety of reasons. Some of these reasons are: close proximity to relatives and friends, advantage of central location, conveniences of good transportation system to employment and to shopping

facilities, closeness to various types of industries and inexpensive housing.

In the year 1973-74 the student body of Pinkham Elementary School was comprised of 298 children from 158 families: 39 percent of the children came from 72 immigrant Portuguese families; of the remainder, 34 percent were from 42 native Canadian families, most of whom had migrated to the city from reserves or from semi-rural areas of the Province of Manitoba. These two groups formed 73 percent of the school population. The remaining 27 percent of the school population was basically comprised of white Anglo Saxons and students of German descent.⁴

VII. Organization Of The Study

Chapter II is a review of the related literature. The areas researched as they relate to the study were: the Portuguese problem, the native Canadian problem and the problem in the schools.

Chapter III outlines the design of the study. It describes the subjects and the testing material for the study. It also outlines the methodology employed in gathering the data. Finally, it summarizes the statistical treatment applied to the data.

⁴Internal evidence obtained through a personal search by the writer of students' record cards at Pinkham School in December, 1973.

Chapter IV outlines the analysis of the findings. The study employed a 2X3 analysis of variance for repeated measures design.

The final chapter recapitulates the entire study. A statement of the major findings of the study follows the recapitulation. Answers to questions presented in this chapter constitute the general conclusions. The study concludes with a discussion of implications of the study and recommendations for further research.

CHAPTER II
REVIEW OF THE RELATED LITERATURE

Research related to the study will be reviewed as it relates to:

1. The Portuguese Problem,
2. The Native Canadian Problem,
3. The Problem in the Schools.

I. The Portuguese Problem

Only two significant articles were found dealing with the Portuguese student in the Canadian classroom. One¹ dealt with the Portuguese community in the city of Toronto and the other² with the Portuguese community in Winnipeg. However, these two gave an informative account of the difficulties encountered by Portuguese immigrants to Canada.

The articles indicated that the majority of Portuguese immigrants in Toronto and Winnipeg have come from a

¹Jon Hamilton, Portuguese in Transition, The Board of Education for the City of Toronto, Research Department, December, 1970.

²A. Peters, The Portuguese Community in Winnipeg, (Distributed through The Winnipeg School Division #1, Spring, 1973 Mimeographed).

group of off-shore islands belonging to Portugal, the Azores. The Azores, comparatively isolated and vastly overpopulated, suffer the most backward way of life in Portugal.

Educational opportunity in continental Portugal has improved just recently so that there is room for all children in the public schools for a minimum attendance of six years. In the Azores there are fewer schools; there is only one secondary and one technical school for each of the three districts. As in other authoritarian countries, the school system is highly structured and discipline is strict. In an attempt to promote the national identity, the subject stressed is history. Few students go on to secondary school: they might have to travel a long distance and they are expected to work on the farms at an early age.

The majority of Canada's adult Portuguese immigrants have spent less than four years in school in their native land. Nevertheless, they want to give their children the benefit of a future in a new land. They often fail to realize, however, that this may include assimilation into the Canadian way of life and lead to a disregard for Portuguese traditions. Their experience in Portugal has usually left them with the nationalistic orientation of the system and so most of them consider their immigration to be a temporary thing; most of them come with the idea that they will return home some day. This

explains the conflict in the home caused by the school system's demand for conformity to, and acceptance of, middle class Canadian cultural values. In Hamilton's words, "...the problem of transition is essentially two-fold; a change from rural to urban life and the conflict between two cultures."³

In particular, two important factors affect the problem of adjustment and education. The first of these is the learning of the English language. The urban Portuguese community in the two Canadian cities dealt with in the articles being reviewed - Winnipeg and Toronto - is now large enough that the adults can obtain employment in situations where they can get by without learning English. The early immigrants were forced to learn the language and, where necessary, they now act as interpreters. This, as well as their view of themselves as "temporary" Canadians, eases the pressure and makes them feel that learning the language is not necessary. The children are exposed to this attitude and, particularly where the parents prohibit the speaking of English in the home, the children's motivation is low and may only extend to the minimum vocabulary necessary to communicate basic needs. The second factor is their self image as lower working-class

³Jon Hamilton, Portuguese in Transition, the Board of Education for the City of Toronto, Research Department, (December, 1970), p. 63.

people and the related feeling of inferiority. This is reinforced by the type of work available to them, which in turn is due, at least to some extent, to their language deficiency and their lack of formal education of any kind. According to Peters, they do not think as many opportunities are available to them or their children in education or employment, as are available to the Canadian-born.⁴ The feeling of inferiority causes the adults to reject available English language classes for fear of failure and embarrassment. A further point of note in relation to language development is that the vocabulary of these families is limited even in Portuguese, due to illiteracy and isolated rural social experience in the Azores.

As in many other minority groups with a basic language and culture other than Canadian, a realistic fear arises in many parents that if the children learn the English language, they will, as they reach adolescence, begin to adopt the youth culture of their friends, which is essentially Canadian and will therefore alienate them from their parents. This threatens their traditional, highly-valued, strong family ties. Peters further suggests that for the youth themselves, the pluralism and

⁴A. Peters, The Portuguese Community in Winnipeg (Distributed through The Winnipeg School Division #1), Spring, 1973 Mimeographed), p.5.

diversity in Canadian society are confusing, because of the contrast with the homogeneity of the traditional Portuguese way of life, both social and religious. For the parents, the authoritarian government and religious system of the Azores did not foster initiative, and they fear individualism in their children. The articles indicate that the problems of the Portuguese new-Canadian families, as reflected in the children's problems at school, are:

- (a) In their land of origin there is an authoritarian and traditionalist religious affiliation, and some reflection of this is seen in the structure of the family, i.e. the authoritarian father in relation to children. The school seems to challenge this relationship.
- (b) The parents have little schooling and fear loss of respect from children with more education than theirs. The schools they attended in the Azores had rigid discipline and they are suspicious of the less strict schools which their children attend. The parents therefore fear the influence of the Canadian school on their families.
- (c) Portugal once was a powerful nation and, although a poor one today, the government, schools, and their means of handing down their cultural traditions (largely oral) perpetuate the glories

of their national pride. As a result, Portuguese emigrate for material gain, on a temporary basis, intending to return home sooner or later. This is a strong influence against their accepting or attempting to adopt Canadian ways, including school ways.

(d) Both adults and children are hampered in learning the English language. The parents are uneducated and have a sparse vocabulary, even in Portuguese. They have an image of themselves as lower-working-class citizens, in Canada as in Portugal. In their experience, sons tended to follow their fathers' occupations, as not much of an alternative was open to them. The Portuguese community in Winnipeg is large enough now that its members can find employment where they will not need to learn much English, as interpreters will be available. For the children, the cultural atmosphere and language of the home remains Portuguese and thus in conflict with the ideas and language of the school into which they are required to assimilate. The more successful they are in one area, the greater will be their problems in the other.

II. The Native Canadian Problem

The volume of literature concerned with North American Indians, their problems in adjusting to the Anglo way of life, and to the demands of education provide support for the position set forth by Hildegard Thompson in the following statement:

Why is it that many Indian Americans are not fitting into the life of this country? The chances to make a go of it, on the surface of things at least, are just as good for the Indian American as any other; yet we know persons who have come to this country from foreign lands with little if any formal education, often without the ability to speak a word of English, without friends⁵ or even acquaintances, and "make good".

Thompson also points out that some form of schooling has been available to the native Canadians from early settlement days and that therefore there must be reasons, other than racial discrimination, poverty, friendlessness, lack of formal education, and inability to speak the English language, for our citizens of native Canadian descent not on the whole achieving success in our society. Thompson and other authorities agree that the significant factors seem to centre around the differences between the traditions and culture of the native Canadian people and

⁵ Hildegard Thompson, Education for Cross Cultural Enrichment: Selected Readings from Indian Education 1952-64, United States Department of the Interior-Bureau of Indian Affairs, 1964, p. 14.

those of the rest of Canadian society.

The Anglo-Canadian way of life is future oriented and stresses the factors of "time", "saving" and "work". According to Rogers⁶, native Canadians have a different conception of time than we do. While they were nomads or lived on the reserve, many activities were dictated by the vagaries of nature or circumstance, such as the availability of food from hunting or fishing, or the need to construct shelter. Thus, concerted activity might be necessary for days or weeks at a time, and between such periods there was much relaxing and visiting together. These activities, necessary to maintain life, were most often done as a community endeavour rather than individually or even as family activities. Therefore, the native Canadian developed a tradition of sharing. Bradshaw and Renaud⁷ say that native Canadian children of the reserves have the idea that school is a place to visit, sometimes for half a day or a whole day or even four or five days in a row, when they are not away with their parents on the traplines, or when the sun is not shining. According to the same authors, the native Canadian people regard tradition as their teacher and believe they learn most from

⁶Edward S. Rogers, "Indian Time", Ontario Fish and Wildlife Review, Vol. 4, No. 4, 1965, p. 23-26.

⁷Thecla Bradshaw and Andre Renaud, The Indian Child and Education, Centennial Tillicum Project, University of Saskatchewan, 1967.

their fathers and mothers and the parents of their friends, whom they visit frequently and for long periods.⁸ As Thompson puts it:

The non-Indian life is one of "conquest over nature" as against the Indian way of "harmony in nature". Another way of comparing them is to describe the former as existing in a state of anticipation while the latter finds nothing to look forward to and feels that the essence of living is to be founded in the present timelessness.....Time in the sense of measuring duration by clocks and days-of-the-week calendars as we do is not important to the person caught in the Indian way of life.⁹

Nagler expresses it in this way: "The Indian does not value time as we do -- certainly not his own time. It has no dollar value".¹⁰ Their conception of time is valid in nomadic or reserve life, but creates difficulties when it persists in urban settings.

The native Canadians' differing conception of time helps to explain their poor attendance and habitual lack of punctuality, two of the great frustrations for those responsible for their education. It is difficult to communicate to the parents the necessity for punctuality and regular attendance. They are so accustomed to shared

⁸ Ibid., p. 1.

⁹ Hildegard Thompson, Education for Cross Cultural Enrichment: Selected Readings from Indian Education 1952-64, United States Department of Interior-Bureau of Indian Affairs, 1964, p. 14.

¹⁰ Mark Nagler, Indians in the City, St. Paul University Press, Ottawa, 1970, p. 22.

family activity that they will keep the children with them to go visiting, shopping, or even to medical appointments. It seems that family activities take precedence over school attendance and when school personnel become insistent about attendance, there is a tendency to see the school as an enemy from without, threatening family cohesiveness.

This portrayal of the native Canadian home suggests that "saving" has not been part of their economic life; the native Canadian lived largely by hunting and food gathering, according to his need or the availability of food. Saving is much related to the concept of future orientation toward achievement, and so it would not appear in people oriented almost entirely to the present - the "here and now". This may be one major difference between the native Canadian and the foreign immigrant, who appears to succeed in Canadian society. A very close partner of "saving" is the "work ethic". In many cultures, including the many which make up the Canadian mosaic, "work" is given a merit for its own sake. However, in the words of Thompson "Habituation to hard work, including drudgery for over a period of years, if necessary to earn a living was not in the Indian system, particularly for the men".¹¹ And Nagler (1970) says:

¹¹Thompson, loc. cit.

Many Indians appear to have little concern for future exigencies, and as a result they spend their funds as soon as possible and rarely in what others would consider a prudent manner.

The work situation to which Indians are exposed on the reserve differs from that which they encounter in the city. Urbanites usually consider work as a source of personal prestige and virtue, and their wages as a means to an end. For Indians on the other hand, there are few goals sufficient to attract them to seek higher incomes by way of year-round jobs, which call for an unbroken sequence of work days.¹²

The parents' attitude to work also contributes to their difficulty in accepting the school's demands on their children. An all-important factor in any individual's life is his concept of himself. Educators are now aware that a child's attitude toward himself affects his concept of his ability to learn. Many studies have been done concerning the effect of the school experience on the child's self-concept.¹³ Much of the child's concept of himself was formed during his preschool years as he related to the environment. Hawthorne states that the development of skills is stimulated by "the availability of items and ex-

¹²Nagler, op. cit., p. 23.

¹³See M. Dillingham and T. B. Johnson, "The Effect of Teacher Attitudes and Self Concept of Students on Academic Success", Education For The Disadvantaged, Volume 1, No. 4, 1970; T. L. Hawk, "Self-Concepts of the Socially Disadvantaged" Elementary School Journal, January, 1967, pp. 196-204; J. W. Staines, "The Self Picture as a Factor in the Classroom", British Journal of Educational Psychology, Volume 28, 1958, pp. 98-104.

periences in manipulations, exploration and creative play."¹⁴ We refer to this in general terms as stimulation and the amount experienced in the preschool years has a great effect on the child's readiness to learn the skills required for school achievement. The survey edited by H. B. Hawthorne (1964) presents an excellent comparison of the general differences in stimulation received by the native Canadian and non-native Canadian child,¹⁵ summarized as follows:

1. Attitudes Toward Child -- As soon as the native Canadian child is mobile, he is left relatively free to explore his own environment, to develop independence and autonomy, and is given limited stimulation and feedback from adults. A non-native Canadian child is guarded and controlled by parents and remains dependent upon them throughout childhood. Although he has little opportunity to become independent, he experiences constant interaction and feedback from adults.
2. Parental Interest in Learning -- Native Canadian parents have little formal education, and so

¹⁴Hawthorne, op. cit., p. 23.

¹⁵Ibid., pp. 112-113.

they do not teach their children specific skills related to school. The child learns to walk and talk largely on his own; whatever attempts at teaching are made relate to activities pertinent to life on the reserves. Non-native Canadian parents, at least of the middle class, have usually completed high school and are oriented toward teaching the child skills which stimulate his development and prepare him for school. They urge him to walk and talk early and to speak correctly. They expose him to a variety of stimuli in the community.

3. Verbal Practice and Development - In native Canadian families, conversation between children and adults is limited and questions are often answered in monosyllables. Custom at times demands silence from children in the presence of adults. The English spoken by adults is often inaccurate and limited in vocabulary. Some children hear stories and folktales with colourful imagery and language. Parents do not read to their children. Conversely, in the non-native Canadian family, conversation is often unlimited and detailed answers are given to questions. With educated parents, the English spoken is correct and the vocabulary extensive. The child has books

of his own and his parents read to him.

4. Sanctions for Learning -- In the native Canadian culture, the child is permitted to do what interests him when he is ready. There is no consistent pattern of rewards and punishment for specific learning attempts, although he may receive approval when he does a task correctly after trial and error learning. Time is not a factor. He can take as long as he needs to get dressed. If he attempts a task and cannot complete it, he is not urged to stay with it. The non-native Canadian child is encouraged to explore areas in which he has not shown prior interest. He is rewarded for his efforts, whether successful or not. Time is a factor and the child is encouraged to finish as quickly as possible. Emphasis is placed upon completing tasks as well as on the act of trying.

5. Routines for Learning -- For the native Canadian child, routines are flexible or non-existent. Meals are served on demand; bed-times vary with sleepiness and family activity. It is an adult-centered life into which the child must fit. In the non-native Canadian setting, routines are often rigid, with punctual meal-times and bed-times. Life is more child-centered in that the child's routines are less often disrupted for adult activities.

6. Discipline -- In the native Canadian culture, discipline is primarily protective and the child seldom punished. In early childhood, few age-graded behavioural expectations are enforced.

As he grows older, he is ridiculed if he fails to meet expectations but is allowed much leeway.

The concept of autonomy allows him to make his own decisions. In the contrast culture, discipline is relatively overprotective and rigid.

Age-graded behaviour is demanded, few independent decisions are permitted, and the routines are controlled by adults. Punishment is administered for failure to comply with adult demands.

7. General Family Patterns -- In native Canadian families there are many less formal legal-marital arrangements and so there are many one-parent or common-law parental settings. Children born out of wedlock are accepted in the family and parented by the extended family unit. Unfortunately drinking is often a problem and the children witness conflict and brawls in their home. At such times, the children are often left on their own, sometimes for days at a time. In the non-native Canadian family, there is usually a more stable family construct. There is often conflict, but there is an attempt to protect the children from it. When

the parents must be absent, some provision is made for their care by a responsible person.

This summary of the survey has been to some extent selective. In the opinion of the writer, it seems necessary to point out that what the authors have presented as the representative non-native Canadian family is really more typical of the middle class. However, they do go on to qualify that the middle-class pattern of parenting, where it involved rigid routines and excess supervision, may bring deprivation as well, with respect to the individual's development of decision-making ability and growth of autonomy.

Every individual needs a positive concept of self for success in life. It ought to be facilitated by school and community, but is undermined for the native Canadian child, according to the Hawthorne Survey:

The Indian child from the first day of school experiences few successes and many frustrations, and lack the ability to articulate his confusion and misunderstandings and so reduces his opportunities for resolving them. Negative self-images begin to emerge, reinforced unwittingly by teachers and peers. The alienation process becomes firmly entrenched reaching its peak in negativism and despair about fifth or sixth grade. Parents may aspire for success for their children, but they lack the knowledge of how to operationalize their aspirations. The cumulative educational deficit increases with age.¹⁶

¹⁶ Ibid., p. 115.

In support of this, Sealy and Kirkness state:

Research studies indicate that the increasing alienation of the Indian student becomes more apparent and has a detrimental effect from age 12 onwards. The studies show that Indian children of this age and onward tend to lack personal, prideful identity. They see themselves as inferior to white children and feel that the white society despises them because they are Indians. Research studies further reveal that those Indians who are successful in adjusting to and coping with the dominant white culture are invariably proudly aware of Indian history and culture and that this is the basis for their adequate self-concept.¹⁷

And Kinsella says:

Ego-identity depends, says Erickson, on the support which the young individual receives from the collective sense of identity characterizing social groups significant to him, his culture, his class, his nation, his race -- with the Indian, significantly¹⁸ his band, his tribe, his reserve.

III. The Problem In The Schools

In the Peters article¹⁹ several factors are mentioned which reflect parental attitudes, which in turn directly or indirectly affect the children's schooling.

¹⁷D. B. Sealy and V. J. Kirkness, Education For And About Children of Native Ancestry (Report prepared by the Curriculum Branch, Department of Youth and Education, Winnipeg, January, 1971), p. 3.

¹⁸Noel A. Kinsella, Ego-Identity and Indian Education (New Brunswick Human Rights Commission, Department of Labour, Fredericton, New Brunswick, 1973), p. 4.

¹⁹Peters, op. cit., p. 4.

The Portuguese parents' experience with schools in their native land was that they were very strict and had very high standards which were above the abilities of the average student. As a result, few succeeded in school, and the rest felt dread about the experience and looked forward to being able to quit. This attitude toward school is still present in Portuguese parents. In addition, their lack of English language is a great handicap and Peters estimates that about 75 percent of the adults do not speak or understand English. Further, up to the present, there has been little to indicate a change while most other immigrant groups are showing a real interest in learning English. This parental attitude retards the children's language learning. Since English is not used at home, a considerable burden is placed on the school to persuade the children of the desirability of learning the language. Where the children do learn, the parents become dependent on them as interpreters. This threatens the role and prestige usually enjoyed by the parents and therefore threatens their traditional family structure. Also, in relations with the school, it is difficult to communicate with the parents. Where the student must read the note or answer the phone, the message the parent receives may be somewhat edited. "The only negative part of the school report transmitted to the parents is that

the child's progress in English is still slow. The parent is left without adequate means to discover the truth of the situation. The customary relationship of love, trust, and respect are severely tested."²⁰

As indicated earlier, the child usually has his life split between two cultures. For young children, the alien world is that of the school. Those children who stay in school until adolescence and who succeed in learning Canadian ways become a part of the general youth culture which is completely foreign to any experience of the Portuguese parents. Portuguese parents fear the loss of their children. Peters states that associated with this is the fear that in the process of forgetting the Portuguese language and culture, they will turn their backs on their parents.²¹ He feels that the Portuguese in Winnipeg are well aware of the fact that they are in danger of losing their children. Ninety percent of the Portuguese women work for eight or more hours a day so that children are placed with friends, relative or older brothers and sisters. This cuts down greatly on the education the children receive from the parents, particularly since at night, children want to watch television.

Higher education is viewed as contributing

²⁰ Ibid.

²¹ Ibid., p. 6.

to family division. Education can turn the minds, make you too clever for your past. Attitudes like this, generally associated with pioneer or ultra-conservative groups are not restricted to any ethnic group. Many students have great difficulty assessing Canadian youth culture and finding their place in it. There is pressure to join, at least to experiment, with Canadian youth culture but this causes problems with the culture in the home.

Many students are confused by the pluralism in Canadian society. Many people hold and express conflicting views and values. Society appears to be formless and without strength because there are no immediate absolutes. Few have faced this problem before because of the homogeneity in belief and custom. Now they face the diversity with very little counsel.²²

There are three major and identifiable features within the school itself which contribute to the difficulties faced by the Portuguese and native Canadian students; they consist of (a) the standard of schools and teachers, (b) the types of teachers in inner-city schools, and (c) the teacher expectation as a factor in student performance. They will be examined in turn.

Much has been written about the "middle class teacher" but it seems necessary to mention again for the sake of discussing the problem fully that the standards, values and even the curriculum of our schools reflect those of the middle class in our society. These involve

²²Ibid., p. 7.

the concept of upward social mobility, so dear to the heart of the frontier people and an essential part of the subsequent image of "opportunity" in North America. Whether or not the teacher was born into the middle class, he aspires to its new way of life for himself and his family and projects it in his teaching as desirable, as the way to the "good life". Since administrators and curriculum planners have come up through this process, it is understandable that the overall school program is based on these values.

Zintz²³ says that the major drives of the middle-class teacher are:

1. Achievement and early success.
2. Work for "work's sake"; it is "good" to work hard.
3. Getting educated.
4. Being responsible. This incorporates self-discipline, self-control, foresight as conservatively conceived in a predestined, divine plan.
5. Shaping one's own identity.

He suggests that the lower class parents have different views and may consider their children impertinent,

²³M. V. Zintz, Education Across Cultures, The University of New Mexico, Albuquerque, New Mexico, Dubuque: Kendall Hunt Publishing Company, 1969, p. 88.

disloyal or obtuse if they try to achieve higher class status by pursuing an education, and they may actually be convinced quitting school and earning money through hard work is superior to education and employment in white-collar or sedentary jobs.

Lower-lower class children with many conflicting values between them and middle-class teachers, give evidence of much educational retardation and are apt to be in need of much remedial teaching. The parents are often disinterested in school, and the home is able to afford little stimulation toward home study or opportunities²⁴ for vicarious reading experiences.

If this is true of the lower classes of Canadian born children of English speaking parents, it must be even more so for those of the two groups under consideration.

Roberta Katcher²⁵ discusses some of the conflicts built into the application of the middle-class value system as witnessed by those trying to learn it. For instance, the morals of Christianity are stressed in teaching the value system, such as those of honesty, love for one's neighbour, gentleness, kindness, generosity, and equality of men. If one stopped there, there would not be a conflict for either the native Canadian or Portuguese child, for these attitudes are also built into their cultures. How-

²⁴ Ibid.

²⁵ Robert Katcher, Culture Shock: What Problems In Acculturation Can Occur in a New Society? ERIC Document Ed 066987, July 20, 1971.

ever, as Katcher says:

Naturally, these qualities are often ignored in the American drives for upward mobility, technological advancement and security...American middle-class culture teaches that anyone who works hard and struggles competitively will succeed... Although individuality is allowed expression, conformity is expected, and these expectations are taught from early childhood. The American white middle-class culture is of course filled with hypocrisy but this is what the new immigrant en-²⁶counters in the process of adjusting.

It seems that the important factor here is the all-pervasive theme of competition, so valued by American free enterprise, which in the schools has persisted as a means of motivating children toward academic achievement. At least in their first years, the culturally different children cannot compete except in respect to their own performance.

Zintz²⁷ stresses the need for teachers of children from a different cultural background to be able to recognize their own beliefs, values, and ideals in order to appreciate the barrier they may present in attempting to understand the concept attitudes of their students.

Linton describes poverty-belt schools as being characterized by an apathy and inertia reflective of school administration policies. He suggests that inner city school staffs are basically made up of the following types

²⁶Ibid.

²⁷Zintz, Ibid.

of teachers:

- (1) the young and inexperienced
- (2) old-timers in a rut
- (3) do-gooders who want to be noticed
- (4) teachers who like to avoid parental contact and
- (5) a very few who asked to be placed.²⁸

Strom has similar views regarding the arbitrary staffing of so-called difficult schools and points out that it is "unique to the teaching profession that the most difficult complex problems are assigned to the least expert practioners".²⁹ One solution sometimes offered was to choose teachers from lower class backgrounds to staff "deprived area" schools. This solved nothing since, as has been suggested, these teachers have adapted to middle class aspirations and often cling to the values harder than those born to them.

Most of the research in the area of the effects of teacher expectations on the achievement of the child has been done by social or education psychologists. The fore-

²⁸Thomas E. Linton, "Social and Cultural Factors in Deviant Classroom Behaviour", Canadian Mental Health Supplement, 52, 1966, pp. 9-10.

²⁹Robert D. Strom, Teaching in Slum Schools, Columbus, Ohio: Charles and Merrit Publishing Company, 1965, p. 31.

word to a report of a study by Rosenthal and Jacobsen reads:

It is widely believed that poor children lag in school because they are members of a disadvantaged group. Experiments in a school suggest that they may also do so because that is what their teachers expect.³⁰

The theoretical concept on which this is based is that of the "self-fulfilling prophecy"; that is, that one person's prediction of another person's behaviour somehow comes to be realized. It required an experimental situation with controls to rule out the possibility that this was merely due to the teachers' experience and accurate judgment of how capable the children actually were. It is somewhat said to relate that this study, like the others of its kind, supports the belief that teacher expectation is the major influencing factor in academic gains made by the children under study. Teachers were told that certain pupils had been selected who would spurt in that school term. Although the potential bloomers had actually been selected randomly from a list of names, the results of the experiment indicated that children from whom teachers expected greater intellectual gains indeed showed such gains. An added finding, incidental to the main measurement is perhaps even more appalling. When

³⁰R. Rosenthal and L. Jacobsen, "Teacher Expectations for the Disadvantaged," Scientific American, Vol. 218, No. 4, April, 1968, p. 19.

teachers were asked to rate the undesignated children, many of whom had also gained in IQ during the year, the more they gained the less favourably they were rated. Further, closer examination revealed that the most unfavourable ratings were given to the children in low ability classrooms who gained the most intellectually. When these children were in the control group where little intellectual gain was expected of them, they were rated more unfavourably by their teachers if they did show gains in IQ.

The more they gained, the more unfavourably they were rated...Evidently it is likely to be difficult for a slow track child, even if his IQ is rising, to be seen by his teacher as well adjusted and as a potentially successful student.³¹

Very pertinent to the purposes of the present study are these further statements from the authors of the article:

Most of the programs devised for using Title I funds (a federal education fund directed at disadvantaged children) focus on overcoming educational handicaps by acting on the child through remedial instruction, cultural enrichment and the like. The premise seems to be that the deficiencies are all in the child and in the environment from which he comes. Our experiment rested on the premise that at least some of the deficiencies -- and therefore at least some of the remedies -- might be in the schools, and particularly in the attitude of teachers toward disadvantaged children.³²

³¹Ibid., p. 22.

³²Ibid., p. 23.

Frost and Rowland³³ also refer to teacher expectations as a significant factor in either inhibiting or facilitating intellectual development among disadvantaged children. Strom³⁴ also emphasized that one of the major reasons for low achievement among children in poor neighbourhoods is the low expectation as to their capacity held by teachers.

According to an article in the Journal of Counseling Psychology, 1973, school counselors are also influenced in their expectations and behaviour towards students by their social class. When the child is identified as having upper class status, the counselor is more willing to become "ego-involved" and the child is seen as more important and worthier of attention than one who comes from a lower class. Two groups of nine women counselors were given identical printed descriptions of a hypothetical case of a nine-year-old boy with typical behaviour problems in school. Only the social history information varied -- one given as coming from a home with a professional father and a high annual income and the other with an unemployed father with low employment skills. Not only was their lack of willingness to become involved

³³Joe L. Frost and Thomas G. Rowland, Compensatory Programming: The Acid Test of American Education, Dubuque: Wm. C. Brown Company, 1971, p. 111.

³⁴Strom, op. cit., p. 38.

with the low status group evident, but there was a more punitive attitude in their suggestions of treatment of the boy and their predictions for the outcome of the child were quite grim. For the upper class child, more information was requested and they were more anxious to help the child.³⁵

Basic to all school achievement for children from culturally different homes is the mastery of the English language in written and spoken form. To quote Deutsch³⁶:

If language cannot be used as an elaborating form of communication, school loses much of its socializing and teaching capabilities, regardless of the curriculum content.

He further argues that particularly in relation to the concept of reading readiness for children who are disadvantaged, with respect to lower social class and possibly race, the all too minor adjustment made by schools to readiness for reading are completely unrealistic. He states that disadvantaged children need saturation in language experience both before school and especially during school years. Given our two groups whose members have parents with minimum English language skills, it seems self-evident that language immersion courses should precede other formal

³⁵John C. Garfield et al. "Effects of the Child's Social Class on School Counselor's Decision Making", Journal of Counseling Psychology, Vol. 20 No. 2, 1973, pp. 166-168

³⁶Martin Deutsch, "The Role of Social Class in Language Development", American Journal of Orthopsychiatry, XXXV (January, 1965), p. 87.

academic teaching. Professors Mickelson and Galloway of the University of Victoria³⁷ conducted a summer program in 1968 to study the application of such a scheme. Native Canadian children from four reserves in the southern region of Vancouver Island were encouraged by their teachers and aides to verbalize at every opportunity. They were strongly reinforced socially for their efforts. They were required to speak in sentences and to communicate requests verbally. When they had difficulty in doing so, an example was given for purposes of imitation. Many instructional materials were used to facilitate specific verbal patterns. They were required to listen to, and follow, specific verbal directions. Improvement in language patterns was significant at the .01 level. While this is a small beginning, it indicates the possible benefits of such a program. There are many other reports concerning attempts at language training, some of which are included in the appended bibliography. It seems sufficient to say that they all support the merit of beginning the education of these children with language training. Of course, it would be a great advantage if the teacher had a knowledge of the child's native language. The Winnipeg School Division has received great benefit in the areas where it has

³⁷Norma I. Mickelson and Charles G. Galloway, "A Study on Cumulative Language Deficit Among Indian Children", University of Victoria, 1971, pp. 1-12.

employed teacher aides and volunteers with the same culture and language as the students.

It follows from this that any concurrent parent education will support and augment the learning of the children. If they are learning the language together, the parents and children will be able to practice it at home. In addition, the parents should be more sympathetic towards the problems the children are encountering at school. Learning the language together strengthens the bond between parent and child. Another step being incorporated in some schools is the acknowledgment of the cultural ways and crafts of the older generation which is being introduced into the curriculum. Parents can act as teachers and assistants, thus bridging the gaps between the two cultures. Hopefully, the teachers by this means, according to their involvement, will gain more appreciation and knowledge of their students' backgrounds.

If we look specifically at teacher characteristics and university preparation for teachers, courses should be flexible enough to allow for "on-the-spot" sociological study of the cultural patterns of the students to be taught. The organizations of our native people are supporting such preparation programs and in addition offer lists of publications issued for our native people and those interested in their welfare. A number of these pub-

lications are suggested by Richard Green (Appendix A).

The Winnipeg School system , in limited form, has in the recent past offered special language classes. The International Centre of Winnipeg, designed for our citizens of culturally different backgrounds, offers classes in the English language.

A pioneer project which attempts to meet the overall problems of native Canadian children entering the Canadian public school system must be reported here. This program is the Special Orientation Class at Old Koksilah School of the Cowichan School District on Vancouver Island, reported by John W. Cowans, (Principal).³⁸ It was first established at Westholme in September, 1964, to accommodate fifteen native Canadian pupils, applying from St. Catherines Indian Day School to enter the Duncan Elementary School Special Classes (Slow Learners). The children involved came from three major band areas and in January, 1965, there were sufficient numbers to organize a special class at Old Koksilah School. After four months of operation, it became apparent that the major purpose of the class was orientation rather than remediation. Since its inception, its function has been to screen and prepare native Canadian children for entrance into regular or special classes.

³⁸John W. Gowans, "Our Special Orientation Class at Old Koksilah School", Vancouver Island, 1970, pp. 1-6.

The program has been under the directorship of an advisory committee, comprised of the teacher, the aide, the principal, the Area Counsellor, the Primary Supervisor, the Remedial and Testing Consultant, plus a member of the Indian Education Committee. The philosophy of this program, as stated by Cowans of Old Koksilah, is quoted here because it supports the major premise of this study: "It is recognized that there are children within the school system who, for varying reasons, are unable to operate efficiently in the regular system."³⁹ Specifically, the principal states:

With the desire to integrate the Indian population into the public schools there are children who are economically handicapped. It is quite unlikely that the white population will change its values to make accommodation for these children. Requirements for successful participation academically at school include: punctual and continual attendance, a background of language facility, stark need of nutrition and cleanliness and to elevate to a position of social equality with the normal stream, the desire of the parents to sublimate their own wishes to ensure school success for their children and the child taking on the school as his main and most important activity. These requirements are not confined to one segment of the population but, in the main, white children are better prepared to meet these than are Indian children. Frequently the school, and it must if the child is to progress adequately, supplied some of these requirements as it does with slow learners and remedial classes. In doing so it agrees with the philosophy that not

³⁹ Ibid., p. 1.

all children are born equal in ability to get the most from their opportunities. If we subscribe to the creed that opportunity shall be the same for everyone we would standardize all classrooms and require all children to meet preconceived standards.

The institution of the Special Orientation Class arose out of the need to provide "unequal" opportunity to a selected group of children before they enter the mainstream to compete on an equal basis.⁴⁰

The teacher is going to be the key factor in implementing any satisfactory program for disadvantaged students. Rosenthal and Jacobsen state:

Perhaps, then, more attention in educational research should be focused on the teacher. If it could be learned, how she is able to bring about dramatic improvement in the performance of her pupils without formal changes in her methods of teaching, other teachers could be taught to do the same. If further research showed that it is possible to find teachers whose untrained educational style does for their pupils what our teachers did for the special children, the prospect would arise that a combination of sophisticated selection of teachers and suitable training of teachers would give all children a boost toward getting as much as they possibly can out of their schooling.⁴¹

Judith Kleinfeld, in discussing the relationship between instruction style and the intellectual performance

⁴⁰ Ibid., p. 2.

⁴¹ Rosenthal and Jacobsen, op. cit. p. 23.

of Indian and Eskimo students,⁴² stresses that for the teacher of the village native American child, the main objective is to create an extremely warm personal relationship, while actively demanding a level of academic work which the student does not suspect is possible for him. Thus, a demanding approach from the teacher to the student reinforces the belief of each in the worthiness of the student.

This survey of literature indicated to the writer that there were certain special difficulties for Portuguese and native Canadian students in urban Canadian elementary school; that these difficulties were created by deviations in culture and language from the Canadian norm; that there were important similarities and differences in the problem suffered by the two groups; and that teachers, and schools in general, seemed to be aggravating rather than alleviating the troubles from which these students suffered. This led the writer to seek an alternative method of instruction which could provide these students with such an advantage that it would compensate for the hindering effect of their aberrant background. The writer selected the "intensive remediation" program in language and arithmetic skills as the method

⁴²Judith Kleinfeld, "Instructional Style and the Intellectual Performance of Indian and Eskimo Students", United States Department of Health, Education and Welfare, ERIC Document Ed 059831, pp. 33-44, January, 1972.

most likely to achieve this advantage; this became the subject of his research at Pinkham Elementary School.

CHAPTER III

RESEARCH PROCEDURES

I. Operational Hypothesis

The purpose of this study was to discover the effects of an intensive remediation program in reading and mathematics. The sample population in this study was composed of Portuguese and native Canadians attending Pinkham Elementary School. This sample population was divided into an experimental group, who received intensive remediation and a control group who continued on with their conventional academic program. For both groups measurement of academic performance was conducted on three occasions (pre, mid and posttest).

Three hypotheses were considered:

1. There will be a significant difference with respect to academic growth between the experimental group receiving treatment and the control group receiving no treatment.
2. There will be a significant difference for both groups over time periods.
3. There will be a significant difference with respect to group affiliation in performance over time.

II. Sample In The Study

The subjects used in this study were minority group students (Portuguese and native Canadians) attending Pinkham Elementary School in the Winnipeg School Division No. 1. All subjects were from families of low socio-economic background. The subjects were functioning at various levels of academic achievement. The ages of the subjects ranged from 8 years to 12 years. The sample consisted of 30 subjects -- 15 subjects in the experimental group and 15 subjects in the control group.

The subjects in the experimental group (Table 1) were functioning at low levels of academic achievement according to teacher evaluations and as such were considered priority cases for remedial assistance. The experimental group was therefore not randomly selected. Of the 15 subjects, there were ten males and five females. There were 8 Portuguese and 7 native Canadian students in this group.

The comparison control group (Table 2) was matched with the subjects in the experimental group according to ethnic background, sex and age. This control group was considered to be representative of the normative population for this particular school according to academic achievement and teacher evaluations.

Table 1
 Distribution of Subjects for Experimental
 Group by Age, Sex and Ethnicity

Age	Native		Portuguese	
	Male	Female	Male	Female
8			1	1
9	1	1	1	
10	1	2	1	
11	1		1	
12		1	3	

Table 2
 Distribution of Subjects for Control
 Group by Age, Sex and Ethnicity

Age	Native		Portuguese	
	Male	Female	Male	Female
8			1	1
9	1	1	1	
10	1	2	1	
11	1		1	
12		1	3	

III. Limitations Of The Sample

The aim of the study was to discover if greater progress than that prevailing or even than that experienced by the average student might be achieved by an intensive remediation program in reading and mathematics for minority students. It was necessary to have minority students referred for resource assistance to compose the experimental group. It was not possible to have a control group identical to the experimental group with respect to academic ability.

The sample was also limited by factors such as poor attendance and/or lack of punctuality. Other limitations of the sample included attitudinal factors based on social bias with respect to school as discussed in the review of the related literature.

When interpreting the findings of the study, it is necessary to keep the above limitations in mind.

IV. Treatment Technique

The treatment employed with the experimental group consisted of the utilization of a variety of materials, groupings and types of instruction. The content of the materials was appropriate to the academic needs of the subjects in the experimental group as determined by informal testing.

The subjects in the experimental group were encouraged to discuss in their own way the various problems, academic or social, they were encountering. The instructor's initial task was one of gaining the acceptance and trust of the group. This was accomplished partially by telling the subjects in the experimental group that the aim of the program was to increase their academic performance. The subjects were told in a very sincere manner that they would have to utilize all of their mental ability to perform at the level anticipated by the instructor. The instructor attempted to impress upon them the fact that he had faith in their potential and that he was optimistic that the end result would be rewarding and satisfying to both the subjects and the instructor.

The instructor then set out to formulate the ground rules for the program. These rules dealt mainly with explaining the type of behaviour and performance the subjects were expected to exhibit. Also, a description of the various materials (Appendix B) to be used in the pro-

gram and their application was given to the subjects. The instructor, with the assistance of the subjects in the experimental group then established a schedule of events (Appendix C) for the intensive remediation program.

The no-treatment control group experienced contact with the experimenter only during the collection of pretest, midtest and posttest data obtained from the M.A.T. The control group, during the time of the study received conventional classroom instruction.

Both groups were involved in the study for a period of 52 days beginning on January 8, 1974 and ending on March 21, 1974. Both groups maintained regular school hours (9:00 - 12:00 a.m. and 1:30 - 4:00 p.m.) five days a week (Monday - Friday).

V. Description Of Measuring Instrument

The Metropolitan Achievement Test (M.A.T.) was employed in the investigation designed to study the effectiveness of an intensive remediation program in reading and mathematics. The M.A.T. was designed to be a dependable measure for evaluating pupil growth and as such was employed in this study to provide grade equivalent scores for the experimental and control subjects. For the purposes of this study four subtests were utilized: Word Knowledge, Word Discrimination, Reading and Arithmetic.

"Word Knowledge" is a test that measures sight vocabulary and word recognition in the Primary I battery. In the Primary II battery, this subtest measures word recognition and understanding. "Word Knowledge" in the Elementary battery measures one's knowledge of the literal meaning of words.

"Word Discrimination" is a test of ability to select a given word from among several words having similar configurations.

"Reading" consists of a series of reading selections, each followed by several questions designed to measure various aspects of reading comprehension.

"Arithmetic" provides a comprehensive measure of the child's mastery of basic numerical and quantitative concepts such as are essential to understanding early stages arithmetic, and ability to solve verbal problems. In the Elementary battery, the subtest measures skill in the four fundamental operations. The problem solving and concepts tests is a measure of ability to solve verbal problems and a measure of important understandings and concepts.

The ranges of reliability for the subtests used in the study were as follows: "Word Knowledge" - .76 - .96; "Word Discrimination" - .81 - .93; "Reading" -.86 -.95; "Arithmetic" - .85 - .95. As is evident from the preceding, the scores for reliability are all above .76.

As far as validity is concerned, reviewers of the

test, over the various revisions, state that an attempt has been made to test so far as is possible for items that reflect the curriculum in use in elementary schools (W. G. Lindley¹, H. S. Dyer²). No statistical data, however, are provided regarding validity.

VI. Data Collection Procedures

The appropriate battery of the 1959-62 edition of the M.A.T. was administered to the subjects in the study. In December, 1973 (pretest) Form A Primary I, Primary II and Elementary batteries were administered. This procedure was repeated in February, 1974 (midtest) using Form B and again in March, 1974 (posttest) using Form C of the M.A.T. All forms of any given battery were considered to be comparable as to content and difficulty. That is, they were considered parallel forms of the same test.

In this study each level of the test on each of the three test occasions was administered to all of the appropriate subjects on the same day. In order to ensure identical testing conditions, all test sessions involved both experimental and control groups. The test sessions

¹K. Buros, The Fourth Mental Measurements Year-book, pp. 47-52.

²K. Buros, The Sixth Mental Measurements Year-book, pp. 59-63.

were run from 9:30 a.m. to 11:00 a.m. and from 2:00 p.m. to 3:30 p.m. on the same day.

In order to ensure independence of effort, the subjects were seated at desks suitably spaced and arranged in rows. Instructions were given prior to each subtest. During the working periods of the test, the test administrator moved about the classroom in order to ensure that all of the subjects had understood the directions given and were responding to the test questions. This procedure was repeated for each test session.

The consumable edition of the M.A.T. was used in all instances. The writer administered and hand scored the tests using overlays. Scores were checked for accuracy. The raw scores for each subtest were then converted to standard scores by employing the appropriate tables in the accompanying Teacher's Manual of the M.A.T. The standard scores were then transferred to the score boxes provided on the back cover of the test booklet. The standard scores were then converted to grade equivalent scores using the tables provided in the Teacher's Manual of the M.A.T.

VII. Treatment of Data

Data gathered from the three administrations of the Metropolitan Achievement Test were converted to whole numbers to remove the decimal point. They were then sub-

mitted by punch card into the University of Manitoba computer.

A simple correlations program was employed to see how the four subtests (Word Knowledge, Word Discrimination, Reading, Arithmetic) correlated with one another. The results (Table 3) indicated that the subtests correlated highly with each other and as such were essentially measuring the same thing. Therefore the scores were collapsed to obtain one mean score for each subtest on pre-test, mid test and post test measures for experimental and control groups. This was the measure used on the analysis of variance. All the possible intercorrelations between subtests were obtained for each of the testing occasions for experimental and control groups.

A 2X3 analysis of variance for repeated measures design was used having one between-subjects factor, one within-subjects factor and an interaction factor. The between-subjects (Variable A) had two levels corresponding to two groups - experimental and control. The within-subjects factor (Variable B) represented the pre, mid and post test measure of academic achievement. The interaction factor (AB) represented group affiliation and performance over time.

CHAPTER IV

RESULTS

The results of this study rejected two of the three hypotheses.

"There will be a significant difference with respect to academic growth between the experimental group receiving treatment and the control group receiving no treatment." This hypothesis was rejected, since there was no main effect significant difference for the between-subjects factor (Variable A). (See Table 4.)

"There will be a significant difference over time periods for both groups." This hypothesis was accepted, since main effect differences were supported for the within-subjects factor (Variable B) on mean grade equivalent scores.

"There will be a significant difference with respect to group affiliation, in performance over time." This hypothesis was rejected since there was no significance for the AB interaction on mean grade equivalent scores.

Table 3 represents the matrix of intercorrelations between the four subtests (Word Knowledge, Word Discrimination, Reading, Arithmetic) and one mean score on the three different occasions of pre, mid and post test for experimental and control groups. The results indicate

Table 3

Matrix of Intercorrelations Between the
 Sub-Tests Word Knowledge, Word Discrimination,
 Reading, Arithmetic and One Mean Score on
 3 Different Measuring Occasions (Pretest, Midtest,
 Post Test) for Experimental and Control Groups

Testing Occasion	Sub-Tests	Treatment	Control
Pretest	1 - 2	.95	.81
	1 - 3	.82	.86
	1 - 4	.67	.81
	2 - 3	.82	.77
	2 - 4	.76	.64
	3 - 4	.81	.84
Midtest	1 - 2	.75	.87
	1 - 3	.83	.86
	1 - 4	.86	.85
	2 - 3	.66	.80
	2 - 4	.67	.71
	3 - 4	.74	.70
Post test	1 - 2	.80	.93
	1 - 3	.76	.80
	1 - 4	.75	.87
	2 - 3	.78	.76
	2 - 4	.78	.84
	3 - 4	.78	.81

KEY

1 -- Word Knowledge

2 -- Word Discrimination

3-- Reading

4-- Arithmetic

Table 4
 Summary Table for Analysis of Variance

Source	d	f	SS	MS	F
Between-Subjects	29				
Grouping A		1	1.0519	1.0519	.541
Error-Between		28	54.4644	1.9452	
Within-Subjects	60				
Time of Test B		2	1.1103	0.5552	13.927***
Interaction AB		2	0.1191	0.0596	1.494
Error-Within		56	2.2323	0.0399	
Total	89		58.9778		

*** p .001

that no great changes occurred in the control groups. There were however increases and decreases in correlations which took place between the pretest and midtest for the experimental group. The significance of the difference between these correlations was tested for by using Fisher's Z transformation. The results indicated that the correlation between "Word Knowledge" and "Word Discrimination" were significantly different from pretest to midtest. The level of significance was at the .05 level. All other differences between correlations did not prove to be significant.

Table 4 represents the Analysis of Variance Summary Table for the mean grade equivalent scores on the tests. Only one source of variation is significant and that is mean grade equivalent scores over time in relationship to hypothesis 2. This source of variation is significant at the .001 level. The two other sources of variation are not significant. These variables are treatment group (Variable A) and interaction of groups and time (Variable AB).

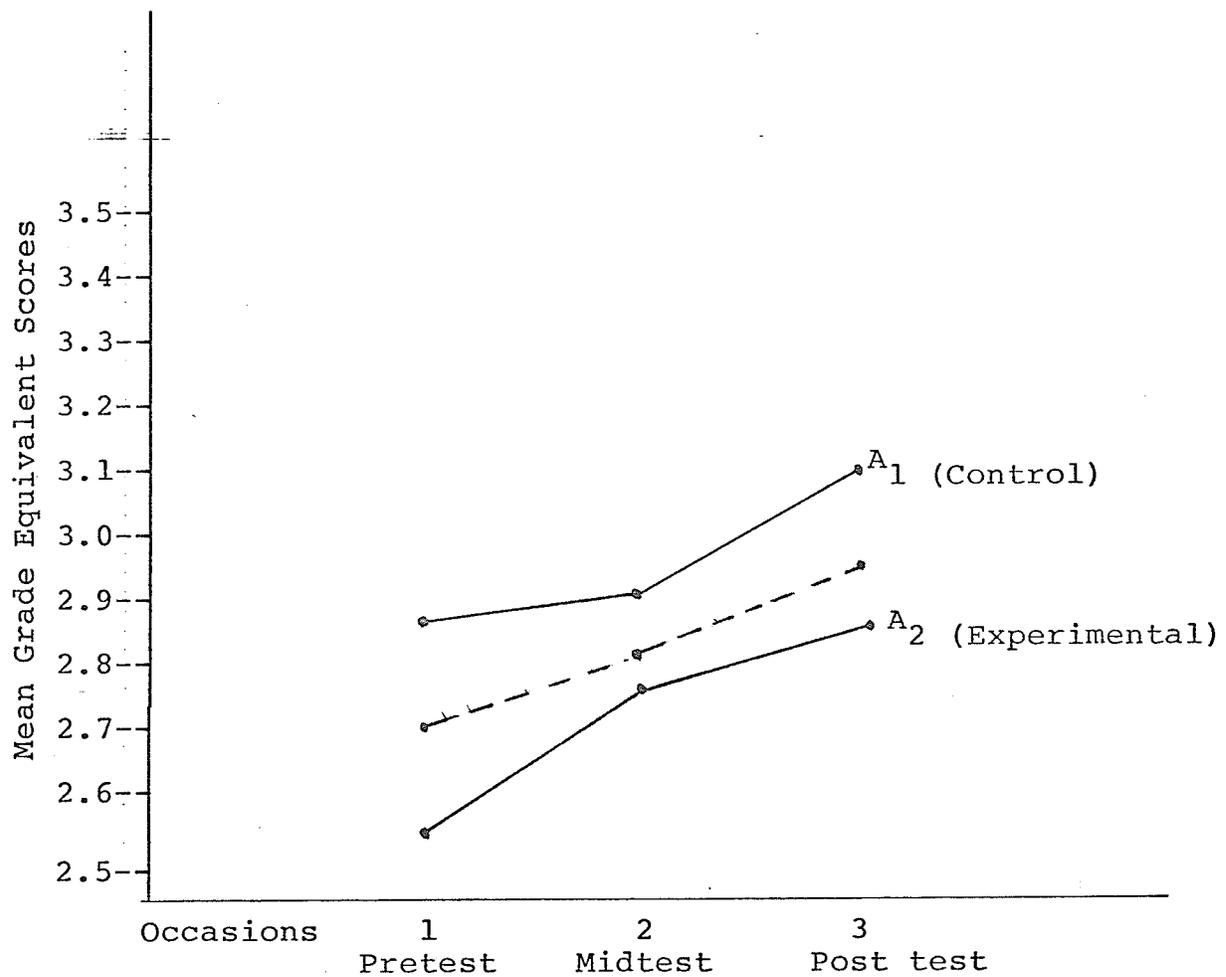
Figure 1 represents the learning curves in mean grade equivalent scores for experimental and control groups over the three testing occasions. Also included in Figure 1 are the plottings for the average main effect differences over time for the two groups together.

Table 5 represents the a posteriori probing within Figure 1 by using the Scheffe procedure. In the Scheffe technique the computed values in (iii) are compared to a difference in the ordered means (i). If (i) is greater than or equal to (iii), then the difference is significant at the .01 or .05 level. In the table section (iv), the asterisk shows where the significant difference is. In this table there appears to be a significant difference between the pre-test and post test. The level of significance is at the .01 level.

The Raw Data and Table of Means and Standard Deviations can be found in Appendix D and Appendix E respectively.

Figure 1

Graphic Representation of the Learning Curves for Experimental and Control Groups on Three Testing Occasions in Mean Grade Equivalent Scores



----- Main effect over time for both groups

Table 5
 Test Procedure for Difference Over Time
 Scheffé Technique

	Pre	Mid	Post	
(i)	Means	2.714	2.855	2.986
Pre	2.714	.141	.272	
Mid	2.855		.131	
Post	2.986			
(ii)	$S = \sqrt{(K-1) F_{\alpha; V_1, V_2} \text{MSerror} \left[\sum_{j=1}^k \frac{(C_j)^2}{N_j} \right]}$			
(iii)	S =	.230*	.184**	
(iv)	Pre	--	--	*
	Mid	--	--	--
	Post	--	--	--

* $p < .01$

** $p < .05$

CHAPTER V
SUMMARY, DISCUSSION, CONCLUSIONS
AND RECOMMENDATIONS

I. Summary

Thirty students of Portuguese and native Canadian backgrounds, ranging in age from eight to twelve, enrolled at Pinkham Elementary School in the Winnipeg School Division No. 1 participated in the study. From January 8 through March 21, 1974, they completed a program dealing with the effectiveness of intensive remediation on minority students. Fifteen subjects who were referred for resource assistance, were assigned to the experimental group. The control group consisted of students matching the experimental in respect to ethnic background, age and sex. They were selected from the same classrooms as their counterparts in the experimental group. The control group was considered to be representative of the norm for this particular school. The experimental group subjects received intensive remediation while the control group subjects participated in a conventional academic program.

Prior to intensive remediation, all subjects were given a pretest. The pretest instrument was the Metropolitan Achievement Test, a test used to measure academic achievement. At the outset of the program, the instructor

attempted to establish rapport with the experimental subjects before intensive remediation began. The intensive remediation involved instruction in the areas of reading, and arithmetic.

All subjects were again tested on the Metropolitan Achievement Test in mid February, 1974 and in March, 1974, at the conclusion of the study. This was done to determine the significance and direction of any academic change that had taken place. In each instance, the M.A.T. was administered under similar conditions as those that prevailed at the pretest.

The hypotheses were designed to examine the effectiveness of an intensive remediation program. The three hypotheses were tested for significance as they relate to the purpose of the study.

II. Discussion

This section will discuss the objectives of this experiment in relationship to the rejection or non-rejection of the research hypotheses.

"There will be a significant difference with respect to academic growth between the experimental group receiving treatment and the control group receiving no treatment." The rejection of this hypothesis indicated that the subjects in the experimental group did not perform significantly better or worse than the subjects in the control group in terms of academic growth.

"There will be a significant difference over time periods for both groups." This hypothesis was accepted as there was a significant difference at the .001 level on the test administrations over time.

After using the Scheffe' probing technique significance was found between the pretest and post test. This significance was at the .01 level.

The probable reason for the significance here is that on the first test occasion the subjects were naive regarding the task. After learning had taken place, the subjects tended to increase their grade equivalent scores at the second test occasion and the third test occasion with greatest gains being made between the first test occasion and the third test occasion. This trend occurred for both groups over the three testing occasions.

The implications of this significant result are:

- 1) significant learning does take place, from pretest administration to post test administration, with students participating in a conventional academic program as well as for students receiving intensive remediation in reading and mathematics, and this learning holds up over a period of 52 days.
- 2) significant learning occurs in an intensive remediation program that uses materials that are similar to, but yet different from those materials used in

the conventional academic program.

A point of interest is that the experimental group showed successive rises, although not significant, in the three testing occasions as evidenced in Figure 1. The control group achieved increases in equivalent grade scores also but not to the same extent as the experimental group. The overall growth made by the experimental group subjects was .324 grade equivalent points compared to .220 grade equivalent points for the control group subjects.

"There will be a significant difference, with respect to group affiliation, in performance over time." This hypothesis was rejected as there was no interaction of trends on the AB observations. This would imply that there is an almost equal rise in grade equivalent scores for both control group subjects and experimental group subjects over time or within each group taken individually.

III. Conclusions

On the basis of this study one could speculate that there is considerable merit in an intensive remediation program because gains can be seen in such a short period. The regular classroom program also yielded gains for the control group but to a lesser extent. This study suggested that an intensive remediation program is workable and successful as an alternative to the regular program.

It offers a practical procedure for helping minority group students to gain academically and compete successfully with their peers in the public school.

IV. Limitations of Study

There are decided limitations and deficiencies in this study which make any conclusions or observable trends highly tentative. These are due to the small number of subjects and the short period over which testing was done. Hays states that "results are more accurate the more unimodal and symmetric the populations are, and thus if one suspects radical departure from a generally normal form then he should plan on larger samples."¹ Hays further states that "virtually any study can be made to shown significant results if one uses enough subjects..."². However, due to the practical considerations of time, setting and personnel, the number of subjects involved in this study were limited.

The length of time set aside for treatment was relatively short and perhaps, a longer treatment period. The study was conducted during January, February and

¹William L. Hays, *Statistics for Psychologists*, Toronto: Holt, Rinehart and Winston, 1963, p. 322.

²*Ibid.*, p. 326.

March. These months are traditionally the "long and dreary" segments of the school year for students and teachers alike. Perhaps, if the treatment were conducted in October, November and December, academic growth would be facilitated.

The study could have used a second control group with the same prior academic performance as the experimental group and not receiving intensive remediation. However, this is not really within the scope of the hypotheses of the study and was impossible due to the limitations of time and available subjects in the school used.

V. Implications And Future Considerations

There are two matters to consider in relation to aspects of this study. One relates to desirable characteristics in teachers of minority students and the other to specific remediation methods.

Rempel supports these two considerations when he states, "the key in the process of providing Native students with the kind of education they need is the teacher... if teachers employed in schools with a large Native population were better prepared and more knowledgeable about the children in these classes, they would be better

equipped to modify their ways of teaching..."³ He further states that "it is in our classrooms where Native children and others with backgrounds different from the typical middle-class white Canadian can be given the special help they need."⁴

In respect to specific remediation methods, Anderson⁵ suggest that various types of instruction be utilized in remediation programs. These instruction methods consist of: 1) whole group instruction i.e. teach all students who need some drill on a specific skill; 2) small group instruction; 3) individual instruction; 4) independent study; 5) daily evaluation of progress either individually or in groups.

Anderson also states that to be successful in remedial reading, three requirements must be met. These requirements are: 1) restore the child's security; 2) discover the child's "area of confidence"; 3) advance from the area of confidence by a series of "successive steps". It should be noted that these requirements are not necessarily restricted to remedial reading

³Art Rempel, "What Native Students Need Most: Well Prepared Teachers", The Manitoba Teacher, Volume 53, Number 6, February, 1975, p. 3.

⁴Ibid., p. 3.

⁵Lorena Anderson, "Suggestions for a Corrective and Remedial Reading Program", Virginia State Department of Education, 1969, ERIC Document Ed 035520.

but are in fact necessary for remediation in general, if the remediation is to be beneficial and successful. Furthermore, Pool⁶ states that it is necessary for teaching methods to be "diagnostic, dynamic, pragmatic, varied, individualistic, flexible and highly motivative".

In conclusion, no one method or any special materials guarantee the success of a remediation program. The future of intensive remediation programs for minority students can only be as effective as the teacher and the methods and programs they employ. These methods and programs may have to undergo continual change for what may be successful for one year may not necessarily be successful another year.

VI. Recommendations

The following recommendations are suggested for consideration by those individuals who may decided to pursue further research. From this study it appears that future experiments should investigate:

- 1) The effect of an intensive remediation program on students in the regular classroom setting.
- 2) The effect of an intensive remediation program on minority students drawn from suburban school

⁶Lydia B. Poole, "Children Without - Without Motivation", ERIC Document Ed 015846, May, 1967.

settings.

- 3) The effect of an intensive remediation program on other minority students drawn from the inner city such as Italians and Filipinos.
- 4) The effect of an intensive remediation program utilizing other achievement instruments such as the Stanford Achievement Test or the Canadian Test of Basic Skills.
- 5) The effect of two intensive remediation programs, one conducted before and one conducted after the December break, in order to study the influence of general timing on the academic growth achieved.
- 6) The effect of an intensive remediation program as reflected in both a long-term and short-term post test and retention test of academic growth.
- 7) The effect of an intensive remediation program with a control for a Hawthorne effect.
- 8) The effect of an intensive remediation program as compared to a true matched control group with no intensive remediation program.

In recent years interest has been centered upon remediation programs for minority students. More research is definitely needed in this area. This study has left a great deal that could be researched in future studies. In

conclusion, it is intended that this study will contribute to the area of remedial programs designed to assist in the treatment and education of minority students.

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SELECTED BIBLIOGRAPHY

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- a) works cited; and
- b) sources consulted.

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APPENDIX A

APPENDIX A

There are materials available that an enterprising teacher may use in the classroom. Indian newspapers such as "The Native People" and "Kainai News" are rich in resources with information dealing with education, politics, personal interest articles, historical series (The Native People is currently featuring a series on Louis Riel from a Metis point of view) often with valuable historical photographs and current events. Presentation of Indian newspapers will establish the idea that not all newspapers are those of the dominant white society and that the Indian people recognize the worthiness of communication between themselves.

For a North American focus on current events, the Akwesasne Notes has great possibilities as it is a conglomerate of articles about and by Indian people all over North America, with a good proportion being Canadian material. The Indian Eskimo Association of Canada Bulletin is another source of current affairs, dealing with Indian and Eskimo people and northern development in Canada.

The Canadian Indian Culture Magazine, Tawow, a recent publication of the Department of Indian Affairs, produced by native people, is an excellent magazine with high literacy quality. It serves as a vehicle for native writers, where they can cover such subject matters as legends, stories, poetry and various types of reviews.

If the first two issues form a valid basis for judgment, it should be valuable to the creative English teacher for it is rich in stories and poems by Indian authors.

Indian children need models and aspirations: models and aspirations to aid in the development of a positive self-image. Through exposure to the literary productions of Indian people, Indian students may gain a perspective of themselves as members of a group and of its collective contributions to Canadian society.

Below is a list of other periodicals and newspapers which would be of assistance.

The Northian, University of Saskatchewan, College of Education, Saskatoon, Saskatchewan - subscription: \$5.00 yearly.

The Northian is a quarterly journal of the Society for Indian and Northern Education. It seeks to deal with problems in Indian and Northern education, share classroom ideas, diffuse new information relevant to Indian, Northern and integrated classrooms, and act as a form of communication among teachers in such classrooms. It also contains views of, or write-ups about, contemporary Indian people of Canada.

North, Queen's Printer, Ottawa, Ontario,

Subscription: \$3.00

A bi-monthly publication of the Department of

Indian Affairs and Northern Development. (The views expressed are not necessarily those of the Department). It is a glossy, well-illustrated magazine that covers many areas of interest such as -- Eskimo and Indian legends, Yukon mountain climbing, tales of hunting and fishing and reports on education. Valuable book reviews are contained at the end, of each addition.

The Beaver, Hudson's Bay Company, Hudson's Bay House,
Winnipeg, Manitoba, subscription: \$2.00 yearly

A quarterly magazine published by the Hudson's Bay Company. It does not deal with the topic of education as such, but delves into the history of the north and its settlements, as well as the people, plants and animals that inhabit the north. It is generously illustrated with both photographs and drawings. (Could possibly be used in history and social studies classes with older pupils).

Indian Record, 272 Main Street, No. 504, Winnipeg 1,
Manitoba, subscription: \$2.00

Indian Record is a national publication for the Indians of Canada, and is published eight times yearly. News, editorials and commentaries about Indians and their activities from across Canada are contained in this publication. An interesting and informative magazine.

Integrated Education, 343 South Dearborn Street, Chicago
Illinois, 60604, published every two

months, subscription: \$5.00 yearly.

A magazine that deals exclusively with the topic of integration in education as it relates primarily to Negroes, but also to the Indian. Topics such as "Recommended Elements of a School Desegregation Plan" or "Equality of Educational Opportunity" could apply to both. Each issue contains a bibliography of current books and articles on school integration and related topics.

Kainai News, Box 432, Cardston, Alta.

Subscription: \$3.00 yearly

This is a monthly publication of the Blood Indian Reserve in Southern Alberta. While most emphasis is on the news and views of Alberta Indians, excellent coverage is given to Indian "happenings" across Canada. The delightful cartoons of Everett Soop are one of the prime attractions of this newspaper.

The Indian News, Rough Rock Demonstration School, Rough

Rock, Arizona, Subscription: whatever

you wish to donate

"Rough Rock News" is published monthly at Rough Rock Demonstration School near Chinle, Arizona, as a report on progress at the school. The Demonstration School is controlled by the Navajo children through bi-lingual, bi-cultural instruction.

The Native People, 11427 Jasper Avenue, Edmonton, Alberta

Akwesasne Notes, Rooseveltown, New York, 13683

Subscription: by donation (not free)

"Indian-Eskimo Association of Canada Bulletin"

277 Victoria Street, Toronto 2, Ontario, Membership:

\$3.00 yearly

Bulleting of IEA, an organization seeking to improve conditions of Canada's native peoples. Features news of the activities of the Association, as well as Indian activities across Canada.

Curriculum News, Education Division, Department of Indian Affairs and Northern Development, Ottawa,

Subscription: free

A newsletter devoted to informing teachers of Indian pupils about new developments in curriculum, new texts and other instructional materials, reports on conventions and conferences, and courses for professional development. A very worthwhile publication.

APPENDIX B

APPENDIX B

MATERIALS USED IN INTENSIVE REMEDIATION PROGRAM

Language Arts

Basic Goals in Spelling (1, 2, 3, 4),
W. Kattmeyer - K. Ware - N. Purvis,
McGraw Hill Company of Canada,
Toronto, 1965.

Building Reading Skills Series,
R. Hargrave and L. Armstrong,
McCormick - Mathers Publishing Co. Inc.,
Wichita, Kansas, 1960.

Check and Double Check Phonics (Levels 1 - 4)
Scholars Choice Limited
Stratford, Ontario, 1963.

Ginn Word Enrichment Program,
T. Clymer and T. C. Barrett,
Ginn and Company,
Boston, Massachusetts, 1964.

My Puzzle Book,
M. Dolch and L. Ostrofsky,
Garrard Publishing Company,
Campaign, Illinois, 1964.

Phonics We use (Book A - E),
A. Heilman and P. Lamb,
Lyons and Carnahan Inc., 1972.

Reading for Meaning (Book 4 and 5),
J. H. Coleman and A. Jungeblut,
G. B. Lippincott Publishing Company,
New York, 1972.

Science Research Associates Reading Laboratory 1a,
D. H. Parker and G. Scannell,
Chicago, Illinois, 1961.

Science Research Associates Reading Laboratory 1b,
D. H. Parker and G. Scannell
Toronto, Canada, 1973.

Specific Skills Series (A - F),
Barnell Loft Limited,
Baldwin, New York, 1970.

Sullivan Associates - Programmed Reading
(Books 1 - 14),
Webster, McGraw Hill Book Company,
Toronto, Canada, 1963.

Arithmetic

Check and Double Check (Levels Red-Yellow),
Scholars Choice Limited,
Stratford, Ontario, 1962.

Teacher-Made, Number Booklets,
(Arithmetic Facts Number 1 - 20),
P. Weiss and D. Katz
Winnipeg, Canada, 1973.

APPENDIX C

APPENDIX C
Intensive Remediation Program Timetable

Time	Subject and/or Activity
9:05 - 9:20	Uninterrupted Sustained Silent Reading
9:20 - 10:30	Writing - Reading and Related Activity Monday-Wednesday-Friday Spelling Tuesday-Thursday
10:30 - 10:45	Recess
10:45 - 11:30	Language - Reading Laboratory
1:00 - 2:00	Arithmetic Part I - Small Group Instruction Part II - Math Lab (activities related to instruction in Part I)
2:00 - 2:15	Recess
2:15 - 2:45	Corrections - Follow-Up - Evaluation of Progress
2:45 - 3:30	Language Arts - individual instruction and related activity

NOTE:

Types of Instruction Employed:

- 1) whole group instruction
- 2) individual instruction
- 3) small group instruction
- 4) independent study

APPENDIX D

CONTROL GROUP
2 X 3 ANALYSIS OF VARIANCE RAW DATA

# I.D.	OCCASION I					OCCASION II					OCCASION III				
	Word Know.	Word Disc.	Read.	Arit.	Pre Test	Word Know.	Word Disc.	Read.	Arit.	Mid Test	Word Know.	Word Disc.	Read.	Arit.	Post Test
1	1.8	2.1	1.6	2.0	1.88	1.8	2.4	2.0	1.6	1.95	1.9	2.4	2.2	2.2	2.18
3	1.7	1.5	1.5	2.0	1.68	2.7	2.6	1.9	2.3	2.37	2.0	2.2	2.9	2.8	2.48
5	1.5	1.5	1.6	2.0	1.65	1.3	1.5	1.5	1.7	1.50	1.3	1.4	1.6	1.4	1.42
7	1.6	1.7	1.5	2.0	1.70	1.7	1.7	1.6	1.8	1.70	1.5	1.4	1.6	1.7	1.55
9	2.9	2.8	3.0	3.0	2.93	2.9	3.1	3.9	2.8	3.17	3.2	3.1	3.9	3.9	3.52
11	2.2	2.2	1.8	2.0	2.05	1.9	2.6	2.2	1.8	2.12	2.5	2.6	2.3	2.2	2.40
13	3.2	3.6	3.4	2.4	3.15	3.2	3.6	3.0	2.4	3.05	3.2	3.6	3.7	3.2	3.42
15	2.9	3.9	2.2	2.1	2.78	3.2	3.1	3.9	2.5	3.17	3.2	3.6	3.0	3.0	3.20
17	2.9	4.9	3.2	3.8	3.70	3.2	4.3	3.2	3.0	3.42	2.9	3.4	2.3	3.4	3.00
19	2.4	3.6	2.2	2.4	2.65	2.7	3.6	3.2	2.5	3.00	2.8	3.6	2.3	3.2	2.98
21	2.8	3.2	3.4	4.0	3.35	2.8	3.3	2.5	3.8	3.10	2.7	3.6	3.2	4.2	3.42
23	3.7	3.9	3.5	4.6	3.92	3.8	3.6	3.4	4.4	3.80	4.1	4.1	4.2	5.8	4.55
25	3.6	3.1	2.8	4.5	3.50	3.4	3.0	3.5	3.6	3.37	3.5	3.7	3.3	5.4	3.98
27	4.0	4.3	4.3	4.3	4.22	4.0	4.4	4.2	4.2	4.20	4.5	4.3	3.7	4.6	4.28
29	3.1	3.7	4.3	4.4	3.87	3.5	3.8	3.8	4.5	3.90	4.1	3.9	3.1	4.7	3.95
SUM	40.3	46.0	40.3	45.5		42.1	46.6	43.8	42.9		43.4	46.9	43.3	51.7	
MEAN	2.68	3.06	2.68	3.03		2.80	3.10	2.95	2.86		2.89	3.12	2.88	3.44	

2 X 3 ANALYSIS OF VARIANCE RAW DATA

I.D.#	OCCASION I					OCCASION II					OCCASION III				
	Word Know.	Word Disc.	Read.	Arit.	Pre Test	Word Know.	Word Disc.	Read.	Arit.	Mid Test	Word Know.	Word Disc.	Read.	Arit.	Post Test
2	1.8	2.0	1.9	2.0	1.93	2.2	2.2	1.8	2.2	2.10	2.1	2.6	2.1	2.6	2.35
4	1.8	1.8	1.6	2.0	1.80	2.0	2.5	1.7	2.2	2.10	2.2	2.3	2.2	2.6	2.32
6	2.4	2.8	1.8	2.6	2.40	2.7	3.1	3.4	2.8	3.00	3.2	2.8	3.7	3.0	3.18
8	1.7	1.6	1.0	1.2	1.38	1.7	3.1	1.7	2.3	2.20	1.9	1.9	2.1	2.2	2.02
10	1.8	1.8	1.6	1.7	1.72	1.8	2.3	1.8	2.0	1.98	2.2	2.2	1.9	1.8	2.02
12	1.7	2.0	1.8	2.0	1.88	2.0	2.8	1.8	2.3	2.22	1.9	2.8	1.9	2.6	2.30
14	2.1	2.4	1.6	2.2	2.08	1.9	3.1	2.5	1.9	2.35	2.5	2.6	2.1	2.2	2.35
16	3.2	3.6	2.0	2.4	2.80	1.9	3.1	2.2	2.5	2.42	3.2	2.8	2.0	2.5	2.62
18	1.8	2.0	2.3	3.5	2.40	2.5	2.8	2.4	3.3	2.75	2.2	2.5	2.4	3.6	2.67
20	2.7	3.0	2.4	2.5	2.65	2.9	3.0	2.4	3.0	2.82	2.7	3.2	2.4	3.2	2.87
22	2.8	2.6	3.0	3.4	2.95	2.9	2.7	3.9	3.5	3.25	2.9	2.9	3.0	4.2	3.25
24	3.5	4.0	3.9	3.4	3.70	3.8	3.6	4.0	4.1	3.88	3.5	3.9	3.5	4.0	3.72
26	3.1	3.9	3.1	3.7	3.45	2.9	3.9	3.0	3.7	3.38	3.1	3.9	3.3	3.7	3.50
28	2.9	3.0	3.6	2.2	2.92	3.0	3.5	3.3	2.1	2.90	2.9	4.3	3.5	3.5	3.55
30	3.4	4.6	4.5	4.8	4.32	4.7	4.4	3.9	4.6	4.40	4.8	4.6	3.7	5.0	4.52
SUM	36.7	41.1	3.61	39.6		38.9	46.1	39.8	42.5		41.9	44.7	40.2	46.7	
MEAN	2.44	2.74	2.40	2.64		2.59	3.07	2.65	2.83		2.75	3.02	2.65	3.11	

APPENDIX E

Means and Standard Deviations

n = 30

	Pretest		Midtest		Post test	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Control	2.86	.28	2.92	.28	3.08	.28
Experimental	2.55	.28	2.78	.28	2.88	.28