ACKNOWLEDGEMENTS

I would like to express my appreciation to Dr. D. White, Dr. J. Bhatnagar, Dr. Arpi Hamalian, and Dr. R. Frauley for their contributions to my thesis. Dr. White, my thesis advisor, has spent a great deal of time since the early planning and writing stages of this work in guiding me to the literature and in providing me with ideas and inspiration for the organizing and editing of the thesis.

Grateful acknowledgement is given to the excellent secretarial work of Maria Keenan who has patiently typed several drafts of the thesis.

To my family and my friends I would like to express my sincere thanks. In many different ways they have all given me encouragement and support throughout the time I have been engaged in this work.

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According to a Manpower and Immigration Report (1975), 28,042 New Canadians came to Quebec in 1975. This immigration figure reflects a trend that has continued for several decades. As a consequence, the current population of the Montreal Catholic School Commission/English Sector, is composed largely of first or second generation New Canadians. Proulx (1976) stated that in 1974 only 23.4% of the English Sector of the Montreal Catholic School Commission (MCSC) reported speaking English at home. Proulx also noted that in September of 1975, 29,637 children or 71% of the total enrollment under this Montreal Commission reported a first language or language spoken at home other than English.

In spite of the large number of children for whom English is a second language in Montreal English-Catholic schools, very little research exists on factors affecting their educational progress. In fact, there is a limited amount of research on immigrant children in Canada: the major sources being publications of the Research Department of the Toronto Board of Education (1964 - 1970) and works of Bhatnagar (1976) and Ashworth (1975a, 1975b). General questions such as how to define immigrant children: how much English these children understand when they enter kindergarten; what the relationship of verbal and nonverbal abilities in immigrant children is; and what skills predict achievement in these children, are largely unanswered.

The purpose of the present study is to begin to answer some of the general questions posed with reference to a particular immigrant population in Montreal. The problems defining "immigrant" children are dis-

cussed in the literature review. Information regarding length of residence, parental factors, cultural variables and language background are required to adequately define "the immigrant child". It is often difficult to collect data on all of these variables. This study focuses on first language and/or language spoken at home in defining its sample. The children studied are Italian first language, English second language children who attended kindergarten and grade one in schools of the MCSC/English Sector. This sample is further defined empirically by measuring the amount of English vocabulary comprehended by these children upon entering kindergarten.

The question of the relationship between verbal (second language) and nonverbal abilities in this sample of English Second Language (ESL) children is investigated. In native English speakers there tends to be a positive correlation between verbal and nonverbal measures of ability (Altus, 1953; Birkemeyer, 1964; Estes, Curtin, DeBurger and Denny, 1961; Green and Ewert, 1955; Martin and Wielchers, 1954; Seashore, 1951; Stacey and Carleton, 1955). It might be reasonable to expect that a similar relationship would hold for ESL children. By kindergarten age, a child's performance on an English test of verbal skills may reflect either his exposure to English and/or his ability to learn a second language. In this case, his performance on the verbal test might well correlate with nonverbal skills.

However some research in this area (Altus, 1953; Birkemeyer, 1964;

Cundick, 1970; Darcy, 1952; Pintner, 1923), would tend to support the idea the idea that verbal and nonverbal skills are not correlated in ESL children, but many factors are involved. Such results seem to be a function of the specific population examined and the methods used to measure ability.

Finally, the current study is designed to investigate the predictive relationship for ESL children between measures of ability given in kindergarten and school achievement assessed in grade one. Once again, in native English speakers, both verbal and nonverbal measures of intellectual ability have been found to predict school achievement.

There are very few studies of prediction in ESL children. Of the three studies (Cooper, 1958; Phillipus, 1968; Rattan and MacArthur, 1968) found, all of them utilized older subjects (at least 8 years of age) and each sampled a different population. Given this situation, it is difficult to make a specific prediction about the relationship between measures of ability given to kindergarten ESL children and the achievement of these subjects in grade one.

BACKGROUND

The definition of Immigrant

The literature does not reveal unanimity in the definition of the term immigrant. Several factors have been used to define immigrant status, but investigators do not always agree on which of the factors are important.

The variable "length of residence", provides an example. The School Council of the Island of Montreal (1971) focused on length of residence when it defined an immigrant as a person who had come to Canada within five preceding years. The Gendron Commission (1972) completely ignored length of residence in defining an immigrant as "any person who comes from another country with the intention of settling in Canada and who has been granted legal immigrant status but who has not yet acquired Canadian citizenship." Bhatnagar (1976) integrated length of residence into his definition of immigrant children, requiring that at least one of the parents had resided in Canada less than ten years. Although it is probable that the average length of time spent in Canada by families considered in this study is less than ten years, the current political conditions in Quebec made it impossible to collect data on this variable. School records did indicate that all of the children in the present study were born in Canada.

With the exception of Bhatnagar, these reports have not taken cultural or linguistic factors into consideration. For educational purposes, any definition of an immigrant child should include such factors. The education of an immigrant child from the British Isles

must certainly differ from that of a child from a non-English speaking country; the cultural shock experienced by a child from an eastern country will affect his learning far more than the cultural disparities experienced by a child from a western European country.

The children who attend schools under the jurisdiction of the MCSC come from a multitude of ethnic origins, and many are immigrants, by any definition. However, in order to provide some control for cultural and linguistic background, this study will consider only those children of Italian origin. Italians comprise the largest group of non-English speaking immigrants who came to Canada. The vast majority are in the lower socioeconomic level, and come from the poor, non-industrialized areas of southern Italy. However, these immigrants do not stay in the low socioeconomic strata from which they come, but rather, are upwardly mobile. By the second generation or sooner, they have joined the middle class (Witzel, 1969).

In spite of the fact that these immigrants are upwardly mobile, many of the parents still cling to their old values, while the children are presented with a different set of values in the school system. Certainly the children of immigrants attending MCSC schools must face some adjustments when they enter school, but they are not serious in most cases. The parents have a positive attitude towards learning English and they want their children to adapt to the new ways, while at the same time clinging to old customs at home. The children appear capable of adjusting to this double standard and at least in the early years, do not seem to suffer from severe culture shock. The fact that

in many schools the population is 75-90% Italian, minimizes the adaptation which is required.

It is obvious that several variables linked to the definition of the immigrant child can be generally described but not tightly controlled in this study. The major variable that distinguishes the experimental children is mother tongue. No literature on the precise meaning of mother tongue could be found. One is not enlightened by the definition of this term given in by the Oxford English Dictionary as "one's native language" (1961, p. 695). The School Council of the Island of Montreal defines mother tongue as "the first language learned and still understood" (Proulx, 1976, p. 14).

It would seem rather a simple task to use reported language spoken at home to delineate the mother tongue of the children studied. However, as a mother tongue of English was a requirement for entering an English school (1975), this was the mother tongue reported on all enrollment forms, regardless of the actual language first learned. Therefore, reported mother tongue could not be used as a reliable estimate. Observed language, i.e., the language spoken by parents and children as noted by teachers and the experimenters, was used.

Teachers observed that the Italian parents spoke little or no English in contacts with the school. These contacts included informal daily encounters and parent-teacher interviews. Therefore, it would seem reasonable to conclude that Italian was spoken at home and that their children learned it first. As the children were also observed to

spontaneously speak Italian among themselves, it was obvious that they still understood that language. Therefore both criteria of the Island Council definition for mother tongue were met. A pre-test was given to the children to determine how much English they spoke on entering kindergarten, the results of which will be discussed later. This test further defines the particular sample in the study.

Due to the focus on mother tongue in defining the sample in this study it seems reasonable to refer to children in the experimental group as ESL children, children for whom English is a second language, rather than immigrant children.

One other label which contributes to the confusion in this area is "bilingual". Because the children in this sample speak Italian and English, they are sometimes labelled bilingual. As literature seems to refer to a bilingual individual as one who is competent to produce complete and meaningful utterance in a language other than the mother tongue, it cannot be used with this sample as their knowledge of English is still limited. After several years in an English school however, this term may be applicable.

The relationship between verbal and non-verbal measures of ability.

Monolingual English children.

In monolingual speakers of English it has been demonstrated that there is a high positive correlation between verbal and nonverbal measures of ability. In the manual for the Wechsler Intelligence Scale for Children (WISC) (1949) significant correlations between the Verbal

and Performance scores for different ages of .60 (7½ year olds), .68 (10½ year olds), and .56 (13½ year olds) are reported, (Wechsler 1949). Using the standardization research in this manual, Seashore (1951) examined differences between Verbal and Performance IQ on the WISC in a study. Of the 2200 children between the ages of 5-15 who had been tested, 52% had similar Verbal and Performance IQ scores (less than 8 scaled score points difference). When these children were separated according to socioeconomic variables (parental occupation) and group differences (rural VS urban, and average VS feebleminded) similar results were found. The mean differences between Verbal IQ and Performance IQ were not significant. In only one group, the professional category, was there a higher percentage of children with Verbal IQ's greater than their Performance IQ. Seashore interpreted these statistics as indicating that in most cases verbal and nonverbal scores are similar.

Altus (1953) also studied WISC patterns, and found in monolingual English speaking children (mean age 11.14) mean Verbal IQ 88.98, Performance IQ 86.43, and Full Scale IQ 86.89. She concluded that "the mean WISC Performance IQ would serve as a reasonably good predictor of the mean Verbal IQ except in samples where such severely handicapping influences as bilingualism were in operation". (p. 242).

Many other studies have compared verbal and nonverbal measures of ability in monolingual children ranging in age from 6-15 years, and with IQ's of 68 - 123. These studies are summarized in Table 1. A number of the studies compared the Colored Progressive Matrices of

Table 1

Correlations Between Verbal and Nonverbal Tests in Monolingual English Speaking Children

RESEARCHER	AGE	N BOYS	N GIRLS	I.Q.	TESTS	CORRELATIONS
Birkemeyer (1964)	M=9	46		94	CPM vs WISC	VIQ .41* PIQ .50** FSIQ .51**
	M=7	25		101	CPM vs SB	.32
Stacey and Carleton (1955)	7.5 - 15.9	70	80	WISC FSIQ M=68.35	CPM vs SB	SB MA .69# SB IQ .71#
					CPM vs WISC	VIQ .54# PIQ .52# FSIQ .55#
Martin and Wiechers (1947)	9 - 10	60	40	WISC FSIQ M=107	CPM vs WISC	VIQ .84# PIQ .83# FSIQ .91#
Estes et al (1961)	grades 1 - 8	47	35	SB 123	CPM vs SB '37	.54** .67**
					CPM vs SB '60	.59**
					CPM vs WISC	FSIQ .55** .91**
					DAM vs SB '37	.41** .46**
					DAM vs SB '60	.43**
					DAM vs WISC	FSIQ .43**
Green and Ewert (1947)	6.6 - 7.5	22			CPM vs OTIS	.62**
					CPM vs CMMT	.42**
	7.6 - 8.5	31			CPM vs K.A.	.28**

* : $p < .05$
** : $p < .01$
# : significance not given

J.C. Raven (RCPM) with many verbal measures (Birkemeyer, 1964; Estes et al, 1961; Green and Ewert, 1955; Martin and Wiechers, 1954; Stacey and Carleton, 1955); one of these also compared the Goodenough Draw-a-Man test (DAM) with several verbal measures (Estes et al, 1961). In each one of these studies results have indicated that all native speaking English children regardless of age or IQ perform similarly on verbal and nonverbal measures of ability.

When subjects of low socioeconomic level were studied, a second factor has complicated the interpretation of their results. The factor is that the children are not only disadvantaged, but that they also speak a dialect or a non-standard form of English. An example of these studies is Bernstein's (1960, 1961) work in which he found that the language scores of lower class subjects were grossly depressed in relation to high scores on a nonverbal test. Both their low socioeconomic level and their deficiency in standard English had hindered their progress on traditional verbal measures. They are not monolingual of low SES and they are not necessarily ESL children. Therefore these children must be considered exceptions to the rule of similar verbal-nonverbal performance.

ESL children

The research on the relationship between verbal and nonverbal abilities in ESL children is extremely difficult to interpret. Few studies look at the same population, and the children in most of these

studies are older than the age group in the present study. The research does not provide consistent results regarding the relationship between verbal and nonverbal measures of ability of these diverse groups. However, a review of these studies gives some ideas regarding possible trends, and of the variables which influence trends.

Pintner (1923) compared third and fourth grade Polish, Italian and German speaking children in New York with English speaking American groups on verbal (National Intelligence Test, Scale A, Form 1) and a nonverbal measure (Pintner Non-language Test). He reported that the non-English groups performed similarly to English speaking groups on the non-language test, but only 37% of the foreign language children did as well as the English language children on the verbal test, which he attributed to language handicap. Altus (1953) found that Spanish-English children had IQ scores of 72.02 on Verbal scale of the WISC, and 84.01 on the Performance scale of the same measure. She further examined the data by age and discovered that as the children got older the discrepancy between verbal and performance scores decreased, not significantly in the limited age range, but at least in the expected direction. Darcy (1952) administered the Pintner General Ability Test Intermediate, Form B, and the Pintner Non-language Test, Form K, to bilingual Puerto Rican children in New York and found that the mean IQ on the non-language test was 87.84 with a SD of 16.52, whereas the mean IQ on the verbal test was 79.56 with a SD of 14.31. She concluded that "the administration of intelligence tests of both verbal and non-language types yields a more valid picture of intelligence of

a bilingual population,....than the administration of either a verbal test of intelligence or a non-language test of intelligence as the sole means of intelligence measurement" (p. 506). In all these studies there is a confirmation of the hypothesis that nonverbal scores are higher than verbal scores in older ESL children. It should be noted that although the children are better on nonverbal measures of ability, they are below average on nonverbal measures in all of these studies, indicating that there are other variables which depress their scores.

One of the few studies which dealt with younger children was Cundick's (1970). He administered the Wechsler Pre-School and Primary Scale of Intelligence (WPPSI), the PPVT and DAM test to Indian children attending an English language school. The prekindergarten children obtained a mean of 50.0 on Verbal IQ and 71.2 Performance IQ on the WPPSI, whereas the kindergarten children scored 68.5 on the Verbal Scale, and 97.6 on the Performance Scale, which is nearly normal. A similar pattern was found on the PPVT and DAM for the kindergarten children. The average verbal score of 53.4 was below average and the nonverbal score ranged from 87.4 - 91.9. He concluded that nonverbal measures could be used to accurately assess these children, provided they have had at least one year of schooling.

There was one study in which the RCPM was used. Birkemeyer (1964) administered the RCPM and the WISC to Spanish speaking children ranging in age from 6-11. Although she does not give the relationship between the Verbal and Performance scales of the WISC, she does correlate each with the RCPM. She found there was a relationship of .50 (significant

at .01) between the RCPM and the Performance Scale of the WISC, and a relationship of .41 (significant, but low at .05) between the RCPM and the Verbal Scale of the WISC.

In summary, there would seem to be support for the theory that whereas monolingual subjects perform similarly on verbal and nonverbal measures of ability, children for whom English is a second language or bilingual subjects, perform better although not necessarily average on nonverbal measures.

The relationship between nonverbal test scores of native English speakers and ESL subjects.

Thus far the literature review has considered studies which compared verbal and nonverbal measures of ability in native speakers of English and ESL children. These studies revealed a tendency for ESL children to be low on both verbal and nonverbal scales. A number of the studies have supported this contention, however, there are conflicting studies. In the following section there will be an examination of these studies with a view to elucidating specific factors which may have affected the performance of ESL children.

In reviewing these studies, the subjects will be referred to as "bilingual" as they are so designated in the studies themselves. This title is not used to refer to the subjects in the present study. However it should be pointed out that there is no consistent definition for this term, and bilingual, ESL learner and immigrant are often

used interchangeably. It is very difficult to separate them when referring to the literature.

Studies which show the detrimental effects of learning a second language.

The first category of studies consists of those which support the theory that bilingualism has a detrimental effect on nonverbal test scores, and are consistent with studies cited previously.

In a study conducted by Jones and Stewart (1951) on monoglots and bilinguals (English-Welsh) a highly significant difference in favor of the monoglot group on both verbal and nonverbal tests of intelligence was found. However, in a later study, Jones (1959) conceded that the differences in the test scores might have arisen from occupational rather than linguistic variations between the groups. He subsequently criticized a study by Lewis (1959) for the inadequate treatment given to socioeconomic class. Lewis had reported a statistically significant difference in favor of the monolinguals on the Jenkins Nonverbal Scale of Mental Ability, but had failed to control for rural-urban backgrounds and SES.

Anastasi and Cordova (1953) administered the Cattell Culture Free Intelligence Test, Forms 2A and 2B to 176 Puerto Rican children in grades six to eight in New York City. The children fell below test norms reported by Cattell. Among the reasons given for such a discrepancy were the very low SES of the Puerto Rican children, their

bilingualism which made them deficient in both languages, their extreme lack of test sophistication, and their poor emotional adjustment to the school situation (p. 17).

In addition to these studies, there are two studies previously reviewed in which bilinguals obtained below-average scores on nonverbal or performance tests. The subjects in Darcy's (1952) study who were of Puerto Rican parentage obtained a mean IQ of only 87.84 on the Pintner Non-Language Test, and in a study conducted by Altus (1953) bilingual subjects of Mexican descent obtained a mean Performance IQ score of 84.01 on the WISC.

It is important to consider the SES and linguistic background of the subjects in these studies in which bilingual subjects performed poorly on standardized tests. The bilingual subjects in the studies of Anastasi and Cordova (1953) and Darcy (1952) were first or second generation immigrants with low SES. In most cases the children spoke English only at school and spoke Spanish at home with degree of bilingualism varying. The bilingual subjects in the Altus (1953) study were of Mexican descent (degree of bilingualism not measured) whereas the monolinguals were all Anglo-American. In the studies of Jones and Stewart (1951) and Lewis (1959) the subjects were all of Welsh background. However, subjects were not matched for SES. Therefore, the results of these studies would seem to indicate that bilingualism results in depressed scores on both verbal and nonverbal tests where subjects suffer from cultural and socioeconomic deficiencies.

Studies in which ESL subjects scored as well or better than monolinguals on nonverbal tests.

The most significant study in this group is one conducted by Darcy (1946) using children with backgrounds similar to those of the children in the present study. The study sought to determine the effect of bilingualism upon the measured intelligence of children of pre-school age, and the extent to which a nonverbal test of intelligence (Atkins Object - fitting Test) could be substituted for a verbal test of intelligence (SB). The subjects were 106 monolinguals and 106 bilinguals (Italian native speakers who learned English at nursery school) between 2 years 6 months and 4 years 5 months attending nursery schools in New York City. Darcy reported that the monolingual group scored significantly higher than the bilinguals on the SB but lower on the nonverbal test. The mean IQ's on the SB for the monolingual boys and bilingual boys between the ages of 4 - 4.5 years were 96.9 and 88.1 respectively. The mean IQ's for the Atkins Object-fitting Test for the same samples were 89.2 and 96.8. Although she attributed the lower scores of the bilinguals on the verbal test to a language handicap, she did not speculate on the reasons for their superior performance on the nonverbal test.

In 1953 Anastasi and De Jesus studied the language development and nonverbal abilities of Puerto Rican pre-school children in New York City. They found that although the Puerto Rican sample was inferior to the negro and white samples in educational and occupational level of parents, the Puerto Rican children did not differ significantly

from the white or negro groups in the DAM IQ, and they excelled both groups in mean sentence length and in maturity of sentence structure. The greater extent of adult contact in the home environment of the Puerto Rican children was suggested as one possible factor to account for their superiority in early linguistic development.

Levinson (1959) tested American-born pre-school monolingual and bilingual children of traditional Jewish parentage and of similar socioeconomic backgrounds and found that they performed similarly on the DAM and the RCPM. However significant differences on the SB, the WISC Full Scale, Verbal and Performance Scales were in favor of the monoglots.

These studies demonstrate that in some instances ESL children do perform as well as control children on nonverbal tests. The circumstances which contribute to improved performance for ESL children seem to be cultural background, degree of bilingualism, type of test used, and socioeconomic level. One further study is worthy of mention in this regard. This study by Peal and Lambert (1962) demonstrates that under optimal conditions, ESL children may actually perform better than monolingual controls.

Peal and Lambert utilized 10 year old French Canadian children who were given three pre-tests (in English and French) to determine degree of bilingualism. On the basis of these test results, children were designated either as balanced bilingual or monolingual. The subjects in each group were then tested. Peal and Lambert reported

that the bilinguals performed significantly better than monolinguals on both verbal (French) and nonverbal intelligence tests. They postulated that the bilinguals are more facile at concept formation and have greater mental flexibility as a result of knowing a second language. It is important to note that the subjects in this study are all Canadians who came from long established middle class families and have been tested in their native language. They are not immigrants as are the subjects in most of the other studies reviewed. Peal and Lambert conclude that when socioeconomic and cultural factors are controlled, nonverbal measures of ability will not be deficit in ESL children.

To summarize, the literature reviewed indicates that monolingual native speakers of English perform similarly on verbal and nonverbal measures (Altus, 1953; Birkemeyer, 1964; Estes et al, 1961; Green and Ewert, 1955; Martin and Wiechers, 1954; Seashore, 1951; Stacey and Carleton, 1955; Wechsler, 1949). Research with ESL children is more complex. Studies which deal with immigrant children (Anastasi and Cordova, 1953; Darcy, 1952; Pintner, 1923) and minority groups such as negroes and Mexicans (Altus, 1953; Birkemeyer, 1964; Cundick, 1970) report that such children perform better on nonverbal than verbal tests. In most of these studies both verbal and nonverbal test scores of ESL children are depressed. However, a few studies (Anastasi and De Jesus, 1953; Darcy, 1946; Levinson, 1959; Peal and Lambert, 1962) did find that ESL children could perform as well as or better than monolinguals on nonverbal measures. Many variables contribute to the differences in test performance reviewed. Cultural background has been discussed

under the heading "the Definition of Immigrant". It would seem important to summarize some of the findings regarding three additional variables - SES, degree of bilingualism, and type of nonverbal test used at this point. These variables have already emerged in the literature review, but they will be looked at in more detail.

Reasons for differences in nonverbal test performance in monolingual and ESL children.

Several investigators (Anastasi and Cordova, 1953; Lewis, 1959; Jones, 1959) have suggested that SES of subjects appears to have significant impact on results. Most of the studies reviewed which describe SES of the subjects seem to indicate that low scores on nonverbal tests are more likely to be found when ESL subjects are also of low SES. Darcy (1963) notes that the inferior performance of ESL children does not hold on nonverbal tasks particularly if socioeconomic class is controlled.

One study by Jones (1959) is of particular importance in illustrating the effects of socioeconomic factors. Jones originally reported that with unmatched SES samples, monolinguals performed better than bilingual children on nonverbal tasks. Further investigation revealed that the bilinguals come from rural areas and were of parents with low occupational status compared with the monolinguals who were from urban areas and whose parents had higher occupational status. When Jones subsequently matched his group for SES, monolinguals and bilinguals performed similarly. It would seem that there is fairly strong support for the need to control

SES in any study investigating ability and achievement in ESL children.

Degree of bilingualism has also been found to influence nonverbal test scores; however, the evidence is contradictory. Johnson (1953) found that nonverbal test scores of bilingual children were related to their knowledge of their native tongue, i.e. the greater their knowledge of Spanish in relation to English the higher their score on the DAM; however Lewis (1959) found conflicting results. In his study with Welsh children he found that mean scores on the Jenkins Nonverbal Test increased as knowledge of Welsh decreased. There are, unfortunately, not enough studies in this area to indicate which result is more accurate.

Another problem which affects the measurement of ability by nonverbal tests is that these tests may yield minimal estimates for ESL children. Bhatnagar (1970) warns that there is no such thing as a culture free test. "A nonverbal test is only measuring the fluid general ability of immigrant children while it is measuring the fluid as well as the crystalised general ability of the English children." (p. 149) However, if nonverbal tasks yield average estimates and/or higher scores than verbal measures, it can be concluded that nonverbal estimate is a more accurate reflection of ability than verbal measures.

Any factor which has affected the nonverbal IQ scores of bilingual children is a time limit set on tests. Timed tests have resulted in depressed scores in bilingual children, but does not affect

test scores of English children (Lewis, 1959), (Knapp, 1960). This has been attributed to the fact that foreign cultures live at a slower pace than we do and consequently the children are not accustomed to speed tests. (Anastasi, 1968 - p. 242). Morgan (1957, cited by Darcy, 1963) reported that of all the nonverbal tests which he had administered to his subjects RCPM, Daniel's Figure Reasoning Test, and the Nonverbal Test No. 2 of the National Foundation for Educational Research) only the RCPM proved to be a reliable measure of intelligence in Welsh children, and it was the only untimed test used. These studies are among the few which have been sensitive to the effect of intelligence tests with time limits on the scores of bilingual subjects, and the results indicate the need for further research related to this aspect of the problem of bilinguals.

Predicting school achievement

Achievement in school is dependent on a multitude of factors including intelligence (or more precisely performance on verbal and nonverbal measures of ability), developmental maturity, SES, motivation and the attitude of parents, peers and teachers. The present study will examine intelligence. SES will be controlled. It is not within the scope of the study to control for developmental maturity or to measure attitude and motivation as it would render the research project too complicated for an initial project.

Predictive validity is defined as the extent to which a test score predicts school achievement. Since intelligence test perform-

ance has been found to be quite stable in groups over a period of time, a good test of intelligence should have predictive validity. However since intelligence reflects both heredity and environment, individual IQ may fluctuate as circumstances change.

In many studies, IQ tests have been found to be good predictors of achievement test performance in monolingual English children. Table 2 summarizes studies in which positive correlations have been reported between a variety of verbal and nonverbal measures and tests of achievement in kindergarten to grade six children. Support for this relationship has been found with IQ measures including the WISC, SB, DAM, WPPSI, Bender Gestalt Visual Motor Test (BG), Illinois Test of Psycholinguistic Ability (ITPA), PPVT, RCPM, Rutgers Drawing Test (RDT), Lorge Thorndike Intelligence Test (LT), Pictorial Test of Intelligence (PTI), Lee Clark Reading Test (LC), Metropolitain Reading Test (MRT), and many criteria including the Metropolitain Achievement Test (MAT), Stanford Achievement Test (SAT), Wide Range Achievement Test (WRAT), California Achievement Test (CAT), and the California Readiness Test (CRT). These studies were carried out with subjects from a variety of socioeconomic backgrounds and intellectual levels. More detailed information on these studies is summarized in Table 2.

Since the PPVT and RCPM will be utilized in the present study, other studies in which they were used will be reviewed in more depth.

In three studies reviewed, the PPVT was used as a predictor variable. Panther (1967) administered the RDT, the DAM, the LT, and

Table 2

Correlations Between I.Q. Tests and Measures of Achievement in Native Speakers of English

RESEARCHER	SUBJECTS	N	AGE	TIME LAPSE	MEASURE OF ACHIEVEMENT	CORRELATIONS
Mussen et al (1952)	"highly select population"	21	grades 2-7	1 year	Metropolitain Arithmetic	WISC V: .74#; WISC P: .74#; WISC FS: .81#; SB: .76#
					Metropolitain Reading	WISC V: .62#; WISC P: .76#; WISC FS: .75#; SB: .59#
		18			Stanford Arithmetic	WISC V: .47#; WISC P: .29#; WISC FS: .69#; SB: .45#
					Stanford Reading	WISC V: .73#; WISC P: .57#; WISC FS: .65#; SB: .65#
Dokecki et al (1969)	high SES	40	57 - 77 mos	1 year	Metropolitain Reading TEST	WPPSI: .77#; WPPSI & DAP: .80#
	low SES	40				
Henderson et al (1969)	white, low SES handicapped	120	7	none	WRAT Arithmetic	WISC: .62**; BG: -.41**
					WRAT Reading	WISC: .38**; BG: -.26**
	non-white, low SES handicapped	83			WRAT Arithmetic	WISC: .61**; BG: -.36**
					WRAT Reading	WISC: .54**; BG: -.32**
Hirshoren (1969)	heterogeneous SES	40	5.0-6.3	2 years	CAT	ITPA: .72#; SB: .60#
Dudek et al (1969)	middle class	103	grades K - 2	1 year	CAT	WISC V: .34; WISC P: .47; WISC FS: 47**; LT: .42; DAM: .29*; Rutgers A: .39
				2 years	CAT	WISC V: .29; WISC P: .62; WISC FS: .53*; LT: .53; DAM: .30*; Rutgers A: .50
Harckham, et al (1971)	middle class	553	K - grade 1	1 year	MAT	MRT: .63**; DAM: .39**; BRS: .42**; TR: .49**
			grade 2	2 years	SAT	MRT: .70**; DAM: .39**; BRS: .53**; TR: .53**
			grade 3	3 years	SAT	MRT: .74**; DAM: .39**; BRS: .49**; TR: .54**
Panther (1967)		44	K - grade 1	1 year	MAT	Rutgers: .26; DAM: .34*; LT: .49**; PPVT: .47**; LC: .66**
Plant & Southern (1968)	culturally deprived		K - grade 1	18 mos	Stanford Achievement Test	PPVT: .44#; SB: .43#; WPPSI V: .43#; WPPSI P: .59#; WPPSI FS: .55#; LC: .52#
Lessler et al (1970)	high SES	44	grade 1	1 year	California Reading Test	Lee Clark: .511#; BG: .336#; PPVT: .492#
	middle SES	60				Lee Clark: .641#; BG: .391#; PPVT: .397#
	low SES	50				Lee Clark: .579#; BG: .413#; PPVT: .147#
Meyers, Attwell & Orpet (1968)	upper and lower middle class	57	6-10 years	4½ years	CAT	13 different measures see text of Thesis

* = $p < .05$

** = $p < .01$

\# = significance not given

the PPVT to 44 kindergarten children in the spring of the school year; the LC Reading Readiness Test in the fall of grade one, and the MAT the following spring. The correlations of the five intelligence tests with the MAT were significant, except for the RDT. The most valid predictor was the LC Reading Readiness Test with a correlation coefficient of .66; the correlation of the PPVT (raw score) with the MAT was significant at .47.

Plant and Southern (1968) studied grade one achievement as predicted by the PPVT, SB, WPPSI, the PTI, and LC obtained previously. The correlation between the PPVT and the SAT was .44 - higher than the correlation with the SB or the WISC Verbal score, but lower than the LC or the WISC Performance and Full Scale scores. An interesting finding here was that the WISC Performance score correlated better than the Verbal score with achievement.

Lessler, Schoeninger and Bridges (1970) reported on the predictive validity of the LC, BG and PPVT with three different socio-economic groups. The LC was found to be the most effective predictor (.511 - .641), while correlations between the PPVT and CAT ranged from .147 - .492. Even combining the PPVT and BG with the LC did not improve the predictive power. The authors suggested that the LC has sub-tests which are similar to the PPVT and BG, so that the inclusion of the two latter tests with the LC did not improve its accuracy as a predictor.

In only one study was the RCPM used as a predictor. Meyers, Attwell and Orpet (1968) followed the progress of 57 children from kindergarten to grade five. Thirteen individually administered tests were given in kindergarten, and the CAT was given in grade five. The most valid single prediction among the tests was the unstandardized O-M Picture Vocabulary Test. However, one other test was found to correlate significantly with the CAT. The RCPM was the best predictor of the CAT - Arithmetic sub-test, and the second predictor of the CAT - spelling sub-test.

One other study was of interest as it examined "Reading achievement as related to differences between WISC Verbal and Performance IQ" (Reed, 1967). Grade one students were selected according to a discrepancy between WISC Performance and Verbal IQ scores, and divided into three groups. Group I consisted of children whose Verbal IQ was greater than Performance IQ by at least 10 points; group II included children whose Performance IQ exceeded the Verbal IQ by at least 15 points, and group III contained those children whose Verbal IQ did not differ from the Performance IQ by more than 2 points. It was found that the reading scores of the three groups (as measured by the Gates Primary Paragraph Recognition Test) were not significantly different. Reed suggests that differences in either verbal or manipulatory skills do not hamper initial acquisition of reading skills. However, IQ was not controlled in the study, and that, rather than differences between Verbal IQ and Performance IQ, probably influences reading achievement.

In summary then, research consistently indicates that in young monolingual native speakers of English many intelligence and readiness tests will be effective predictors of school achievement over a long or short period. As has been shown, there has been some conflict in the literature over whether verbal or performance skills are more effective predictors of achievement. Significant correlations have been found between both verbal and nonverbal measures and achievement scores.

Three studies which examined the predictive validity of IQ tests with ESL children are reviewed below; all subjects in these studies are older than the ESL group in the present study, and are from different ethnic groups. Cooper (1958) endeavored to determine the predictive ability of six tests of intelligence for fifth grade pupils in Guam. The subjects spoke English only in school, infrequently on the playground, and rarely at home. He administered a battery of group tests (California Test of Mental Maturity -CTMM-, Davis-Eels Games, and the Culture Free Intelligence test), individual tests (WISC, Columbia Mental Maturity Scale, Leiter International Performance Scale) over a period of eight months, and obtained teacher ratings for each subject. School achievement was defined by scores on the CAT. All tests correlated positively with the CAT, with correlation coefficients ranging from .53 to .77. Neither verbal nor nonverbal measures could be considered as the better predictor. The WISC Full Scale IQ was not so efficient a predictor as was the Verbal Scale IQ. This finding was not supported by comparable evidence concerning the CTMM,

in which the Language IQ and Non-Language IQ predicted equally well.

Phillipus (1968) reported a study in which the RCPM, and WISC were used as predictors of achievement in 8–13 year old Hispano-American children. Bilingualism was measured by the ability of the subject and his parents to converse in Spanish. The RCPM correlation of .512 with school grades obtained at the time of testing was higher than the correlation of the WISC Full Scale, Verbal Scale, Performance Scale or Block Test. Phillipus concluded that low verbal skills were not necessarily related to achievement in school. He felt that these children accomplished educational tasks, which are more dependent on verbal skills, by perceptual-motor functions. Since these children had difficulty learning English, motor skills are somehow used to accomplish verbal activities.

Rattan and MacArthur (1968) in their study of 45 Metis pupils found that the RCPM, Safran Culture-Reduced Intelligence Test (SCRIT) and CTMM had longterm predictive validity with the CAT, with correlation coefficients of .57, .62, and .64 respectively, after four years.

No studies could be located in which the predictive validity of tests of five-year old ESL children was studied.

STATEMENT OF THE PROBLEM

One purpose of the present study was to examine the relationship between verbal (English) and nonverbal measures of ability in a group of ESL kindergarten-aged children. As has been noted, the literature tends to use three terms - immigrant, bilingual and ESL - interchangeably. Before summarizing the relevant literature it is necessary to clearly define the sample to be studied in this investigation. The experimental group had the following unique characteristics:

(a) they had parents who were observed to speak Italian and who could not communicate with the school in English

(b) the children themselves were able to speak and understand Italian.

It must be noted that the ESL children spoke varying degrees of English on entering kindergarten. Some data is available on the amount of English understood as the PPVT was given to all subjects in November of their kindergarten year.

The control group was composed of monolingual English speaking children. There were a number of similarities between the experimental and control groups. All subjects were born in Canada and lived in the same geographical area. All subjects attended English schools, were in the same classes and were taught by the same teachers. These similarities mitigate against widely divergent socioeconomic backgrounds in the two groups.

Keeping in mind the fact that some of the literature on immigrant or bilingual subjects may not be relevant to our sample, several tentative conclusions regarding verbal and nonverbal abilities

of these subjects can be stated. Research seems to indicate that ESL children do better on nonverbal tests than on verbal tasks (Altus, 1953; Birkemeyer, 1964; Cundick, 1970; Darcy, 1952; Pintner, 1923). There is considerable debate as to whether ESL children perform as well as monolingual controls on nonverbal tasks. The review seems to indicate that if there is some cultural assimilation, if socio-economic level is controlled, and if untimed tests are used, ESL children should perform as well as control subjects on nonverbal tests.

It has been shown that there is a high correlation between verbal and nonverbal measures of ability in English speaking monolingual children (Altus, 1953; Birkemeyer, 1964; Estes et al, 1961; Green and Ewert, 1955; Martin and Wiechers, 1954; Seashore, 1951; Stacey and Carleton, 1955). There was insufficient literature to make any accurate prediction of the relationship between verbal and nonverbal tasks.

In summary, the following hypotheses were made regarding verbal and nonverbal abilities in the ESL and control subjects studied.

(1) It was hypothesized that ESL group would score significantly below control group on a verbal measure of English comprehended (PPVT) given upon entering kindergarten, and in May of the kindergarten year.

(2) It was hypothesized that ESL children would not differ from controls on a nonverbal measure (RCPM) given in May of the kindergarten year.

(3) It was hypothesized that for the monolingual control group a positive correlation between verbal (PPVT) and nonverbal (RCPM) tasks will be found.

The second part of this study was designed to study the achievement of ESL children in grade one and the relationship between verbal and nonverbal measures of ability as predictors of school achievement in ESL and control children.

Very little research is available on the school achievement in ESL children. Phillipus (1968) found that Spanish children did well in school. Cundick's (1970) sample of children did not achieve at average levels in school. Clinically, many professionals would assert that the prognosis for the school achievement of ESL children is extremely poor. Studies on the school achievement of ESL and immigrant children (Ashby, Morrison and Butcher, 1970; Bhatnagar, 1970; Cohen, 1970; Little, Mabey and Whitaker, 1967; McFie and Thompson, 1970; Toronto Board of Education, 1965) all indicate that such children function below average on school subjects, tend to drop out of school before completing high school, and have social and emotional problems of adjustment. Only the Toronto Board of Education Study (Rogers and Wright, 1969) is more positive. It found that ESL subjects were obtaining higher scores than their English language counterparts by grade three, after starting junior and senior kindergarten below them.

With regard to the prediction of achievement, many studies (Table 2) confirm that both verbal and nonverbal measures of ability predict school achievement in monolingual English children. There seems to be some indication that composit measures may yield the most powerful predictions for this group. (Dokecki et al, 1969; Dudek et al, 1969). Although there is some indication that both verbal and nonverbal measures might also predict achievement in ESL children (Cooper, 1970; Phillipus, 1968; Rattan and MacArthur, 1968) no studies utilizing kindergarten - grade one subjects could be found.

In summary, the following hypotheses regarding achievement were made.

(1) It was hypothesized that English monolingual control subjects will perform significantly better than ESL subjects on achievement measures (MAT) given at the end of grade one.

(2) It is hypothesized that both verbal and nonverbal test scores will predict school achievement of control subjects.

(3) It is hypothesized that both verbal and nonverbal test scores will predict school achievement in ESL subjects.

In addition to testing these hypotheses, some attempt was made to elucidate which test scores or combination of scores predict school achievement most efficiently for each group by utilizing stepwise regression techniques. The literature reviewed did not provide sufficient grounds for specific hypotheses to be made regarding these analyses.

METHOD

Subjects

The subjects included 97 children drawn from 11 schools of the English sector of the MCSC. The schools were selected to include subjects from largely middle-class areas: inner-city schools were not utilized. From 16 such schools, five were eliminated because they did not include both ESL and monolingual English children. From the remaining eleven schools all available monolingual English children and a random selection of 64 ESL subjects were chosen. During 1975-76, all subjects attended kindergarten: in 1976-77, all subjects attended grade one. This sample was divided into two groups having the following characteristics:

ESL Group: The ESL group included 64 kindergarten children whose observed mother tongue (as previously defined) was Italian and who had varying degrees of English. The sample was reduced to 59 subjects who could be recovered in grade one.

Control Group: The control subjects were composed of 33 kindergarten children whose observed mother tongue and only language was English. Twenty-nine subjects were recovered in grade one.

Both groups were composed of children ranging from age 5.7 to 6.7 years, with a mean age of 6.1 years in May of their kindergarten year. The control group was composed of 23 boys and 10 girls; the ESL group included 38 boys and 26 girls.

Although socioeconomic level was not measured directly, the fact that inner-city schools were excluded and that children were drawn

from the same schools is consistent with the conclusion that subjects came from similar middle class backgrounds. The fact that only 11 of 97 children were not recovered for retesting indicates a fairly stable population.

Test Materials

The Raven Colored Progressive Matrices

The Colored Progressive Matrices of J.C.Raven (1962) was selected as the nonverbal measure of ability. This test fulfills many of the requirements indicated by the literature review as being important in assessing ESL children. It is relatively culture free, untimed, and attractive to children. It is constructed to assess in greater detail the intellectual processes of which young children are capable and the degree to which the child's capacity for observation and clear thinking have developed. According to Raven (1965) it is not a test of general intelligence and should be used in conjunction with a vocabulary test. In his own words, "The advantage of using a perceptual and a vocabulary test together, in place of a single test of general intelligence is that in this way it is possible to assess separately a person's present capacity for intellectual activity, irrespective of his acquired knowledge, and at the same time the fund of verbal information he has acquired in the past, with as little present intellectual activity as possible". (Raven, 1965, p. 3) This test may be used satisfactorily with non-English speaking children, as long as they are from a western culture, but Biesheuvel (1949, 1952) and Vernon (1969) suggest that it be used cautiously with non-western subjects.

The book form of the test was standardized on 608 children 5 - 10.5 years of age in Dumfries, Scotland. "The relatively low re-test reliability at 6½ years of age compared with the retest reliability of 0.8 at 9.5 years of age, suggested that the scale was sensitive to fluctuations in the output of intellectual activity in early childhood, rather than to any defect in the scale itself." (Raven, 1965, p. 18) Pascale (1973) reported a test-retest reliability of .43 with 36 average preschool children after a one week interval.

The RCPM has been found to correlate significantly with other standardized tests of intelligence as shown in Table 3. Correlations between the RCPM and the WISC have been reported by Birkemeyer (1964), Estes et al (1961), Martin and Wiechers (1954), and Stacey and Carleton (1955). The RCPM has also been correlated significantly with the SB (Birkemeyer, 1964; Estes et al, 1961; Stacey and Carleton, 1955), as well as with the Otis, the CMMT and Kuhlman-Anderson (Green and Ewert, 1955). Harris (1959) obtained significant correlations between the RCPM and the DAM and Primary Mental Abilities (PMA). McNamara et al (1959) reported significant correlations between the RCPM and WPPSI Performance and Full Scale IQ's.

Accordingly, from the literature review, the RCPM appears to be one of the best measures of nonverbal performance in students. Green and Ewert (1955) conclude their study by saying that "Scores on Progressive Matrices correlated with the more verbal intelligence tests to about the same degree that they did with those tests which

Table 3

Correlations Between the RCPM and Other Standardized IQ Tests

RESEARCHER	SUBJECTS	NO.	AGE	CORRELATIONS						
				WISC						
				V	P	FS	SB	O	CMMT	KA DAM PMA
Stacey and Carleton (1955)	possible mental defectives	150	7.5-15.9	.54#	.52#	.55#	.71#			
Birkemeyer (1964)	Spanish-negro	30	6-11 yrs.	.41*	.50**	.51**				
	Anglo	46	7-11 yrs.	.55***	.66***	.62***				
	Spanish-negro	30	6-8 yrs.				.51**			
	Anglo	25	6-8 yrs.				.32			
Martin & Wiechers (1954)	average	100	9-10 yrs.	.84#	.83#	.91#				
Green & Ewert (1955)	average	22	6.6-7.5					.62**	.42**	
		31	7.6-8.5					.69**	.37**	.28**
Estes et al (1961)	above average SES & IQ	82	grades 1-8			.55-.91**	.54-.67**			
Harris (1959)	average	98	5.6 - 6.1							.22#.22# .36#
					WPPSI					
McNamara J. (1959)	disadvantaged	42	4.8 - 6.6	V	P	FS				
				.11	.38*	.30*				

* : $p < .05$
** : $p < .01$
*** : $p < .001$
\# significance level not given

stress nonverbal aspects. Therefore, it would appear that the Progressive Matrices cannot be thought of as a test of nonverbal reasoning ability but instead should be considered as a test of fairly complex intellectual reasoning processes." (p. 142).

The format of the test makes administration with limited verbal instructions possible. The test is available in book or board form; the book form was used in this study. The RCPM consists of three series of matric designs, twelve in each series, arranged to assess the chief cognitive process of which children under twelve are usually capable. To attract and hold the attention of little children, each problem is printed on a brightly colored background.

The child is shown a matrix in which a piece is missing. His attention is guided to three pieces below the matrix, and he is told to look carefully at each piece and choose the one which completes the pattern. Five examples are used prior to starting the test itself. Each of the three sets (A, Ab, & B) are demonstrated the same way. According to Raven, "If the test is suitably presented, it is necessary only to show a person what to do, to let him work through the problem in the standard order and to learn from his own experience how to solve them. The problem can be demonstrated quite satisfactorily without any verbal instructions at all." (1965, p. 10).

The Peabody Picture Vocabulary Test

The Peabody Picture Vocabulary Test (Dunn, 1965) was selected as the verbal test of ability and/or English comprehended in this

study. In recent years the PPVT has been used extensively with children of preschool age as it is brief, easy to score, and requires no special training to administer. Since it requires no verbal response on the part of the child, all but the most reticent child will respond by pointing to one of four pictures in response to a stimulus word. Although the PPVT was designed to provide an estimate of verbal intelligence through measuring hearing vocabulary, it has often been used as a test of intelligence, as vocabulary is the best single predictor of school achievement for normal children according to Terman and Merrill, (1937) and Wechsler, (1949).

The PPVT was standardized on a total of 4,012 children (of whom 133 were 5 years of age and 183 six years of age) from Nashville, Tennessee. According to Dunn the test has alternate form reliability ranging from .67 - .73 for 5 - 6 year olds. No test retest reliability is reported in the manual, but several studies (Table 4) have reported reliabilities ranging from .48 - .83 with a wide range of subjects including average, disadvantaged, Educably Mentally Retarded and Aborigine, and with the time lapses varying from one week to nine months.

The PPVT has been found to correlate significantly with other tests of intelligence. The studies are summarized in Table 5. Milgram and Ozer (1967), Costello and Ali (1971), Dilorenzo and Brady (1968) and Johnson and Johnson (1971) have reported correlations between the PPVT and the SB, although the PPVT results in lower IQ scores than the SB. It has also been correlated with the WISC, verbal IQ score

Table 4

Test-Retest Reliability of PPVT

RESEARCHER	SUBJECTS	NO.	AGE.	TIME LAPSE	CORRELATIONS
Taylor and deLacey (1972)	white and Aborigine	28	4	8 mos.	.68#(raw score)
		20	6	2 weeks	.82#(raw score)
Raskin and Fong (1970)	EMR	16	12.9-18.9	6 mos.	.86** (MA)
		26	7.7-11.11		.85** (MA)
	Average	23	8.6-9.8		.68** (MA)
		18	5.5-6.6		.82** (MA)
Payne et al (1972)	disadvantaged	159	Preschool	9 mos.	.58#(IQ score)
		143			.48#(IQ score)
Milgram and Ozer (1967)	disadvantaged	65	5-6	4 weeks	.69** (MA)
		51	3-3.11	10 mos.	.80** (MA)
Costello and Ali (1971)	disadvantaged	31	4.1-5	2 weeks	.77#(raw score)
Pascale (1973)	average	72	3-5	1 week	.84#

** = $p < .01$

= significance level not given

Table 5

Correlations Between the PPVT and Other Standardized IQ Tests

RESEARCHERS	SUBJECTS	NO.	AGE	CORRELATIONS						
				SB		WISC			ITPA	
				MA	IQ	V	P	FS	V.ASC.	V.ENCDNG.
Milgram & Ozer (1967)	Low SES	65 51	4½ - 6 3 - 4	.45-.60** .44-.65**					.67** .66**	
Costello & Ali (1971)	Low SES	60	4.1 - 5.0	.43**	.28*				.39**	.28*
DiLorenzo & Brady (1968)	Low SES	566	3½ - 4½	.79 #						
Johnson & Johnson (1971)	Low SES	29	5	.79 #						
Shaw, Matthews & Klove (1966)	suspected brain damaged	83	M=10.62			.71**	.53**	.66**		
Anderson & Flax (1968)	problem children	28	6			.30 #	.41 #	.38 #		
Gage & Naumann (1965)	psycholigically handicapped	30	66.19/mos.			.69**	.56**	.68**		
Teasdale (1969)	Low SES	81	62.42 mos.				.66**	.45**		

* = $p < .05$
** = $p < .01$
\# = significance not given

(Anderson and Flax 1968, Gagé 1965, and Shaw, Matthews, and Klove, 1966) as well as with the ITPA sub-test vocal association and vocalencoding by Teasdale (1969) and Costello and Ali (1971). These correlations are similar to those reported by Dunn in the manual. However, Costello and Ali felt that the PPVT should not be used in isolation for either language or intellectual assessment, and Teasdale reported that the PPVT was better as a test of language than intelligence.

Dilorenzo and Brady (1968) caution that the IQ tables at the preschool level are weak and that therefore raw scores rather than IQ scores should be used to analyse data. Lyman in his review of the PPVT in the Sixth Mental Measurement Year Book (1965) states that care should be taken in interpreting the norms outside of Nashville where they were established.

The PPVT is an untimed, individual test of receptive vocabulary which consists of a booklet with three practices, and one hundred and fifty plates each with four numbered pictures. The same booklet is used for both form A and B, the forms differing only in the stimulus word given. The examiner reads the stimulus word, and the child responds by pointing to one of the four pictures.

For the purpose of this study some subjects were given form A in November, others were given form B at that time. During the posttest session the alternate form of the test was administered.

The Metropolitain Achievement Test Primary I Battery - Form F 1971

The MAT is used extensively by schools and in many research projects to measure the academic achievement of students. Hammill and Wiederhold (1971) reviewed 44 studies (1965-70) and found that in 30% of the studies the MAT was used, (twice as frequently used as the next most commonly used test). The MAT has been well validated and standardized. The standardization samples were selected to represent the national population in terms of geographic region, size of city, SES, and public vs. non-public schools. Reliability coefficients for the sub-tests range from .88 - .96, according to the manual.

In only one study was the reliability of the MAT examined. Hurt and Mishra (1970) reported test retest reliability coefficients of .44 - .85, and split half reliability coefficients of .78 - .97 for sub-tests of the MAT with 186 Mexican-American children in the fourth and fifth grades.

The MAT has been well correlated with other standardized tests. As can be seen by referring to Table 6, the MAT has been correlated with the WISC (Mussen et al, 1952), SB (Mussen et al, 1952), WPPSI (Dokecki et al, 1969), PPVT (Panther, 1967), RDT, DAM, LT, LC, (Panther, 1967) and DAM, BRS, and TR (Harckham, Gunning and Waldron, 1971).

The Metropolitan Achievement Test (1971) is composed of a series of measures designed to indicate how much students have learned in important content and skill areas of the curriculum. The Primary I, Form A battery includes the following sub-tests:

Table 6

Correlations Between MAT and Other Standardized Tests

RESEARCHER	SUBJECTS	NO.	AGE	CORRELATIONS WISC V	WISC P	WISC FS	WISC SB	WPPSI MA	PPVT	DAM	RDT	LT	LC	MRT	BRS	TR
Mussen et al (1952)	"highly select pop."	21 18	grades 2-7	.74#	.74#	.81#	.76#									
Dokecki et al (1969)	High SES Low SES	40 40	57 - 77 mos.					.77#								
Panther (1967)		44	K-gr. 1						.47**	.34*	26	.49**	.66**			
Harckham et al (1971)	middle class	553	K-gr. 1 grade 2 grade 3							.39** .39** .39**				.63** .70** .74**	.42** .53** .49**	.49** .53** .54**

* p .05
** p .01
\# significance not given

Word Knowledge - 35 items which measure extent of pupils' reading vocabulary. Pupils are given a picture of some common object and must select from four words the one word that describes the picture. Words are generally from primary level readers.

Word Analysis - 40 items which measure pupils' knowledge of sound-letter relationships or skill in decoding. Pupils must identify a dictated word from among several words with similar configurations and sound patterns.

Reading - 42 items which measure pupils' comprehension of written material. Thirteen items require pupils to select one of three easy sentences which best describes a picture. Twenty-nine items require pupils to read simple paragraphs and answer questions about what they have read.

Mathematics - Part A: Concepts - 35 items which measure pupils' understanding of basic mathematical principles and relationships. Items cover counting, place value, sets, measurement, etc. Part B - Computation - 27 items measure pupils' ability to add and subtract one and two-digit numbers with no regrouping. (Durost, Bixler, Wrightstone, Wayne, Prescott and Balow, p. 3).

A Total Reading score can be obtained by adding the scores on Word Knowledge and Reading. A Total Mathematics score can be obtained by adding parts A and B of the Mathematics sub-test. This particular form of the test can be used from grades 1.5 - 2.4.

Procedure

The PPVT was administered individually in November 1975, by several psychologists in the employ of The MCSC. The following May, the same psychologists and the writer administered the alternate form of the test.

In May 1976, the writer administered the RCPM individually to all children. In some cases the RCPM was administered prior to the PPVT, and in other cases the order was reversed.

As the children in this study were very young, every effort was expended to make each child who was tested comfortable and relaxed. The testing in each school was done in a separate room or area adjacent to the kindergarten class. Prior to testing, the examiner was introduced to the class as a group and spent some time with them to establish friendly relations. None of the children showed excessive timidity. The testing was carried out over a two-week period in November and May. With respect to the RCPM, any child who was incapable of correctly completing the test examples was eliminated from the study on the grounds that he did not understand what was required of him because of (a) language deficiency or (b) intellectual immaturity.

In May 1977, the MAT, Primary I Battery - Form F was administered by the writer to all subjects who could be recovered. Generally this test was administered to groups, however, some individual administration was necessary.

RESULTS/PHASE 1

Verbal Measures

The mean scores for both ESL and control groups on the PPVT - November, PPVT - May are given in Table 7. It can be seen from this table that control subjects earned higher mean scores on both measures. The difference is most pronounced for PPVT - November and somewhat less for PPVT - May. It should also be noted that while the mean PPVT score remains similar for controls from November (55.52) to May (56.61), the mean scores for the ESL group increase from 36.39 in November to 43.75 in May.

A series of t-tests were used to test the significance of the difference between the means of each of the measures of ability for ESL and control subjects. As can be seen from Table 8, the difference between the PPVT - November for the two groups is highly significant ($t=9.18$, $p<.001$), indicating that control subjects comprehend more English than ESL subjects at school entrance. The PPVT - May means are also significantly different for the two groups ($t=6.03$, $p<.001$), indicating that even after one year in an English kindergarten, ESL children are well below their English first language counterparts on this measure of verbal skill. These findings confirm Hypothesis 1, Phase 1 of this study.

It is of interest to note that the mean raw scores obtained on the PPVT by control subjects are similar to the score (55.37) reported by Dunn (1965) to represent average performance for children aged 5.6 to 6.5 years. It can be concluded that the control

Table 7

Mean PPVT and RCPM Test Scores for ESL and Control Groups

		ESL	CONTROL
PPVT (Nov.)	mean	36.39	55.52
	range	11-64	39-69
PPVT (May)	mean	43.75	56.61
	range	14-64	37-70
RCPM	mean	15.69	17.06
	range	7-23	13-26

Table 8

Comparison of ESL and Control Groups on PPVT and RCPM

GROUP	TEST	t	df
ESL/Control	PPVT (Nov.)	9.18*	95
ESL/Control	PPVT (May)	6.03*	95
ESL/Control	RCPM	1.87	95
ESL	PPVT (Nov./May)	6.609*	126
Control	PPVT (Nov./May)	1.256	64

* = $p < .001$

subjects were of average ability in comprehending English vocabulary. The mean raw scores of the PPVT obtained by ESL subjects in both November (36.39) and May (43.75) fall below Dunn's average score of 55.37.

Although no specific hypothesis was made regarding whether ESL children would improve on their ability to understand English after one year in the English kindergarten milieu, it is obvious from Table 7 that their PPVT scores increase. A t-test (Table 8) indicates that the difference between PPVT - November and PPVT - May scores for ESL subjects is significant ($t=6.609$, $p < .001$). Therefore, these children are learning to comprehend English.

Nonverbal Measures

It was hypothesized that ESL children would not differ significantly from controls on a nonverbal measure, RCPM. The mean RCPM score earned by control subjects (17.06) is only slightly higher than that obtained by ESL subjects (15.69). A t-test calculated on these means was not significant ($t=1.187$, $df=95$). This finding indicates that ESL children did as well as controls on the RCPM and is consistent with Hypothesis 2, Phase 1.

Correlations

It was predicted that verbal and nonverbal abilities would be positively correlated in control subjects. Pearson product moment correlation coefficients were calculated between (a) PPVT

(November) - RCPM and (b) PPVT (May) - RCPM. These correlations are given in Table 9. The correlations obtained are not significant, indicating that verbal and nonverbal abilities assessed were not related in the control group. Hypothesis 3, Phase 1 was not confirmed.

Table 9 also indicates that the PPVT (May) - RCPM are not significantly correlated in the ESL group. However, although the correlation was low the PPVT (November) - RCPM scores of ESL children were significantly correlated ($r = .27$, $p < .05$).

It should be noted that PPVT test-retest scores correlated significantly for both ESL and control groups (Table 9).

Table 9

Correlations between Verbal and Nonverbal measures in ESL and Control Groups

GROUP	PPVT (NOV./MAY)	PPVT (NOV.)/RCPM	PPVT (MAY) RCPM
ESL	.67**	.27**	.14
Control	.74*	.11	.207

* : $p < .001$
** : $p < .05$

DISCUSSION/PHASE 1

Verbal Measures

The results of the present study confirm several observations of educators in the MCSC/English Sector. First, ESL children entering kindergarten know some English although individual differences are large. As can be seen from Table 7, PPVT - (November) scores range from 11 - 64 for the ESL group. Secondly, ESL children score well below their English language counterparts on a verbal measure of English vocabulary understood. These results are consistent with research on immigrant groups. Many studies (Altus, 1953; Anastasi and Cordova, 1953; Anastasi and de Jesus, 1953; Birkemeyer, 1964; Cundick, 1970; Darcy, 1952; Jones and Stewart, 1951) have shown that verbal test scores of children for whom English is a second language are depressed in comparison with norms for the age range.

Perhaps the more exciting finding is the significant growth in the PPVT scores from November to May in the ESL subjects. Because the performance of the ESL child remains poor relative to that of the control child on verbal measures, the progress made by ESL children may be underestimated. In fact, the current results indicate that ESL children were improving in their ability to understand English. Milgram and Ozer (1967) reported similar findings in a study of disadvantaged 4.5 - 6 year olds. These investigators found a significant increment in PPVT scores after a month interval with 65 disadvantaged children. There is probably good reason to doubt that Milgram and Ozer findings reflect rapid linguistic de-

velopment in their disadvantaged subjects. An alternative hypothesis is that the results are a function of increased rapport, as well as adjustment to the school milieu. In the present study, initial testing was postponed from September to November, to allow children time to adjust to the school environment. It is also true that teachers of children in this study adjusted their vocabulary instruction to the level of the majority of their pupils, that is, to ESL learners. It is, therefore, quite likely that the significant increase in PPVT scores found in this study represents growth in the ability to comprehend English.

It should be noted that the PPVT scores of the control group did not improve between November and May. This finding is consistent with Dunn's (1965) normative data for the age group given, and with Raskin and Fong's (1970) report of a nonsignificant increase in PPVT scores of 18 average 6 year olds after seven months.

Nonverbal Measures

The results of this study showed that ESL subjects did not differ from control subjects on a nonverbal measure of ability. This finding is contrary to the results of studies of immigrant children, which did not control for SES, cultural assimilation or type of test utilized (times versus untimed) (Altus, 1953; Anastasi and Cordova, 1953; Birkemeyer, 1964; Darcy, 1952; Jones and Stewart, 1951; Lewis, 1959; Pintner, 1923). These studies tended to support the idea that the performance of ESL subjects would be below that of control subjects on nonverbal measures.

The results of this study are consistent with studies by Darcy (1946) and Peal and Lambert (1962) which indicate that when there is some cultural assimilation and when SES is controlled, ESL children will do at least as well as monolingual controls on untimed nonverbal measures.

Although the experimental and control subjects did not differ on RCPM scores in this study, it is still necessary to ask whether performance of both groups was similar to average performance on this test. The median score of 15 for 6 year olds obtained by Raven (1965) in Dumfries, Scotland has been further studied in two investigations. Green and Ewert (1955) found a median of 17 (mean of 18.6) for 6 - 6.5 year olds in 27 children in Rochester, New York; Harris (1959) obtained a mean score of 16.24 for 98 average kindergarten children aged 5.6 to 6.1 years (selected to represent the average urban population of the U.S.). The small sample size and slightly older subjects in Green and Ewert's study probably account for the somewhat higher mean scores obtained. As can be seen in Table 10, the scores obtained by both ESL and control groups in this study are very similar to normative data reported by Raven and Harris. It can be concluded that the subjects in this study performed at an average level on the RCPM.

Correlations

The nonsignificant correlation between verbal and nonverbal measures for the control group is contrary to all expectations and research in the area (Birkemeyer, 1964; Estes et al, 1961; Green and

Table 10

Median and Mean Test Scores on RCPM

RESEARCHER	MEDIAN SCORES	MEAN SCORES
Raven (1947)	15	
Green & Ewert (1955)	17	18.6
Harris et al (1959)		16.24
Experimental	16	15.69
Control	16.5	17.06

Ewert, 1955; Martin and Wiechers, 1954; Stacey and Carleton, 1955). However this finding can be at least partially explained by several factors in the present study:

(1) The small sample size and low variability of scores (Table 7) which make it difficult to obtain a significant correlation.

(2) The subjects in this study may not be representative in that most children were lower middle class, living in an urban area populated largely by people of many different cultures and languages, and attending schools where programs are designed primarily for the ESL pupils. The effect of social environment on language development, and ultimately on test performance has been documented by both Bernstein (1960, 1961, 1966) and Vernon (1969).

(3) The PPVT and RCPM themselves may not be as highly correlated as other verbal and nonverbal measures. No study was found which specifically correlated the PPVT with the RCPM in normal children.

It is extremely difficult to explain the fact that PPVT - November was significantly related to RCPM, while the PPVT - May were not. It would seem that the amount of English that ESL children understand when they enter kindergarten is a unique variable requiring further study.

RESULTS/PHASE 2

Achievement Tests

The mean test scores obtained by the control and experimental groups on the MAT are shown in Table 11. It can be seen that control subjects earned higher mean scores on all subjects, although with the exception of mathematics, the differences seem to be slight. It should be noted that all of these mean scores represent average performance on the MAT.

In order to determine whether the difference between the mean scores obtained by the control and experimental groups is significant, a series of t-tests were performed. Results as shown in Table 12 indicate that there were no significant differences between the experimental and control groups on any of the sub-tests of the MAT. Hypothesis 1/Phase 2 was not confirmed.

Prediction of Achievement

Correlations - Control Subjects

It was hypothesized that both verbal (PPVT) and nonverbal (RCPM) scores would predict achievement in monolingual English subjects. In order to test this hypothesis, a Pearson r was calculated between each of four predictors and the five sub-test scores of the MAT. The predictor variables utilized were PPVT-November, PPVT-May, and RCPM. In addition the difference score between a child's PPVT in November and May was utilized. A summary of these correlations and the significance level of each correlation is given in Table 13. The nonverbal test, the RCPM is significantly correlated with three subtests of the MAT - Word

Table 11

Mean MAT Scores for ESL and Control Groups

ACHIEVEMENT MEASURE	CONTROL	ESL
Word Knowledge	23.4	20.8
Word Analysis	28.9	27.4
Reading	21.3	19.4
Total Reading	45.1	40.2
Total Math	50.8	37.6

Table 12

Comparison of ESL and Control Groups on MAT

GROUP	ACHIEVEMENT MEASURE	t	df
Control/ESL	Word Knowledge	1.54 ns	86
Control/ESL	Word Analysis	.942 ns	86
Control/ESL	Reading	1.02 ns	86
Control/ESL	Total Reading	1.46 ns	86
Control/ESL	Total Math	1.37 ns	86

Table 13

Correlation of Ability and Achievement Measures in Control Group

ACHIEVEMENT MEASURES	MEASURES OF ABILITY			
	PPVT-Nov.	PPVT-May	RCPM	Diff. Nov./May
Word Knowledge	.071 ns	.315 ns	.386*	.392*
Word Analysis	-.132 ns	.063 ns	.286 ns	.281 ns
Reading	.253 ns	.344 ns	.483**	.189 ns
Total Reading	.165 ns	.344 ns	.429*	.306 ns
Total Math	.278 ns	.184 ns	.307 ns	.176 ns

* = $p < .05$

** = $p < .02$

Knowledge, Reading, and Total Reading. No significant relationships were found between the nonverbal measure and Word Analysis and Total Mathematics.

It is a little more difficult to interpret the PPVT scores. The only verbal measure that is significantly correlated with achievement is the difference November/May score and Word Knowledge. Since this is the only verbal score which correlates significantly, there might be reason to suspect that it resulted by chance. The PPVT-November and PPVT-May scores are nonsignificantly correlated in all cases. Hypothesis 2/Phase 2 was largely unconfirmed.

Correlation - ESL Group

It was hypothesized that verbal and nonverbal measures of ability would predict school achievement in ESL children. The Pearson correlation coefficients between each measure of ability (PPVT-November, PPVT-May, RCPM and difference score) and each MAT subtest are presented in Table 14. As shown, verbal scores correlated better with achievement than nonverbal scores for this group. PPVT-November and May scores showed significant (at least at the .05 level) relationships with all subtests of the MAT. However, no significant relationships were found between the difference November/May score and the criteria measures. The nonverbal test, the RCPM is nonsignificantly correlated with Word Knowledge and Total Mathematics, but significantly correlated with Word Analysis, Reading, and Total Reading. Hypothesis 3/Phase 2 is only partially confirmed.

Table 14

Correlation of Ability and Achievement Measures

in Experimental Group

ACHIEVEMENT MEASURES	MEASURES OF ABILITY			
	PPVT-Nov.	PPVT-May	RCPM	Diff. Nov.-May
Word Knowledge	.568****	.400****	.264*	.170 ns
Word Analysis	.403***	.338***	.224 ns	.051 ns
Reading	.401***	.302**	.054 ns	.095 ns
Total Reading	.521****	.377***	.169 ns	-.142 ns
Total Math	.542****	.471****	.377***	-.048 ns

* = $p < .05$

** = $p < .02$

*** = $p < .01$

**** = $p < .001$

Step-Wise Regression Analysis

The amount of English understood by ESL children upon school entrance accounts for 16-32% of the variance in school achievement measures. On the Word Knowledge, Total Reading, and Total Math subtests, the variance accounted for by the PPVT-November ranges from 27-32%. For these subjects, the amount of English understood by ESL children early in kindergarten seems to make some contribution to achievement. The amount of variance accounted for in less global tests such as Word Association (16%) and Reading (16%) is low. It is of considerable interest that the PPVT-November provided the highest correlation with all measures of school achievement in ESL children. For control subjects the RCPM provided the highest correlations in four of five achievement tests. Since the independent variables were all intercorrelated (Table 9), it was decided to perform a step-wise regression analysis for each group in order to determine whether predictions of achievement could be improved by using several independent variables or measures of ability.

Table 15 shows that for ESL subjects relatively little gain is made in predictive validity by adding data of test scores other than the PPVT-November.

Table 16 summarizes the multiple correlations obtained for the control group from the stepwise regression analysis. In the cases of Word Analysis and Mathematics where even the simple correlations were nonsignificant, none of the ability measures either alone or in combination accounts for more than 15% of the variance. With regard

Table 15

Results of Step-wise Regression Analysis

for the Experimental Group

Ability Measures	Predictor Variables	Multiple R	R Square	R Square Change
Word Knowledge	PPVT-Nov.	.568	.322	.322
	RCPM	.575	.330	.008
	PPVT-May	.575	.331	.001
	Diff.(Nov.-May)*			
Word Analysis	PPVT-Nov.	.403	.163	.163
	RCPM	.416	.173	.010
	PPVT-May	.427	.182	.009
	Diff.(Nov.-May)*			
Reading	PPVT-Nov.	.401	.161	.161
	RCPM	.408	.167	.006
	PPVT-May	.410	.168	.001
	Diff.(Nov.-May)*			
Total Reading	PPVT-Nov.	.521	.271	.271
	Diff.(Nov.-May)*	.522	.272	.001
	PPVT-May*			
	RCPM			
Total Math	PPVT-May	.542	.294	.294
	RCPM	.584	.341	.047
	Diff.(Nov.-May)*	.600	.360	.025
	PPVT-May*			

* F level insufficient for further computation

Table 16

Results of Step-wise Regression Analysis

for the Control Group

Ability Measures	Predictor Variables	Multiple R	R Square	R Square Change
Word Knowledge	Diff.(Nov.-May)	.392	.153	.153
	RCPM	.509	.259	.106
	PPVT-Nov.	.520	.270	.011
	PPVT-May*			
Word Analysis	RCPM	.286	.082	.082
	Diff.(Nov.-May)	.371	.137	.056
	PPVT-Nov.	.388	.150	.013
	PPVT-May*			
Reading	RCPM	.483	.234	.234
	PPVT-May	.547	.299	.066
	Diff.(Nov.-May)	.547	.300	.0002
	PPVT-Nov.*			
Total Reading	RCPM	.429	.184	.184
	PPVT-May	.505	.255	.071
	Diff.(Nov.-May)	.521	.272	.016
	PPVT-Nov.*			
Total Math	RCPM	.307	.094	.094
	PPVT-May	.380	.144	.050
	Diff.(Nov.-May)	.381	.145	.0006
	PPVT-Nov.*			

* F level insufficient for further computation

to the prediction of Word Knowledge a combination of difference score (PPVT-May - PPVT-November) and RCPM provides a multiple R of .509. The addition of the other independent variables does not increase prediction. With respect to Reading and Total Reading, the prediction of the Raven Score alone is not improved by the remaining measures of ability.

DISCUSSION/PHASE 2

Achievement Tests

The results of this study indicate that both ESL and monolingual control children achieve at average levels as measured by the MAT at the end of grade one. It would appear that these ESL children have overcome their language deficit as measured by the PPVT in kindergarten. It would have been of great interest to know the PPVT scores of these children at the end of grade one. A second factor which may contribute to the normal achievement of these children is their average performance on a nonverbal task. Phillipus (1968) suggested that in certain instances nonverbal abilities can be used to compensate for language handicap in ESL children. Finally, it is certainly possible that the teachers of these ESL pupils may have had programs which helped the children improve their English to the point where they could earn average MAT scores. This point is especially important when viewed together with the fact that monolingual English children in these classes also achieved at average levels.

These results are somewhat at variance with literature on immigrant children. Studies in England (Ashby et al, 1970; Bhatnagar, 1970; Little et al, 1967; McFie & Thompson, 1970), the United States (Cohen, 1970), and Canada (Ashworth, 1975b; Toronto Board of Education, 1965) all indicate that, in general, the achievement of immigrant children, (even as low as grade one) is well below average. It must be noted that once again the particular sample in this study was defined largely by language factors. Variables such as low socioeconomic level, lack of opportunity for cultural assimilation, short length of residence

probably influenced the results of other studies and were largely absent in the present study. It is still of considerable significance that the ESL children in this study did so well on the achievement test. The particular results in this study support those found in a study of immigrant achievement in Toronto School (Rogers and Wright, 1969). They conducted a longitudinal study of 8695 children from junior or senior kindergarten to grade three. They reported that the ESL children who formed one third of the sample, performed slightly ahead of their monolingual classmates on the MAT by grade three after starting school with language deficits in English.

Prediction of Achievement

It was predicted that both verbal and nonverbal measures of ability would correlate significantly with school achievement in both ESL and control groups. In large measure this hypothesis was not supported. One tended to find that the nonverbal test best predicted the achievement of monolingual subjects, as it was significantly correlated with three MAT subjects (Word Knowledge, Reading and Total Reading). The difference November/May score was the only verbal measure that was significantly correlated with achievement, and as previously noted, this could have occurred by chance. For the ESL group verbal measures were the best predictors of achievement. In all cases PPVT November and PPVT May correlated significantly with achievement. The difference score however was non-significantly correlated in all cases. The nonverbal test, the RCPM, correlated only with the Word Knowledge and the Mathematics sub-tests.

Even when correlations were obtained they tended to be low. For ESL children the highest correlations ranged from .40 - .57, and for the control subjects the highest correlations ranged from .29 - .48. It certainly cannot be concluded that the measures of ability utilized in this study adequately accounted for school achievement.

However it must be noted that the PPVT, the verbal test only taps vocabulary comprehended. It does not measure spoken vocabulary or sentence structure, either spoken or comprehended. It is possible that a more comprehensive test of verbal ability would correlate higher with achievement.

On the other hand the fact that in all cases the PPVT-November was the best predictor for school achievement in ESL subjects in worthy of some consideration. It should also be recalled that the PPVT-November correlated with the RCPM only in the ESL group. It would certainly seem that the amount of English these children comprehend upon entering kindergarten is an important variable. The factors which determine PPVT scores November warrant further investigation.

With regard to the control subjects, the fact that there were two sub-tests that were not predicted by either verbal or nonverbal measures is contrary to literature reviewed (Dokecki et al, 1969; Dudek et al, 1969; Henderson et al, 1969; Hirshoren, 1969; Lessler et al, 1970; Meyers et al, 1968; Mussen et al, 1952; Plant & Southern, 1968; Panther, 1967).

It should be noted that Word Analysis is largely a phonetic decoding task and probably tapped some more specific ability than more global tests such as Reading and Word Knowledge. Several of the factors mentioned previously to explain the lack of correlation between verbal and nonverbal abilities in the control sample are also relevant (small sample size, low variability of scores, non-representative sample, and low correlation between PPVT and RCPM tasks themselves).

A further finding was that when significant r's between ability and achievement were obtained, the RCPM a nonverbal test seemed to be a better predictor than verbal measures.

The literature has not indicated in any consistent fashion whether verbal or nonverbal tasks are better predictors for monolingual subjects. Both verbal and nonverbal measures have been related to school achievement. What is important here is the difference between the control and ESL subjects. The findings for the control group serve to emphasize just how important knowledge of English upon entering school is for the ESL child.

IMPLICATIONS

The results of this study show that although ESL children start kindergarten with a verbal deficit in English, their achievement does not differ significantly from their English language counterparts by grade one. There is reason to expect that this progress will continue through elementary and secondary school. In view of the vast amounts of literature which indicate that immigrant children perform poorly in school, this prognosis is gratifying. It would be of interest to examine the kindergarten and grade one classes of the MCSC to determine the variables which help ESL children achieve without impeding the progress of the monolingual children.

Since the predictor variables in this study accounted for a relatively small amount of the variance in the criterion measure, it is apparent that factors other than verbal and nonverbal skills (as measured by the PPVT and RCPM) influence achievement. An investigation of these factors, which could include motivation, attitude and developmental maturity and the ability to express oneself in a second language would probably increase predictability.

It would also be worthwhile to examine the factors which contribute to the PPVT scores of the ESL group at the beginning of kindergarten, since this test is a good predictor of achievement in these subjects. This score is also correlated with the nonverbal score at the end of kindergarten. Since these results stress the importance of the amount of English understood by a child when he enters kindergarten, it would be extremely

beneficial to raise the level of English comprehension prior to starting kindergarten. This emphasizes the need for prekindergarten classes in areas where there are large numbers of ESL children. Through a year of exposure to English at such an early age, it would be possible to increase their school achievement in later years.

LIMITATIONS

This study was limited in some ways by the current political and educational situation in Quebec, which made it impossible to control two variables more closely. The SES of the control and experimental subjects was assumed to be similar as they lived in the same geographic areas, attended the same schools, and had the same teachers. Tighter control would have been enforced if a questionnaire could have been employed in order to rate the socioeconomic level of each of the subjects, thereby allowing the subjects in both groups to be matched. It would also have been useful to determine the degree of bilingualism of each of the ESL subjects. However in view of existing laws which restrict access to English schools, parents who are first or second generation immigrants would be highly suspicious of questionnaires or extensive testing and information obtained under such circumstances could not be considered reliable.

If this study were to be replicated in the future, certain changes would be made. First, it would be necessary to ascertain which factors influence the amount of English comprehended at the beginning of school (PPVT - November score). These could include amount of English spoken by parents and other relatives, number of

brothers and sisters already attending English school, place of residence, length of residence of the parents in Canada, as well as attitude of the parents toward learning English. Second, the RCPM would be administered to all subjects at the beginning of kindergarten to determine whether the two groups would obtain similar scores at that time, and third, the PPVT would be administered to all subjects at the end of grade one to determine whether the ESL subjects are obtaining average scores after two years of exposure to English. This would help to explain their normal MAT scores at the end of grade one.

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