

FOUR YEAR OBSERVATIONAL DESCRIPTIVE STUDY OF TRIPLETS  
TO ASCERTAIN WHICH MEASURES BEST PREDICT  
SUCCESS IN PRIMARY FRENCH IMMERSION

BY

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## Abstract

This observational study examines the four-year academic and social development of a set of triplets, one girl and two identical boys attending French immersion. The positive effects this programme has on a child's development are reviewed extensively considering also the learning disabled student. Data for the case study included test results from psychoeducational and informal tests and teachers' ratings. The sample size did not permit a statistical analysis to predict Grade 3 performance in French or English. Cognitive skills, motivation (attitudes, personality traits), and not Kindergarten screening results were predictors of the triplets' success in primary French immersion.

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## CHAPTER I

### THE PROBLEM

#### Statement of the Problem

The study focuses on an in-depth assessment and comparison of educational behavior of triplets attending a Canadian French immersion Elementary school over a period of 4 years. Specifically, the case study investigates which of the numerous subscales within the assessment tools administered and related factors best predicts their performance both in French and in English up to the end of Grade 3, the transitional year when English Language Arts becomes part of the curriculum.

#### Background of the Study

The idea of French immersion schools or programmes has become a reality in today's Canadian educational system. In the programme in question students begin to be involved in French immersion at the Kindergarten level (for one-half day) where screening takes place. Then they enter the Grade 1 programme during which all the subjects are taught in the French language. The same language of instruction applies in Grade 2 as well. Grade 3 is considered the transitional year with the formal introduction of English Language Arts, at the rate of two hours per day. The remainder of the time is devoted to the acquisition of content material through instruction in French.

Although much research has been done on the evaluation of French and English skills of large groups of bilingual and immersion students at different grade levels, case studies are practically unknown. With the expansion of such programmes, the researcher felt there was a need to examine intraindividual differences occurring in the processes and issues related to the assessment of French immersion students. In addition, it appears that central to evaluation is the preparation of careful screening procedures and comprehensive evaluating instruments in order to maximize student success in any type of French immersion programme in the primary grades.

The few available instruments in the French language for French immersion such as the French Diagnostic Reading Tests for Early French Immersion Primary Classes (Tourond, 1980) and the French Comprehension Tests, Pre-primer and Primer levels (Barik, 1975), appear not to satisfy the present needs of the programmes mainly because of their inability to evaluate a wide array of foreign language skills (oral reading, etc.), per grade level.

In this study, the researcher has examined not only the screening instruments used on the sample but also the evaluation tools employed in the subsequent years.

#### Questions of the Study

From her own search and inquiries the writer has not found another set of triplets in a Canadian French immersion school at the primary level.

The observational study attempted to provide answers to the following questions:

1. From the screening instruments employed at the Kindergarten level, which instruments were the best predictors of the triplets' success at the end of Grade 3?
2. From the French tests used at the Grade 1 and 2 levels, which ones were the best predictors of the triplets' success at end of Grade 3?
3. Were there sex differences in the predictor variable?
4. What other variables can be used as predictors of success at the end of the primary grades?
5. To what extent specific factors contributed to a diversity in the development of certain academic and social skills from Kindergarten to Grade 3?

#### Definition of Terms

The definition of French immersion is essential for this study. The term bilingual or immersion school is used interchangeably in Canada. However, in this instance, French immersion indicates that children have received 100% of their instruction in French from Kindergarten to Grade 2 whereas in Grade 3, 80% of instruction was given in French, and 20% in English Language Arts. It is noteworthy that the percentage of instruction time allocated to each language varies from one school district to another.

The triplets are made up of two identical twin-boys and one girl

all of whom have followed the aforementioned programme.

### Significance of the Study

There are two significant outcomes of the study. First, the study will provide greater insight to the academic and social development of individual French immersion children.

Secondly, the study may foster more interest in additional research in areas of concern:

- a) the review of specific screening procedures at the moment of entry in a French immersion Kindergarten;
- b) the implementation of reliable performance and diagnostic measures at each grade level particularly in French Language Arts (oral language proficiency; reading and comprehension; writing skills where applicable, etc.).

### Organization of the Thesis

The thesis is organized into four chapters. The problem of the thesis is discussed in Chapter one. In Chapter two, a review of the pertinent literature is presented followed by Chapter three, the four-year academic evaluation of the sample. Finally, Chapter four contains conclusions.

Chapter one discussed the major purpose of the study aimed at evaluating and comparing the academic performance of a unique set of triplets to be found in an elementary French immersion school in Canada.

The next chapter will review the literature related to some problems involved with French immersion programmes.

## CHAPTER II

### REVIEW OF THE LITERATURE

This chapter presents the literature related to the study. The information will be discussed under the following headings: (a) Defining French immersion, (b) Major evaluative studies on French immersion, (c) Studies pertaining to selected factors affecting success in French immersion, and (d) The acquisition of English language skills in primary French immersion.

#### Defining French Immersion

Some confusion exists between the terms "bilingual education" and "French immersion". Partly it may be due to the historical development of Canada.

With the creation of a Canadian nation in 1867 a bilingual country emerged. At that time Francophones were encouraged to learn English and with the influx of additional English-speaking immigrants and groups of different nationalities the "Anglophone" population became dominant. The recognition of two major cultures and languages in Canada was acknowledged by the Royal Commission on Bilingualism and Biculturalism in 1967 (Swain, 1972). Thus "Canadian bilingualism" stressing the importance of language communication in French and English brought about the establishment of a French School (Immersion type) in Toronto in 1962. Under the guidance of W.H. Giles, a neighbourhood school with an enrolment of 16 children was founded. In the

following years the school enrolled children with different abilities and some with special needs.

As Stern (1973a) indicated, "The interest among Anglophone parents to have their children taught effectively in French has enormously increased" (p. 59). After many decades of teaching French as a second language at different grade levels the results of which have clearly been below educators' expectations, an alternative way was found to make second language acquisition more efficient. Between the 1960's and 1970's greater emphasis has been placed on the dissemination of bilingual education in Canada.

How then is bilingual education defined? For Swain (1972), it is "Schooling provided fully or partly in a second language with the object in view of making students proficient in the second language while, at the same time, maintaining and developing their proficiency in the first language and fully guaranteeing their educational development"(p. 1). Stern (1973a) considers bilingual education "As a means of second language learning that appears to owe its success to the fact that it offers the necessary opportunities for the application of the language being learned" (p. 61).

Swain (1980) has provided an up-to-date interpretation of the term: "Immersion means a situation in which children from the same linguistic and cultural background, who have had little or no prior contact with the second language, are put together in a classroom setting in which the second language is used as the medium of instruction" (p. 3).

Although there is a myriad of French immersion programmes, early, late, partial, etc., they feature two common denominators: children of a majority language culture are in attendance, and they do so on their own will. In this study immersion pertains to primary grades.

In summary, the basic difference between a bilingual education, and an immersion program is that in the former, some subjects are taught in an individual's mother tongue, others in the second language and in immersion, the second language is the only language of instruction. Thus, French immersion is not taught, it is a means through which instruction of various subjects is given. In a French immersion Kindergarten for example, it is natural that children speak to their teachers and among themselves in English. In this setting, the teacher uses French only and expects the pupils to repeat oral expressions and build a good French vocabulary. Consequently, these children will more readily give for example colour names, numbers in French than in English without being conscious of it. In Grade 1 however, French is considered the main vehicle of communication through which all interaction takes place.

#### Major Evaluative Studies on French Immersion

##### St. Lambert

The political development surfacing in the province of Québec two decades ago brought about an urge to equip English-speaking children with the necessary tool, a working knowledge of French. In the early sixties the Catholic School Board of Montreal was unable to offer

French instruction to Protestant children. Through much pressure from an organized group of parents the Montreal Protestant School Board finally set up the first Kindergarten class in 1965 (Lambert & Tucker, 1978). When the group of twelve parents met in 1963 to express feelings of being shortchanged and that their children should have the opportunity to become bilingual, the only two researchers who favored the immersion concept were Drs. Lambert and Penfield from McGill University, Montreal. The McGill research team had been enlightened by Vygotsky's (1962) positive transfer of conceptual development from the foreign to the native language and by pioneer works of Peal and Lambert (1962), and Lambert and Anisfeld (1969).

The previously-mentioned English-speaking parents contributed to the creation of a bilingual school in an English-language Protestant elementary school in St. Lambert (not related to Lambert, W.E.), a Montreal suburb. Motivation played an important part in its success.

The so-called St. Lambert experiment is considered to be the most extensively researched bilingual programme in Canada (Swain & Barik, 1978). At its earliest stage, the programme was the subject of numerous investigations (Bruck et al., 1974; Holden, 1975; Lambert & Macnamara, 1969; Lambert & Tucker, 1972; Lambert et al., 1973; etc.).

The summary to follow is based primarily on the works of Lambert and Tucker published in their book "Bilingual Education of Children. The St. Lambert Experiment" (1978).



The Pilot Class entered Kindergarten in September 1965 and a second group (Follow-up Class) started Kindergarten the following fall. The programme for the Experimental children in Kindergarten was conducted by a French teacher from France who would only use this language as a medium of instruction. Materials prepared for native French speakers were the only ones available for this group.

A growing interest toward this Canadian experiment made the Québec educational authorities approach the Language Research Group of McGill University (headed by Professor W.E. Lambert) in 1967, to assess on a yearly basis the original Experimental Class and subsequent classes in the areas of French and English Language Arts, arithmetic, attitudes and intellectual development. At that time there was concern as to the development of a child's native language skills, his intellectual and cognitive functioning, mastery of content in relation to peers in an English stream, and proficiency in the learning of French.

The first target population was two French immersion Kindergarten classes (starting in September 1965 and September 1966) tested yearly until they reached Grades 7 and 8. In the successive years the Grade 1 pupils were tested each spring by a team of research assistants from McGill University (Montreal). It was established that the Experimental Classes' abilities and performance would be compared to that of French-speaking and regular English-speaking pupils. All classes were equated in terms of intelligence and socio-

economic status. No initial screening took place therefore, the population presented a wide range of abilities.

In more specific terms, the assessment consisted of a battery of French/English group and individual tests tapping not only cognitive skills but also verbal, nonverbal IQ as well as attitudes. A description of the tests used in the St. Lambert experiment is provided in Appendix A.

Since it is the first Canadian evaluation of a unique experiment, it was of interest to examine the standings of the Pilot Classes upon completion of Kindergarten and Grade 1:

1. The Experimentals fell behind their English Controls in English word knowledge, word discrimination, and reading skills because they have had no formal instruction of the language. There are, however, indications that the transfer of skills from French to English does take place.

2. The Experimentals can communicate, understand spoken English at the same level as their English Controls, but they made more grammatical errors, were slower at composing a story orally and were less imaginative in their English Associations.

3. In French speaking skills, the Experimentals were lower than the French Controls; however, progress was noted.

4. The Experimentals were at par with the Controls on tests of French discrimination, sentence comprehension, and word order.

5. The Experimentals are able to compute and solve mathematical

problems presented in either language.

6. The bilingual experience does not foster a general sensitivity to a foreign language's sound system.

7. This type of experience has no effect on a child's intelligence.

Since no significant differences in performance between Pilot and Follow-up Experimental Classes at the Grade 1 level were to be found, Lambert and Tucker (1978) considered to follow the proposed format as had been originally planned.

The results from the Grade 2 classes indicated a beneficial enrichment of native-language development. However, English spelling posed a problem. Immersion pupils scored lower than French Controls on the following: receptive vocabulary, listening comprehension, verbal expression when retelling a story (construction, contractions) and grammar (gender, tense and syntax). In mathematics they performed as well as the English Controls.

At the end of Grade 3, the Experimentals were behind their English Controls only in English punctuation and capitalization. They had no particular difficulties on the Test de Rendement en Français (C.E.C.M.: 1969-74) but scored lower in listening comprehension (presumably caused by different testing conditions), overall expressive ability, rhythm, intonation, grammar, decoding descriptive speech of French-speaking children (due to French interaction with adults only). Their receptive vocabulary had already improved to the level of the

French Controls which was one of the most interesting findings. The same performance as in Grade 2 was seen in mathematics. Finally, Experimentals showed imagination and productivity in the same way as either English or French Controls.

At the end of Grade 4, these pupils did not show symptoms of intellectual retardation and there was a good mastery of English language skills. They performed well with French-speaking children in most areas of the French language except in overall expression (retelling stories) and certain grammatical concepts (genders and contraction). They had the ability to master mathematical skills in French and transfer this knowledge to English. Finally, they did not have more sensitivity to foreign language sounds than the monolinguals.

After 5 years, the Lambert team concluded that the acquisition of language skills in both French and English was indeed taking place without negative effects such as poor performance in the mastery of English their mother-tongue, being introduced at a later age and no inhibition shown in second-language learning. Albeit the team was witnessing a slowing down in the acquisition of conceptual French vocabulary and French grammar in Grades 5 and 8 which could have been the result of lack of sufficient exposure to French. The same observation had been made by Edwards (1976) in relation to Grade 3 to 8 pupils in his Ottawa study.

There remains many unknown reasons why immersion pupils make certain types of errors when using French orally; the concern is not the

amount of words a young child is able to generate but rather the correct usage of single words, phrases and longer sentences. In 1976, Spilka wrote that "A complete description of the oral and written production of French immersion students is not yet available" (p. 544). In looking at the level of speech production sentence complexity (embellished sentences), flexibility and grammatical errors, as a measure of second-language acquisition and proficiency, 20 children from the St. Lambert Pilot group (Grade 6) and follow-up group (Grade 5) were compared with native French-speaking Controls. Immersion pupils were slower at expressing themselves orally although they had had 7 years of French; embedded sentences presented a problem (their usage of sentential objects was inferior to Controls) and more grammatical mistakes were noted in the various areas (gender, verbs, etc.).

Past the Grade 6 level, the immersion pupils were making fewer grammatical errors in French but in composition they avoided vocabulary embellishments (Bruck et al., 1974). Comparisons between Grade 4 and 6's grammatical development have been researched by Hamayan, Markman, Pelletier and Tucker (1978), who could not conclude whether Grade 6 Immersion pupils' errors were of a developmental nature or a regression in grammatical control.

As hypothesized, there was much solicitude as to the predictive performance of the samples. However, at the end of the elementary level the obtained results proved that this form of learning a second

language on the contrary promotes the child's overall educational skills. The St. Lambert experiment paved the way to the design of longitudinal studies on the linguistic, intellectual, and attitudinal development of children in French immersion programmes. An academic report of the evaluations of the St. Lambert experiment is given by d'Anglejan and Tucker (1971) who strongly advise to test the generalizability of this approach using children from diverse language and socio-economic backgrounds (lower socio-economic status).

The St. Lambert experiment constituted a popular model to be followed in other immersion programmes. In Kindergarten and Grade 1 all subjects are taught in French. English Language Arts (reading and writing) accompanies the teaching of the remainder of the subjects in French at the Grade 2 level. In Grades 3 and 4, music, art, physical education and language arts are presented in English. For the subsequent years, creative arts and science classes are taught in English.

Also, a part of the project was an interesting study by Cziko, Lambert, Sidoti and Tucker (1978), relating to high school students who appraised the effects such an experiment had on their lives.

In conclusion, the results of paramount importance to the programme are:

1. Children do not sacrifice command of English in any form to their knowledge of the new language;
2. The knowledge of a language appears to be inferior to that

of native speakers, but it is superior to that of pupils who have taken French as a second language;

3. The success is attributed to a strong parental involvement;

4. With confidence this programme functions very well with respect to upper-middle-class children.

### Ottawa

As part of the Bilingual Education Project of the Ontario Institute for Studies in Education (O.I.S.E.), schools offering French immersion under the jurisdiction of the Ottawa Board of Education and the Carleton Board of Education were subject to a yearly evaluation of their pupils over a period of six years (1971-1975). An overview and synthesis of major research projects for the two Boards of Education is offered in Stern and Harley (1976).

The first group of Kindergarten children (Cohort I) was tested until Grade 6 as well as the following Cohorts II, and III (Barik & Swain, 1974a, 1975a, 1975c; Swain & Barik, 1976a, 1976b; Barik & Swain, 1977).

Table 1 provides the time line involved in the evaluation of these pupils.

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Insert Table 1 about here

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In evaluating the performance of Grade 1 to 3 French immersion pupils with that of a regular English programme (20-40 minutes of

Table 1

Ottawa Study: Testing Timetable in the Evaluation of 1970-1976  
 Primary French Immersion Programmes within the Carleton  
 Board of Education and Ottawa Board of Education

Testing schedule	Cohort		
	I	II	III
Spring			
1971	Kindergarten	-	-
1972	Grade 1	Kindergarten	-
1973	Grade 2	Grade 1	Kindergarten
1974	Grade 3	Grade 2	Grade 1
1975	Grade 4	Grade 3	Grade 2
1976	Grade 5	Grade 4	Grade 3
1977	Grade 6	Grade 5	Grade 4

daily French instruction), Swain and Barik (1976a) aimed at establishing if the learning of academic subjects through French instruction would have a harmful effect on first language skills (English), reading, arithmetic, pupil's IQ and general cognitive development, and if there would be a differentiation in French proficiency between immersion and regular French instruction as a subject.

In Grade 1, 520 pupils were administered the Otis-Lennon Mental



Ability Test (Elementary I level, 1967) for an IQ measure, the Metropolitan Achievement Tests (Primary I Battery, 1958), a French Comprehension Test (Kindergarten and Grade 1 levels: Barik, 1975, 1976) and the Test de Rendement en Français (C.E.C.M.: Grade 1 level, 1971-72), the latter only to the French classes.

In Grade 2, the Test de Lecture (O.I.S.E., 1974) was added to the above-mentioned battery. In Grade 3, the IEA (International Association for the Evaluation of Educational Achievement) Listening Test of French as a Foreign Language (Population II - 1970), English and French story writing were administered.

The three-year evaluation showed that French immersion pupils are not negatively affected in their cognitive development since no reliable difference was seen in their IQ scores. Although in Grade 1 French immersion pupils had no English instruction, a transfer of reading skills and mathematics from French to English did occur. These pupils were still behind their English-speaking peers in English Language Arts at the Grade 2 level as well where they had only received one hour of English per day. By the end of Grade 3, except for spelling, they performed at the same level as the Controls.

In discussing the Grade 2-4 evaluation (Barik & Swain, 1975a) conducted in the spring of 1975, similar results as in former studies were obtained. French immersion pupils are behind their "English" peers only in spelling. Upon completion of Grade 4, for the first time, they show a higher level of cognitive ability and reach equiv-

alent level of English and mathematical skills in comparison with their counterparts.

In spite of the fact that the sample had attained a much higher level of French proficiency than their peers learning French as a second language, and had progressed significantly in reading comprehension, they remained behind native speakers in comprehension.

The above reported study replicates the St. Lambert results in terms of generalization at least for other Canadian middle-class populations.

Another significant longitudinal research project funded by the Ontario Ministry of Education was conducted by the University of Ottawa, for the Ottawa Roman Catholic Separate School Board (Edwards & Casserly, 1972a, 1972b, 1973, 1976).

In their study, Edwards and Casserly (1976) compared language proficiency, linguistic development, intelligence, academic achievement and social maturity of two groups of children (immersion and 75 minutes or less of French per day English group) from Kindergarten to Grade 8. To evaluate the students, Edwards (1976) selected similar tests used by Barik and Swain (1976d) in their Toronto study (The Metropolitan Achievement Tests - MAT, 1958, 1970, and The Canadian Tests of Basic Skills, 1968), which were used "To predict whether the immersion students would be capable of transferring to an English language curriculum, if need be, or attend secondary school in English" (p. 138).

Results revealed that a slight difference existed to the advantage of the Grade 1 English group, as seen on the Metropolitan Achievement Tests. Grade 2 immersion pupils made more progress in English with no previous training. It was found that their scores remained lower at the end of Grade 3 when English was first introduced. With a 50 percent English/50 percent French programme in Grade 4 it was found that these students had already obtained higher scores. Superior ratings by these pupils were assigned to story creation and word association (taped individually) as part of assessing oral skills in English.

Commenting on the apparent success deriving from such a programme that seems visible, Edwards (1976) cautions, "One should not conclude from this that the immersion children are perfectly bilingual by the end of Grade Five" (p. 141). He points out that from Grade 3 to 8 less progress was noted in oral as well as written French. It was suggested that some thought should be given in this respect.

In contrast to other large-scale studies, Edwards (1976) seemed to be sensitive to the issue of learning disabilities in French immersion and for this reason proposed three supplementary standardized measures: the Illinois Test of Psycholinguistic Abilities - ITPA (Kirk et al., 1968), the Slingerland Screening Test for Children with Special Learning Disability (1962-74) and the Myklebust Pupil Rating Scale (Myklebust, 1971).

From the results, Edwards and Casserly (1973) identified areas

where Grade 3 Experimentals rated higher than comparison groups of students: (a) auditory reception, (b) auditory association, (c) visual association, (d) verbal expression, (e) auditory closure, (f) visual closure, and, (g) visual sequential memory.

However, no differences were found on visual reception, manual expression, grammatic closure, auditory sequential memory and sound blending. Commenting on the study, the authors state that "Exposure to a French immersion program, far from resulting in a psycholinguistic lag, may, in fact, enhance the development of psycholinguistic skills" (p. 75).

From the results it appears that there was no detrimental effect on the immersion pupils' linguistic development nor an increased incidence of learning disabilities.

Finally, results from the last specialized test (Pupil Rating Scale) administered, revealed that the immersion group appears to be more independent, assertive and less sociable than the Control group. The differences are "Due less to the program than to preselection factors affecting the parents' choice of a second language option for their children" (Edwards & Casserly, 1973, p. 58).

In some studies, Edwards and Casserly (1972a, 1972b, 1973) identified the areas in which the Ottawa research project differed from the St. Lambert experiment. The Ottawa immersion pupils: (a) attended a French and an English Kindergarten, (b) began to receive English Language Arts instruction only in Grade 3, and

(c) were taught Religious studies in English at all grade levels.

### Toronto

Total French immersion groups (Cohort I) of Kindergarten and Grade 1 pupils enrolled in a Toronto school, located in a middle to upper-middle class unilingual English area, are compared to Kindergarten, Grade 1 and 2 pupils receiving 20-40 minutes a day of French as a second language, and to their French-speaking peers (Swain & Barik, 1978). Details on the pilot Kindergarten French immersion programme are included in Sweet (1974).

Swain and Barik's study (1978) concurs with results of other similar studies, namely, that, pupils after completing Kindergarten and Grade 1 in a total French immersion programme, appear not to suffer any setback in mental and cognitive development. As for readiness skills at the Kindergarten level, Cohort I were equally prepared to enter either a regular English programme or a French immersion school. Cohort II (Kindergarten) were weaker on the Metropolitan Readiness Tests (1964) in relation to the previous year's sample (Barik & Swain, 1975b).

Cohort III, another sample of Kindergarten children, were also selected in accordance with the Bilingual Education Project's plan to evaluate three successive cohorts at each grade level (Barik & Swain, 1976a). Interestingly, this group showed a greater degree of readiness than the regular programme group and performed as well on early school achievement tested in English. It was found that these

immersion students had learned more French than their English counterparts but their English skills were poorer at the end of Grade 1 (word knowledge, word discrimination, and reading) because no instruction had taken place. Their level of French had not yet attained the proficiency exhibited by native French-speaking students but they had mastered mathematical concepts presented in French.

In the second half of Grade 2, English Language Arts is introduced at the rate of 25 minutes per day (Barik & Swain, 1976d). Only in spelling did immersion pupils rate lower than regular programme pupils (Metropolitan Achievement Test, 1970) by less than one year. Since mathematics constitutes another area where immersion pupils are at par with their counterparts if need be, a transfer into a regular programme in Grade 3 should be feasible.

In the final report of the Toronto study at the Grade 3 level (Barik & Swain, 1976e), no analysis is provided on the writing skills in French and English. At that time an instructional change occurred; 2/3 of instruction was conducted in French, and 1/3 in English. It was noted that some differences occurring in the IQ data of the same cohort over the last two years may have only been attributed to variations in the composition of the groups tested, and not to the fact that these pupils were in French immersion. Also, the report indicates that the lag Cohort I was exhibiting in English spelling (Grade 2) is not so marked at the Grade 3 level.

Stanine 4 was obtained by Grades 2 and 3 Toronto immersion pupils on the Test de Rendement en Français (C.E.C.M.: 1973-74) "Indicating a level of performance equivalent to that of from 23% - 39% of native French-speaking pupils of the same grade level in Montreal" (Barik & Swain, 1976e, p. 40).

The hypothesis that immersion pupils are able to perform equivalently in French in a bilingual as well as in a unilingual milieu was accepted in the study.

In the 1978 Barik and Swain study cited earlier, on-going comparisons were made between the Toronto and Ottawa immersion pupils functioning in two different settings, with students learning French as a foreign language. Approximately the same results have been obtained upon examination of these groups though in the Toronto evaluation, the Canadian Tests of Basic Skills (1968) and IEA Listening Test of French as a Foreign Language (1970), were not included in contrast to the Ottawa studies (Edwards & Casserly, 1972a, 1972b).

Cohort III scored slightly lower than the Ottawa immersion pupils who are closer to the French influence.

With greater time allotted to French, the Toronto immersion students were slightly ahead of their Ottawa peers in Grade 2 (French comprehension and reading) who had just begun to receive 60 minutes of French per day. As to French comprehension and reading (where applicable) they have been equalled at all grade levels by

both Toronto and Ottawa immersion pupils.

Lastly, a different study by Tarone, Frauenfelder, and Selinker (1976) resulted from a long-term data collection process related to the longitudinal Toronto studies in Grades 1 and 2 French immersion. The authors devised a system for identifying and interpreting patterns of stability and instability in the learners' interlanguage over time. Stability is seen in individuals who have acquired competence in the language, whereas instability refers to individuals who are still learning the language. It is ascertained that this theoretical model may reflect on the appropriateness of teacher intervention.

### Elgin

The implementation of a balanced bilingual instruction (50% in French: morning; 50% in English: afternoon) seemed to be a novelty compared with total French immersion. In Grades 1, 2, 3 and 4, mathematics, music, and French Language Arts (French reading and composition starting in Grade 2) are taught in French and subjects such as Language Arts (English reading and writing are taught in Grade 1), physical education, science, social studies, art and health, in English.

The Elgin County Board of Education initiated a yearly evaluation of their bilingual programme from Grade 1 to Grade 6. Findings of the Grade 1 to 4 studies (Barik & Swain, 1974b, 1976c) are reported here, whereas Grade 5 and 6 evaluations are given elsewhere (Barik et al., 1977; Barik & Swain, 1978).



The sample for the primary grade studies was made up of bilingual pupils who were compared to regular English programme children, total French immersion (from Kindergarten), and native-speaking pupils (where applicable) from Ottawa and Toronto. Results revealed that there were no differences between groups in terms of mental ability (IQ) across all grades. Thus, the programme did not affect the child's cognitive development. The same level of acquisition is reached at all levels in arithmetic which is taught in French (tests were administered in English).

In English language skills it was unusual to see the partial immersion pupils perform as well as the regular English pupils in Grade 1 only. In Grade 2, however, they were behind the total immersion pupils and the regular English pupils in reading. It was noted that they were still lagging in Grade 3, but at par with regular English pupils in word discrimination and reading comprehension. However, by Grade 4, results appeared to be more encouraging since no reliable difference was seen.

As for French skills in the first year, partial immersion pupils acquired the same level as total immersion pupils and pupils taking French as a second language from Kindergarten to Grade 1, 20-40 minutes per day. In the second grade, partial immersion pupils scored lower than total immersion pupils (Grade 1), as well as native-speaking Grade 1 students, and better than pupils taking French as a second language in Grades 1 and 2 who had taken French since Kinder-

garten. Improvement was evident in Grade 3 thus considered a "breakthrough" in French comprehension and interpreted by a higher maturity level, permitting the handling of more complex tasks. The partial immersion pupils were comparable to Grade 1 total immersion pupils, with  $1\frac{1}{4}$  years of French instruction and better than pupils taking French as a second language in Grades 1 and 2. Although the Grade 4 scores in French comprehension were still below total immersion pupils, reading scores were better than total immersion pupils.

The above-mentioned differences more clearly evidenced in Grades 3 and 4 were probably due to organizational and pedagogical factors. It should be noted that in Grades 1 and 2 the same teacher would teach in both languages. It may be that the mixing of languages would tend to bring about more confusion for the pupils. Another relevant point to be considered is the possibility of teaching reading in the second language first may have resulted in higher performance. In the study, exposure to French took place in Grade 1 and not in Kindergarten as it has been the case in other immersion programmes. On the other hand, parents' involvement is greater when both languages are taught at the same time. Finally, the authors hypothesize that the problems encountered in partial immersion pupils may only be temporary ones. Tests used in the Elgin study are found in Appendix B.

### Montreal

The Protestant School Board of Greater Montreal (PSBGM) was the first in developing early, late and partial French immersion programmes in Canada. After a decade, Genesee (1979) presents an overview in the assessment of these programmes by the PSBGM.

In the design of the longitudinal evaluation, IQ and socio-economic status had been equated and immersion pupils' performance was compared with carefully matched English and French-speaking Controls. French and English standardized language and achievement tests and some designed by the Protestant School Board of Greater Montreal, measured different types of skills (Genesee et al., 1977).

Genesee (1979) referring to the 6-year evaluation (Grade 1 to 6) of a French immersion programme concurs with other researchers (Lambert & Tucker, 1972), that in early immersion (Kindergarten, Grade 1 and 2), a deficit in English literacy is to be found considering the lack of formal instruction. Good readers in French are generally able to decode English material earlier on their own. During the two-year period (Grade 3 to 5), spelling is not yet at grade level but past the critical phase, immersion pupils are at par with Control students on all measures, including writing.

Genesee also found that "Below-average students in immersion are able to achieve comparable levels of competence in their first language" (Genesee, 1978a, p. 48). The same seemed to apply for mathematics achievement when contrasted with below-average students in the

English programme. The majority of immersion pupils acquires the same competence as their English peers in mathematics.

In addition, it was found that these pupils have superior knowledge of the French language over their English Controls. However, only in listening and reading comprehension are they at par with French Control students. "Discrete-point" language skills (oral expression and grammar) are weaker than decoding skills. In all, they have acquired a practical knowledge of the language and are less inhibited and more creative in using the language than students who have followed the regular French-as-a-second-language programme.

The Grade 7 late immersion and the four comparative evaluations of the early and late immersion programmes for the Protestant School Board of Greater Montreal are briefly outlined in Genesee's overview (1979) and earlier in Stanley (1974).

#### Coquitlam

In the British Columbia context, there is an agreement between the Federal and Provincial government to provide financial funds for the promotion of bilingual education. The structure of French immersion programmes differs from previously mentioned in that students do not have the same opportunity as their peers in Québec to use French since approximately 99% of the children come from homes where only English is spoken.

Bilingual education at the elementary level was first introduced in the Coquitlam school district of British Columbia in 1968 (Shapson

& Kaufman, 1978). As a result of Wilton's (1974) visits to St. Lambert and Montreal, the Coquitlam Board of Education decided to introduce, in September 1973, a 100% French Kindergarten and a Grade 1 class with one more class added each year. It can be said that a true French immersion programme had been set up.

A report of the first evaluation of the Coquitlam programme 1973-74 school year for Kindergarten and Grade 1 classes was prepared by Kaufman and Wilton (1975). The report discusses the study that compared immersion classes to English Control classes in terms of basic skills, mental ability and French comprehension. The results of the first study in British Columbia do not differ from the ones presented in other studies such as the Toronto study (Swain & Barik, 1978). Both evaluations indicated that after one year immersion students in Kindergarten are as prepared as their English peers, to enrol into a Grade 1 class (French immersion or regular English class). In French comprehension at both grade levels, they were not only better than their English counterparts but superior to children involved in the Ottawa study (Swain & Barik, 1976a) who had been instructed in French for 20-40 minutes per day. Also, cognitive development did not regress because of the programme. As for English language skills, this group who had only received instruction in French could not match its peers in word recognition, word discrimination and reading, but performed better in mathematics. From one year to the other, these immersion pupils were becoming more proficient in

the French language.

A longitudinal (Shapson & Kaufman, 1978) study was carried out to evaluate the academic performance of two successive cohorts of students during the first four years of schooling (1972-1977). Cohort I received 80% of French instruction in Kindergarten and Grade 2, whereas Cohort II had 100% of French until Grade 3 when English was introduced for the first time. Results obtained on the Canadian Cognitive Abilities Test (1974), showed no significant differences between French immersion and English stream pupils. Although basic English language skills were low for both Cohorts, the transfer of French skills to English skills increased from one year to another and by the end of Grade 3 immersion pupils had already attained the same level of English language skills as their English counterparts.

For comparison, in Kindergarten and Grade 1, immersion pupils performed favorably at the level of their peers in Ottawa (Swain & Barik, 1976a) and Toronto (Barik & Swain, 1975b). In Grades 2 and 3, Cohort II obtained higher scores than Cohort I in French which was probably due to a greater exposure to the language. Interestingly, the Grade 3, Cohort II pupils, were compared with Grade 7 Coquitlam students who were in their third year of learning French 20 minutes a day (core French programme). The B.C. French Comprehension Test (Experimental version, 1976-77) "Developed to assess simple basic French language skills for students who previously had at least two years of core French" (p. 594), served to evaluate the Grade 3's

vocabulary and comprehension. It was found that the immersion pupils, though much younger, had attained a higher level of proficiency in the French language.

Since 1973, a B.C. French study is conducted on a regular basis by Simon Fraser University staff in order to evaluate the proficiency level of French attained by children enrolled in this type of programme. Included in the evaluation is the development of English language skills. During the 1976-77 academic year, 25 participating school districts were subject to a detailed study (B.C. French study) funded jointly by the British Columbia Ministry of Education and the Secretary of State. A more recent evaluation of an early immersion programme in British Columbia has been conducted by Shapson and Day (1982).

The success of this type of programme in the west, paved the way to the creation of a significant number of immersion classes located in the most remote places of British Columbia, the Yukon and even the Northwest Territories.

#### Studies Pertaining to Selected Factors Affecting

##### Success in French Immersion Classrooms

##### Intelligence

A literature review revealed that few number of studies have dealt specifically with the effects French language immersion programmes have on intelligence (Samuels & Griffore, 1979).

Whorfian's relativism that there are two different sorts of

bilinguals, coordinate (late bilingualism: learning a second language after school age, Segalowitz & Lambert, 1969; Stafford, 1968) and compound (early bilingualism: acquiring both languages before going to school) are unjustifiable to Macnamara (1970). In this context he ties in language acquisition as the integration of prior nonlinguistic growth with linguistic functioning showing "That the majority of linguistic universals are due to certain essential features of human intelligence" (p. 33); in like manner any language can be translated into another.

His key issue is, does bilingualism affect IQ? Language knowledge as one among many factors, can influence IQ but not necessarily intelligence. In his 1966 study, Macnamara recognized the poor command of bilinguals' school language compared to unilinguals as reflected on lower verbal IQ but not nonverbal IQ. From this he derives his belief that once bilinguals acquire adequate language skills "There is no reason to believe that bilingualism of itself should affect school progress in any way, adversely or beneficially" (p. 34). Even Cummins (1978b) emphasized that "Bilingualism promotes an analytic orientation to both linguistic and perceptual structures" (p. 872).

Peal and Lambert (1962), in comparing the intelligence levels, teachers' ratings and attitudes between a group of 89 bilingual 10-year-old children and 75 monolingual 10-year-olds in 6 Francophone schools in Montreal found that "Bilinguals performed significantly



better than the monolinguals on both verbal and non-verbal intelligence tests" (p. 22) and in general are better in academic achievement. Thus bilingualism seemed to have a positive effect on the intellectual development of children. The purpose of this study was to examine "The effects of bilingualism on the intellectual functioning of children and to explore the relations between bilingualism, school achievement, and students' attitudes to the second language community" (p. 7), and, finally, to find out where a bilingual person fell behind.

Lambert and Anisfeld (1969) in a follow-up study from the earlier Peal and Lambert experiment of 1962, interpreted that bilingual children score better than monolinguals on intelligence measures either because they are already of higher intelligence and tend to become bilingual or bilingual education enhances general intelligence, or both. They contradicted Macnamara (1966) who considered the 1962 experiment questionable, in view of the sample being biased with more intelligent subjects from the start and on this account, "He suggests that it is more reasonable to argue that the more intelligent children become bilingual than it is to argue that becoming bilingual influences intellectual development" (Lambert & Anisfeld, 1969, p. 126).

In a later study when Peal and Lambert (1967) tested a group of unilingual children carefully matched for equal intelligence scores and socio-economic levels, the bilinguals possessing a greater mental flexibility, were superior. The authors quote earlier research as

failing to adjust for socio-economic status and other variables thus creating a false image. Until that time, the negative effects of bilingual education had been stressed in research studies (Saer, 1923; Pintner, 1932; Jones & Stewart, 1951). During this early period, there were already studies supporting the favorable effects of bilingualism on intelligence (Davies & Hughes, 1927; Stark, 1940) and some that found no effect of bilingualism on intelligence (Hill, 1936; Pintner & Arsenian, 1937).

In the late sixties, Lambert and Macnamara (1969) examined the language-learning capacity (English and French), mathematics and general intelligence of Grade 1 French immersion children in comparison with two English Controls and one French class. All classes were equated on intelligence and socio-economic status. Testing for IQ (Raven's Progressive Matrices, 1956) took place during the first and last month of schooling in order to determine the effect a year's training in French, would have on Experimentals' measured intelligence as suggested (Peal & Lambert, 1962; Anisfeld & Lambert, 1964). Initially, no statistically reliable differences among groups were shown, but in June (last month of the year) bilinguals scored lower than one English Control only. Socio-economic results from interviews revealed reliable group differences. One English Control class scored the highest on the emphasis placed on education and the French Control the lowest. The other English Controls were the highest and French Controls the lowest on the quality of linguistic environment.

The second report (Lambert et al., 1970) constitutes a continuity of the Lambert and Macnamara's 1969 study mentioned earlier. At present, the performance of a new set of Grade 1 students and that of the Pilot Class placed now in Grade 2 is described. The authors' main purpose of evaluating another Grade 1 class was "To assess the stability and generalizability of last year's results and...to re-examine the effects, on the linguistic and mental development of first grade children, of two years' schooling (Kindergarten and Grade 1) conducted exclusively in a foreign language" (p. 230). As in the previous year, two different English classes and a French class served as Controls to the bilingual Experimental Class. Certain modifications were made in the administration of tests to the Follow-up Classes such as the addition to the same battery of tests given the preceeding year, of an intelligence test (Lorge-Thorndike Intelligence Scale, 1959), the Peabody Picture Vocabulary Test (Dunn, 1959) and Listening Comprehension; the last two in both English and French.

Follow-up Grade 1 Experimentals conversely to the Pilot Class (Grade 1), show neither intellectual retardation nor intellectual advantage (Raven's Matrices Test, 1958). No group differences were seen on the Lorge-Thorndike measure at the end of the year..

For the first time, the Pilot Class at Grade 2 received daily instruction of English Language Arts (25 minutes) in the same way given to English stream students.

The same format as in previous evaluations was maintained con-

sidering a difference in grade level. Students were tested for reading skills, spelling and vocabulary in English and the same measures were utilized. Results revealed that after only a year of limited formal training in English, the Experimental group achieved equivalent scores to the Control groups. It is not known if maturation or some other factors could have caused such a rapid development of skills. Whether tested in French or English, Experimental children ranked as well as the Controls. There was no evidence of intellectual deficit or advantage for this group. Finally, overall performance results have not been affected by changes of modes of testing, analysis, teachers and methods of instruction.

Genesee (1976b) raised the issue of the suitability of immersion programmes for children with low IQ (low academic ability). In that he saw no correlation between IQ and the acquisition of speaking and listening comprehension. As to earlier studies stated, they regarded intelligence as a dependent variable, the influence of bilingualism on general intelligence. Whereas today, it has become an independent variable, the influence of general intelligence (IQ level) on performance in French immersion.

Since oral (verbal) skills are essential, the higher the IQ, the higher the performance on tests of verbal skills, and the demands of an immersion programme are met (high correlation between IQ and performance on tests of verbal skills). Low IQ is no longer considered an impediment in successfully learning a second language (Gardner &

Lambert, 1972; Dockrell & Brosseau, 1967). Other variables such as attitudes and motivation have attenuated the importance of intellectual functioning when academic demands of a second language diminish.

Furthermore, Genesee discovered that below-average students can acquire oral (listening and speaking skills) language skills to the same extent as average or above-average students. It appears that the comprehension of a foreign language is not related to a level of IQ (the reverse happens when second language academic skills are considered). He suggests that a non-academic approach to teaching French can meet the needs of a greater population with a wide range of abilities (including below-average students) and consequently the mother tongue will not suffer from an immersion programme.

From her research, Swain (1975) found no correlation between IQ and measurements in English, French, and mathematics of children from Kindergarten to Grade 2. She summarizes that "The correlational analyses of the IQ and achievement data do not support the notion that IQ plays a more significant role in the Immersion program than in a regular English program. Furthermore, learning to understand a second language is of all skills measured, the least dependent on IQ" (p. 15). As stated by Mackey (1971), the bilingual learning situation is influenced by a constellation of cognitive, attitudinal, social and educational factors.

Macnamara, Edwards, and Bain (1978) approached the interrelationship between IQ and a bilingual education by issuing such a statement:

"There is very little evidence that would suggest that having a bilingual education automatically results in someone having a greater mental ability. But, by the same token, there is very little evidence that suggests that having a bilingual education has a detrimental effect on the intellectual capabilities. If there is a reason for acquiring the second language it is social intercourse or opportunity, it's not because of intellectual capabilities" (p. 893).

A definite conclusion was arrived by Trites (1981) who stated that at the Kindergarten level, academic achievement in reading, spelling, and arithmetic measures in English was best predicted by IQ. Besides, IQ was of greater importance when predicting achievement on measures in the English language than when predicting achievement in French. However, no further explanation was provided on this issue.

#### Cognitive Development

Some studies have attempted to evaluate the area of cognition as it relates to bilingual education. From the literature surveyed it appears that early preschool bilingualism whether it be French or another second language stimulates children's cognitive development and enhances their self-concept. In his study, Oren (1981) administered three tests to forty-nine preschool bilingual (Hebrew and English) and monolingual children: Reading readiness questionnaire (Lee-Clark Reading Readiness Test, 1951); object constancy test; naming and relabeling tests. The bilingual group surpassed the other

subjects in the naming and relabeling tasks. In addition the group had attained a higher degree of proficiency in differentiating objects and their corresponding symbols (Piaget's object constancy theory predicting the ability to name and label) as a result of early exposure to two different coding systems.

A negative relationship between bilingualism and cognition was seen in Macnamara's work (1966). Previous studies have involved subjects from lower socio-economic status whereas later studies have focused on subjects from middle and upper-class. This may have had an impact on the IQ scores obtained when comparing groups. Results from Macnamara's study concluded on the basis of an immersion study conducted in Ireland found that there is a "balance effect" in language learning (children learn a second language: L2 at the cost of their first language: L1) when greater emphasis is placed on the acquisition of a second language (early French immersion) and also, when instruction is given through a second language at a mediocre level results related to content will be poor.

But in carrying out more accurate research studies, Lambert (1975) referred to "additiveness" as a process in which subjects who are now more "balanced" bilinguals (same degree of competence in both languages) acquire a high level of second language without losing their level of their first language.

According to Cummins (1979b), a minimal level of competence in first language ("threshold hypothesis") i.e. the required cognitive-

linguistic skills, is necessary for positive results in second language. The data is based on samples of minority children whose literacy skills are poor. He identified that the primary predictors of success in second language acquisition for the child, are his/her cognitive and linguistic abilities. He concluded earlier (1977) that "There may be a threshold level of linguistic competence which a bilingual child must attain both in order to avoid cognitive deficits and allow the potentially beneficial aspects of becoming bilingual to influence his cognitive growth. If a child in an Immersion program attains only a very low level of competence in his second language, his interaction through that language with an increasingly symbolic environment is unlikely to optimally promote his cognitive and academic progress" (p. 10).

Cummins' threshold hypothesis was being supported by Barik and Swain in their Ottawa and Toronto studies (1976d, 1976e) in which the effects of bilingualism on cognitive development have been reaffirmed.

In a unique study, Maurice and Roy (1976) dealt with the measurement of bilingualism (French and English languages in French immersion) using Hunt's Terminable-Unit (T-unit), and its implications. French and English spoken and written languages were evaluated on a sample of Grade 2, 4 and 6 pupils in terms of the number of words produced, T-units, and linguistic maturity, mean T-unit length. The speech samples were based on a story told in French and English, after seeing



a film. A written composition was then required for the two intermediate grade levels. Obtained results suggest that a transfer of linguistic ability is feasible once a maturity level has been reached; also, the high results in French (increased mean length T-units) may be due to motivation rather than competence. The authors do admit that it is indeed difficult to make an accurate linguistic measure since concepts can be expressed in a variety of ways.

Downing (1978) looked at first language acquisition before considering a second language by referring to a "cognitive confusion" which is bound to occur when new concepts (i.e. L2 phonemes in reading) are unknown to the child in L1. In the Canadian setting particularly, parents enrol their children in a French immersion programme voluntarily. One would be inclined to see the affective and motivation variables become high as "To overcome the cognitive confusion produced by the mismatch between the L1 of past experience and the L2 of instruction" (p. 335). In Downing's judgment, this positive affect does not eliminate cognitive confusion (features of speech and writing) nor the difficulty in associating reading in L2 with their past experience of L1. Better progress is noted when young children are initially taught in their first language, however, since the affective variable is significant in immersion it may in some way overstep the cognitive deficits and help explain the reason instruction can be given in L2 at first. In short, Downing does not consider past experiments on Canadian French immersion to be too

reliable since the samples are above average in intelligence and in socio-economic status.

Positive results in introducing a foreign language as stated by Stern (1973a) can even entail positive effects on cognitive processes. Landry (1972) even hypothesized fluency and divergent thinking tasks of children learning a second language at the elementary school level. As an example, the St. Lambert Experiment proved that divergent thinking ability was even superior for the primary immersion pupils in comparison with the Controls (Bruck et al., 1974; Lambert et al., 1973) and this may have been due to the fact that the special immersion setting influences the development of certain cognitive processes.

Lambert and Tucker (1978) related to four cognitive happenings, not fully understood to this day. The first cognitive process called "incipient contrastive linguistics" refers to the comparison (finding similarities) and contrasting (finding differences) of two linguistic codes starting with translation and ultimately ending by building vocabulary, as seen from the pupils' performance on English tests of vocabulary. Linguistic "detective" skills, as the second process, were developing also spontaneously. Children were indeed attending to words, meanings and linguistic regularities and obtained better-than-expected scores in word discrimination, listening, comprehension, and reading in French. In the third process called the "transfer of higher-order skills of reading and computation"

acquired through the medium of French only, the school-learned concepts develop before the everyday concepts. This belief follows closely with Vygotsky's (1962) work showing that "A child's strong points in a foreign language are his weak points in his native language, and vice versa" (pp. 109-110).

At the initial stage of learning a foreign language, the child is already conscious of the grammatical forms and consequently develops an awareness of the linguistic operations in his native language. The fourth and last cognitive process identifies strategies these children use to develop expressive competence in French. The pupils have greater ease to read and invent a story than retell a story they have heard because the written form is a dependable frame of reference.

In French verbal skills, immersion children seem to use non-linguistic strategies to make the content clear as recognized by Bruck, Lambert, and Tucker (1976b). The authors documented the effects French immersion has had on children's cognitive development. In a longitudinal study that covered seven years, each spring Pilot, Follow-up and Control Classes were evaluated. Results showed no signs of cognitive difficulty when comparing groups, but Grade 6 Experimentals scored significantly higher on measures of cognitive flexibility (Raven's Standard Progressive Matrices, 1958; Lorge-Thorndike Intelligence Test, Level 3, Form A, 1954-66). Expressive competence was evaluated on the basis of a film children had seen.

Experimentals told the story four times: to a classmate in French and English, and to an adult in both languages. The immersion pupils presented fewer subdetails eliminating possible embellishments in the language the French Controls would presumably have brought in. Experimentals' communicative style differed from English Controls when speaking to a peer and to an adult primarily because they "Have definitely been educated in a more adult-oriented classroom than the Controls since for them the teacher is the main linguistic source" (p. 23).

It follows that French Experimentals speak more to adults than to peers whereas the reverse is observed in the French Control group who additionally would tell different types of stories to peers and adults.

Research in the earlier grades of French immersion seemed to have focused its attention on the treatment effect on the child's cognitive development and academic achievement. As can be seen, no evidence of such an effect was demonstrated in Barik, Swain and McTavish (1974) evaluation of Kindergarten and Grade 1 pupils (Experimentals and English stream students). Both groups showed equal pre-reading skills, in other words, immersion pupils were as ready as regular programme pupils to enter an English Grade 1 class. In spite of the fact that the Experimentals were behind in English when tested in Grade 1, they were already capable of making the transfer of reading and arithmetic skills from French to English. The Exper-

imentals had supremacy in French over children learning the language as a subject though not in regard to their native French-speaking peers.

Reference is made to Neufeld (1974) who emphasized that bilingual children are not necessarily superior to their peers in terms of problem solving ability, concept learning, abstract reasoning and general academic achievement. Neufeld's research in this field suggests one would see the positive effects of bilingualism and all it entails (attitudes and feelings towards the new language philosophy). He finds that supportive data as to the increase of cognitive and verbal skills as a result of learning a foreign language were not sufficient.

Some researchers have designed studies that have focused on both IQ and cognitive development of students in immersion classes. Findings of a longitudinal study of bilingual and cognitive development by Barik and Swain (1976b), were presented at the Annual Conference of the Canadian Society for the Study on Education, Laval, Quebec in June 1976. For a period of five years, a sample of French immersion and regular English pupils (Kindergarten to Grade 7) from Toronto and Ottawa (French as a second language was only taught for a short daily period), were administered IQ tests (Canadian Cognitive Abilities Test - Nonverbal Battery CCAT, 1974 for Group IV, and the Otis-Lennon Mental Ability Test, 1967, in the primary grades). Yearly IQ differences were not seen between both groups though the immersion group scored

higher over the 5-year period (through repeated measures analysis), thus the positive relationships existing between bilingualism and cognitive functioning were questioned.

#### Time of Exposure to Second Language Training

The question often asked is: When is the best time for a child to learn a foreign language or be placed in a French immersion programme?

From the literature it seems that learning French is best in: (a) an early French immersion programme, or (b) a late French immersion programme, or (c) also in some studies, the age factor or grade level was irrelevant.

To date studies on French immersion have not looked in depth at the advantages of well developed first-language skills when learning a second language at an early age. Among the earlier studies on French English bilingualism, MacKay (1967) recognized that when using a less familiar language as a medium of instruction a sudden shift from one language to another may cause language interference. To some extent this was evident in the St. Lambert study.

Also, no empirical support for the "optimal age" theory was found by Burstall, Jamieson, Cohen and Hargreaves (1974) in a ten-year longitudinal study of 18,000 British primary-school children with early training in French as a second language. In a literature review, Stern (1982) looked at core French (programmes of French as a second language taught as a subject) as opposed to immersion French

in terms of starting grade, instructional time and instructional materials. Starting age is less important than sometimes argued, neither starting age nor grade level should outweigh such considerations as the appropriateness of the curriculum, the continuity of the instruction, the availability of appropriate staff, and the provision of suitable and adequate learning materials.

Results obtained from a comparative study by Cziko, Holobow, and Lambert (1977), that evaluated the effects of early and Grade 7 immersion programmes on English and French language skills of students at the end of Grade 7 showed that early immersion has indeed a greater impact on the development of French language skills than does seventh grade immersion, but that the former fostered the development of speaking skills.

Penfield's view (1965) that a child can best learn a second language before the age of twelve to fourteen years (i.e. before the functional connections of the uncommitted cortex become fixed) had originally been used in support of early immersion. Weininger (1982) states Penfield's "Hypothesis of a 'switch mechanism' operating between the two cerebral hemispheres enabling the child to turn from one language to the other without confusion, translation, or accent seems to provide a physiological parallel to the theoretical concept of co-ordinate bilingualism" (p. 21). The early stage for second-language learning (optimal age) remained crucial. However, with new findings relative to the language capacity of the right hemisphere

and the concept of innate language ability partially created by the child (Chomsky, 1959), Penfield's model seems to have been ignored for the time being.

Macnamara (1976) contradicted earlier studies (Penfield & Roberts, 1959; Lenneberg, 1967) in that the functions of a second language in a normal child or adult are located in the same areas as the functions of the first language. It seems critical for the nativists (Penfield, 1959; Lenneberg, 1967) to take advantage of the child's neural plasticity of the brain and the development of cerebral, hemispheric lateralization. Immature learners (younger learners) may need more time to learn a new language because they must also acquire essential linguistic perceptual, motor, social and intellectual skills. The more "mature" foreign language learner has his cognitive system already organized.

As Taylor (1974) said, a bilingual child "Is building his conceptual network at the same time as he is learning his languages" (p. 116). In the cognitive network, the child builds labels and syntactic programmes corresponding to both languages. Also it was found that "A person who becomes bilingual as an infant should have a greater opportunity to be truly creative than one whose bilingualism was acquired later" (p. 117).

Macnamara (1975) did believe that learning a second language depends on the age and the setting in that a young child encounters a different learning experience when he goes to school since he is



immersed and he/she is able to learn a second language in the same fashion as his mother tongue. Similarly, MacNab (1981) also discovered that "Second language learning is much like first language learning" (p. 42). He explains the two overlapping phases in second language learning: first, the learning of vocabulary and structures (already known in one's first language) and second, the development of complex ideas and understandings (similar to first language learning). The speed of learning depends on the maturation level and ability.

Anderson, Wallace Past and Cude Past (1978) provide evidence that young children are able to learn two languages in the same way that the unilingual child learns one. The authors relate to the early acquisition of two languages in individual case studies (Söderbergh, 1977; Past A., 1976; Past K., 1976; Christian, 1976 & 1977). At a very early age, subjects achieved success not only in oral expression but also in reading. The examples cited in these studies "Give some insight into the tremendous language-learning capabilities of young children and the great pleasure they derive from being able to develop these capabilities through reading" (p. 159).

There were however, a number of studies strongly supporting the early immersion option as being the most beneficial to the child. The efficacy of such a programme in various countries is reported by Morgan (1982). It seems therefore obvious that "harmful" effects of early exposure to a second language proposed by Jakobovits (1972)

can no longer hold true.

Schumann (1975) considered that there exist individual differences in learning a foreign language. Among the many factors contributing to the success in second language acquisition, he discusses the problem of age in that the mastery can occur at a young age as well as in adulthood. He refers to Penfield and Roberts (1959) who maintained that once cortical lateralization has been completed in the left cerebral cortex (language development) at puberty, adults find it more difficult to learn a second language. Social and psychological maturation may also affect the development of bilingual skills among the adult learner. Children on the contrary are not threatened by the sounds of a different language. They imitate their peers, and can be strongly motivated by the community (school, parents, etc.) where more opportunities to learn and use the target language are being offered. Since younger learners do not feel inhibited they have a more positive attitude toward learning a second language (Gardner & Lambert, 1972). However, it is noted that motivated adolescents can become more efficient learners of a foreign language.

It can be hypothesized that the reason why early immersion students are more proficient in French than the late-starters may be considered in terms of the duration factor rather than the starting age.

Genesee (1978b) informs that research to this day focuses on the comparison of age in second language acquisition in terms of English

as a second language and/or French as a second language. Researchers have been in favor of beginning instruction earlier for cognitive, neuropsychological and affective reasons by emphasizing innate language learning mechanisms (Chomsky, 1972; McNeill, 1970) or cognitive/linguistic predispositions possessed by all children which facilitate the natural acquisition of a second language. However, in a study in which a French cloze test was used to evaluate the lead group of students in early, partial and late immersion programmes, Swain (1978) draws a tentative conclusion in favor of the early total immersion programme. It appears that more advantages seemed to derive from early acquisition of a foreign language (Cummins, 1978a; Swain & Lapkin, 1981) since the initial language barrier is less noticeable and L2 communicational skills develop more efficiently.

As Swain points out in the Canadian context "The early immersion is no longer in the experimental stage. It is an innovative programme for the teaching of French as a second language which has met with considerable success" (1976b, p. 187). Weininger (1982) expands by clarifying that should younger children be in fact exposed to a foreign language earlier, an attempt ought be made to "Devise methods which serve to introduce them to the second language and culture in an informal way as a preparation for later intensive language learning" (p. 35).

In another study dealing with early French immersion, Cummins (1981) hypothesized that future academic achievement in immersion may

depend on exposure to French and/or English in Kindergarten and that there are differential effects for full-day bilingual versus half-day French or English Kindergarten which are influenced by linguistic backgrounds and socio-economic status. Comparisons were made on the basis of data obtained from the Ottawa-Carleton major evaluations (Swain & Barik, 1976a; Edwards & Casserly, 1976; McInnis & Donoghue, 1976), only considered tentative according to Cummins, since only Catholic and non-Catholic middle-class Anglophone children were involved. Other limitations were the variation in the curriculum and different teams of researchers as well as in evaluation instruments.

The results indicated that no clear trends emerged in the comparison of full-day bilingual (half-day French Kindergarten and half-day English Kindergarten) and half-day English Kindergarten. At the Grade 1 level nonetheless, exposure to French in Kindergarten influenced subsequent performance in French, so apparent in Grades 2 and 3. No superiority in outcomes was seen between full-day bilingual (half-day French Kindergarten and half-day English Kindergarten) and half-day French Kindergarten.

There were however, certain proponents of delaying exposure to second language acquisition who favored the late immersion alternative. Intermediate immersion (Edwards & Smyth, 1976) differentiates the early French immersion option in that it begins as late as Grade 3 or 5. Children have then already been given instruction in English Language Arts. Some fears had been expressed as to the impact delay-

ing native language instruction would have on reading and writing (L1). Among the 168 school boards across Canada surveyed by the authors, there were only four with this type of programme therefore, it was found difficult to draw definite conclusions as to feasibility and efficiency.

The authors also looked at the option of implementing a late immersion programme (a one or two-year programme in Grades 6 to 9) for pupils who did not have the opportunity of learning French earlier. Reference is made to the Peel and other studies conducted in Brampton (Barik & Swain, 1976a), Montreal (Genesee et al., 1974) and Ottawa (Edwards & Smyth, 1975). Students progressed very well in French (which was not at all related to intelligence) and they demonstrated an interest in learning the language and content mastery though not taught in English, did not suffer.

In this respect, a one-year immersion programme is proposed by Bruck, Lambert and Tucker (1976a) for children who did not have the opportunity of learning French in the primary grades. The study in question assesses the level of French proficiency between early immersion pupils and those enrolled in a one-year programme only. The former group achieved a higher level during that particular period but at a later date (high school for example) the competence level might have been equal. No firm conclusions were made as to the undesirability of a late immersion programme and it remained an open-ended question.

In describing the extent of French immersion language programmes in Canada over the past decade, Swain (1981) relates to the older's tendency to be more efficient learners in some aspects of second language learning though there exist advantages in starting earlier in an intensive programme. Hamayan et al. (1978) found that Grade 6 bilingual students when tested for sentence repetition or elicited imitation outperformed the Grade 4 students. This could have been attributed to a maturity or age factor. When these groups were compared with French monolinguals a differentiation of internal grammars (syntactic structures) was markedly relevant. Also Cummins (1979a) saw older learners more capable of learning syntax and morphology of a second language. It is the contrary for oral fluency, phonology (accent) and listening comprehension.

According to Taylor (1974), delaying the introduction of a foreign language can be more beneficial. He claims that "The adult's more advanced cognitive maturity would allow him to deal with the abstract nature of language even better than children" (pp. 32-33).

Likewise Weininger (1982) favors the postponement of immersion to a later stage when children "Are able to make use of a much larger repertoire of approaches to the new language and culture. It is believed that their higher level of development in the mother tongue and their greater literacy would enable them to exploit contrastive and structural analysis" (p. 35).

To conclude, Cummins (1982) makes a point by stating, "The

principal reason why immersion programs work well at any grade level derives from their use of the L2 to transmit meaningful academic and interpersonal content. The age of the learner may influence the acquisition process in a subtle way, but it does not appear to be a major factor in the success or failure of the program" (p. 41). To MacNab (1981) starting age is unimportant also since there are practically no differences in the end-result between early-entry and late-entry students. One must bear in mind that as a rule of thumb the early-entry students have received twice as many hours of French instruction when compared with late-entry students at Grade 4 or 7. Five years earlier, Genesee (1976b) noted that whether a child is exposed to the French language in Kindergarten, Grade 1, 4, 7 or 8, some most important factors to be considered are that the children, (a) have no difficulty adjusting to the programme; (b) all learn French; (c) develop normal native language skills; (d) acquire prescribed course material; and, (e) suffer no intellectual impairment.

#### Learning Disabilities and Other Factors

In the beginning 1970's, researchers began to focus on reasons why certain pupils were performing poorly in a French immersion programme. Some of the questions asked were:

- (1) Was it due to a lack of aptitude for second language learning?
- (2) Was it the child's attitude towards learning a second language?
- (3) Was the age inappropriate at which a child would start to learn a second language?
- (4) Was it due to hyperactivity, rest-

lessness, inattentiveness? (5) Was it due to some inheritance factors? (reading disabilities in the family).

It is normal to see cognitive deficits and learning problems in every French immersion classroom. If a child is referred for "bilingual interference in reading" (Wagner, 1976) it does not constitute the base of the reading problem though the so-called dyslexic syndrome is seen in both languages in varying degrees. Remediation should accordingly be achieved in the two languages and English (L1) taught first (Strong, 1972). Wagner quotes Lambert and Fillenbaum (1959) who found bilinguals having acquired the language at home (fused, compound) manifesting "A more general language deficit affecting their two languages when they become aphasic" (p. 96). In the case of separated (coordinate) bilinguals who learned the language exclusively outside the home, they "Are more likely to lose the use of only one of their languages if they become aphasic" (p. 96). The situation can develop into a polyglot aphasic system when a bilingual aphasic child is also exposed to different languages each parent may speak.

Macnamara (1966) recognized that when a second language is taught to a child first reading skills in both languages (L1 and L2) are delayed.

Bruck negates the threshold level by favoring Cummins' "Hypothesis that first language and preliteracy skills predict achievement in a second language program" (1980, p. 58). In this respect, language of instruction or psycholinguistic abilities seemed to have given way



to social psychological conditions that can predict achievement in a French immersion environment. With language disabled French immersion pupils great stress is laid and encouragement is given in the acquisition of the French language.

In her study, Burstall (1976) examined young British pupils who, although bright, were encountering major problems at the initial stage of learning French. The emphasis on acquiring a foreign language orally made it more difficult for these children to learn French. Since no visual cues were given on the Tactual Performance test the French immersion group did significantly poorly. The following analogy is drawn between the British and Canadian children who experience the same difficulties, language learning is hampered by the lack of visual cues.

Another study of considerable importance in this area was conducted by Bruck, Rabinovitch, and Oates (1975). In a preliminary study, which was part of a longitudinal project initiated in 1970, they evaluated the performance of children with learning disabilities in French immersion from Kindergarten to Grade 2. With a limited sample consisting of six language disabled students placed in an immersion school, results indicated that these students can progress linguistically in the same way as their English counterparts. The authors found that they were able to make the transfer of skills from French to English and learn to read in both languages. Similar weaknesses exist in English or in French, thus switching out of French

immersion would not necessarily eliminate the problems.

In the second report of the project, Bruck (1978b) focused on the following four different groups of children who were screened each year (1970-76) at the Kindergarten level: (1) children with language disorders in French immersion programmes, (2) children with language disorders in French classes, (3) children with normal language development in French immersion, and (4) children with normal language development in English classes. These groups were followed on a yearly basis in the area of first and second language skills, cognitive development and school achievement until the end of Grade 3 when reading, writing, spelling and mathematics presumably have been acquired.

Difficulties typical when dealing with this type of study, were encountered because of attrition thus making it necessary to add more children to fill(up) the gap. The evaluation for each level included formal tests and informal evaluations by teachers in both English and French. Bruck's report mentions assessment of French language skills at the end of each school year (Grade 1, 2, and 3) based on teacher ratings/interview, administration of O.I.S.E. French Listening Comprehension Test Level I as well as a Pilot Battery in French. Unfortunately, neither French tests' statistical results nor information regarding the Pilot Battery in French have been issued after the study.

However, Bruck's findings suggest that children with language learning disabilities in French immersion:

1. Learn and develop academic skills at the same rate as children in English programmes (dominant language);
2. do not suffer impairment to verbal and non-verbal aspects of cognitive functioning due to French immersion;
3. acquire aural comprehension, and by the end of Grade 3 are proficient in French, although they have problems in language learning;
4. benefit more in that setting than in a second language programme (designated time per day) and this is even more important in the Québec environment;
5. be taught English reading only after they have acquired more skills in French;
6. ought not to be switched to an English programme because of their difficulties;
7. should receive identical remedial services in French as provided in the English setting.

Bruck (1978a) notes the advantages a learning disabled child can have from being in a French programme but since no objective data are available, the issue of being "better off" once the child has moved into an English programme is very difficult to assess. Trites and Price (1977) have recognized that children who switched out of the immersion programme had a lower verbal IQ and had more academic difficulties than the "problem" children who stayed in the programme. In Bruck's study, the English "problems" exhibited a significantly lower

performance IQ scores in Kindergarten and Grade 3 than the French immersion "problem" children.

For Bruck the problem evolved mainly around the necessity for switching into the English stream and the appropriate time with all its implications. A case study approach was undertaken in order to generate specific hypotheses for future studies regarding the advisability of switching. Case histories were collected on 9 subjects previously assessed in the research project (Bruck, 1978b) who had switched out of immersion because they were experiencing serious learning problems. It was found that once in the English programme the five pupils were still having difficulties while two were coping and one was doing extremely well. Bruck's interpretation of the positive results obtained from switching can be considered as a subjective judgment of success on the parent and/or educator's part of the "Hawthorne effect" (changes bring about bursts of improvement). Furthermore in this new situation parents are able to assist their children with schoolwork presented in English.

More recently, Bruck (1982) contradicted the psycholinguistic position that "Assumes that all French immersion children have intact or normal linguistic and cognitive abilities" (p. 47). These children do indeed enter the programme because their parents have made such a decision and no initial screening eliminates those with deficiencies in these areas. In her study, Bruck examines how children from majority culture backgrounds with impaired first-language skills

function in a bilingual educational milieu.

In the design of her study, immediately upon entry into French immersion and English Kindergarten classes, the subjects were individually administered the Wechsler Preschool Primary Scale of Intelligence - WPPSI (Wechsler, 1967), and a specifically-designed diagnostic screening test (by a specialist in child language development) that included: object manipulation, story retelling, sentence imitation echolalia tests and an interview. Children were then categorized as language impaired in French and English classes and normal language abilities in French and English classes.

During the Kindergarten year, a battery consisting of five tests assessed each child's IQ (WPPSI, Wechsler, 1967); receptive language (Peabody Picture Vocabulary Test - PPVT, Form a; Dunn, 1965); receptive and expressive abilities (The Northwest Syntax Screening Test - NSST; Lee, 1971); auditory/visual reception and association, grammatic closure, auditory and visual sequential memory (The Illinois Test of Psycholinguistic Abilities - ITPA; Kirk et al., 1968), and a Sentence Imitation Test (Golick, 1977).

In Grade 1, apart from giving the Kindergarten and other supplementary tests (for example, the Math subtest of the Metropolitan Achievement Test - Battery 1, 1958), bilingual subjects were asked to decode individual sounds in French read orally, answer comprehension questions (French Listening Comprehension Test, Barik, 1975) and record dictated words. Using a five-point scale, teachers rated the

pupil's reading, writing, receptive and expressive language skills as well as mathematics.

Results of her study indicated that: (1) the two problem groups had poorer verbal skills than the Control children, (2) English problems had poorer nonverbal skills than French problems, (3) on the Verbal Scale, Controls outperformed problem children, (4) all children performed better in Grade 1 than in Kindergarten, (5) the linguistic or cognitive functioning of all groups were not affected by the medium of instruction, (6) after two years of bilingual education, the French problems' language skills equalled the English problems' skills, (7) on certain subtests of the ITPA (auditory closure, etc.) French problems were inferior to Controls since they had not received any English instruction, (8) all problem subjects scored lower on the mathematics test, (9) French expressive skills were below average among French problems when compared with French Controls, (10) French problems exhibited also a delay in their first language verbal expression, (11) except oral reading, French Controls outperformed French problems in all French language skills, (12) educational intervention was provided to 71% of English problem children versus 19% (although 54% required special assistance) to French problem children, and (13) French problems' comprehension level was the same as French Controls'.

A different viewpoint on the question of the learning disabled child in French immersion is presented in Trites' works. In 1977,

he attempted to draw a profile of children who are encountering problems in French immersion and to discover if there are similarities between disabled readers in French immersion and the regular English stream. Thirty-two identified children when compared to 7 groups ("language" factor and nonlanguage groups) on measures of academic achievement and language were unsuccessful in primary immersion programme as a result of a mild specific maturational lag in temporal lobe regions (Trites & Price, 1976). In the cross validation (Trites & Price, 1977, 1979b) a nonclinic population was studied. French and reading tests were given to immersion dropouts because of learning difficulties and their high immersion achiever counterparts. With IQ controlled statistically, these groups continued to differ on behavior rating scales, specialized reading subskills tests or oral reading, and reading comprehension. The tactual performance deficit (Tactual Performance Test, Trites, 1977) resulting from the earlier found maturational lag was still existing in the dropout group. Trites and Price (1977) concluded that children who have been switched to an English language programme had made greater relative progress in reading than the French immersion success group of children maintained in French immersion in spite of having difficulties even though the scores were still below the norm for age and grade.

These results concur with Burstall et al's investigation (1974) who found that the lag evident in younger children (below age 9) seems to disappear after that age which may suggest that children are better

being educated in their native language first, and learn a second language at a later time.

However, Trites' work has been analyzed by a number of internationally-known researchers on bilingualism and French immersion. Carroll (1976) questioned if the 32 subjects Trites chose for his study (who were taken from the clinic's files), are a representative sample of the total population.

Cummins (1979b) reinterpreted Trites' data (1978) which indicated that any child who is experiencing difficulties in early French immersion should be switched to the regular English programme. Trites' studies do not show that the same difficulties would have persisted should a child be switched to the regular English stream. Furthermore, for Trites, once these pupils are placed into the English stream they are capable of functioning satisfactorily. Trites' findings tend to contradict Bruck's results (1978) demonstrating that these children can acquire English as well as French language skills (oral and written). Also environmental changes may affect the child's self-esteem and consequently have some psychological implications. Cummins finds Trites' data invalid since after children have been transferred into the regular English stream their reading skills lag behind. He criticizes Trites and Price's report (1977) because the authors do not interpret nonsignificant statistical differences as nonsignificant, and it is not written that once children have switched to the English programme they repeated or dropped back a grade level. The "gains" children



achieve after switching appear to be real because percentile scores have not been used appropriately (they cannot be manipulated as scores or numbers) and "regression to the mean" has taken place. Children do much better in terms of actual grade discrepancies than in terms of what would be expected on the basis of their ages. Trites' "greater relative progress in reading" is consequently questionable.

In the discussion of learning disabilities it becomes important to address other factors that may contribute to a student becoming a disabled learner or on the other hand contribute to a student's success.

Limited experiences and deprivation in the first four to five years of life have a great consequence and it is generally agreed that most learning problems do not develop suddenly, so evidence of a weakness in an area should not be assumed to be the cause of a learning disability. It is stressed that rescreening is a necessary measure in order to ensure the validity of obtained scores. It may be that the child's testing situation and feelings toward the test administrator distorted the scores. Differences in screening and rescreening scores could equally lie with a maturation lag.

With the immense popularity of French immersion programmes especially at the primary level new researchers are expressing their views on the learning disabled child's placement. For Morgan (1982) it is a matter of grave concern when he refers to "Children who already have problems (oral and printed) in their first language coping with

a second language. There is a need for effective screening of children who are likely to fail or be frustrated in a 'direct' immersion program because of language and, in particular, auditory weaknesses. Such screening will be even more important if immersion programs become universal" (p. 46).

Another factor that may affect success in French immersion classes and on which few studies have been reported is personality traits.

A Pilot study on personality characteristic and second language learning in young children was conducted by Swain and Burnaby (1976) on a sample of 63 French immersion pupils and 68 English programme pupils (Kindergarten, Grades 1 and 2) in 5 schools of the Ottawa Board of Education and the Carleton Board of Education. For the purpose of the study, the Bilingual Education Project of the Ontario Institute of Studies in Education (O.I.S.E.) under the direction of Dr. G. Neufeld developed a personality assessment instrument composed of nine characteristics. A battery of French tests was also given to the subjects at different grade levels. Using t-test, it was found that French immersion children seemed happier, displayed perfectionist tendencies (considered to correlate significantly and frequently with second language achievement) and were more talkative than English programme pupils according to their teachers' ratings. Quickness in grasping new concepts was a common trait for both groups.

Yet more research has been completed on the strategies and techniques good foreign language learners employ. Based on Rubin's work

(1975) the following seven strategies are identified; these learners are willing and accurate guessers, they have strong motivation to communicate, are often not inhibited, are prepared to attend to form (look for patterns in language), practice the language, monitor their own speech and that of others and, finally, attend to meaning.

According to Reiss (1983), the variables determining success for the foreign language learner are three-fold: (1) cognition, (2) personality, and (3) learning styles and techniques. In accordance with cognitive style variables, Naiman, Fröhlich, Stern and Todesco (1978) found the successful learner to demonstrate "field independence" (differentiation between relevant and irrelevant information), over-generalization and tolerance of ambiguity. In the personality category, 'adventuresomeness' prevails as a particular common trait. However, this is the most complex unresolved issue because the successful individual is not characterized by a specific set of personality traits.

A most recent study on a related subject examines the personality development in nine case studies of bilinguals from birth. Titone (1983) explored simultaneous bilingualism as experienced at home by these children prior to reaching the age of six. English, French or German was the language spoken in different homes located in Italy. Titone's conclusions are two-fold: first, "Early bilingualism does not prejudice or handicap the normal social development of the child's personality" (p. 177); and second, it is identical to Genesee and

E. Hamayan's findings (1980), pointing out that "Individuals differing on the basis of field independent cognitive style would learn a second language better if placed in a non-traditional or non-conventional teaching environment, that is, in a situation where linguistic roles are not transmitted from the teacher to the student but really experienced in a natural communicative environment" (p. 178).

Also, a factor that may affect success in French immersion is socio-economic status and/or minority groups. One such study was conducted by Edwards and Casserly (1973) who compared the performance of third language pupils (Grade 1 and 3 minority groups) with their English and French peers involving children of Italian descent living in Ottawa. From their results they found that when only French was taught, third language children were weaker in oral and aural language skills (French and English) but at the Grade 3 level these weaknesses were only relevant in English. It should be noted that their previous exposure to English was only in a religion course and in Grade 3 (75 minutes a day of instruction).

The longitudinal evaluation on the effectiveness of a French immersion programme for working-class English speaking children was conducted by Bruck, Jakimik, and Tucker (1971). Tucker, Lambert and d'Anglejan (1973) also examined the suitability of French immersion for students from working-class homes. They concluded that these children can learn a second language when instruction starts at the Kindergarten level as soon as English is being formally introduced and that

there is no lag in comparison with their English peers (working-class category). In addition, it was found that they are able to assimilate the content being taught in French and make the transfer of skills into English.

### The Acquisition of English Language Skills in Primary French Immersion

A number of studies have focused upon the general acquisition of English language skills after the students have been in French immersion classes.

Some earlier studies conducted in the 1960's tended to show the negative effects the introduction of a foreign language would have on the mastery of first language skills (English). For example, a study by Macnamara (1966) stressed that English-speaking students in Ireland did not adequately learn Irish; their proficiency in English suffered and retardation in problem mathematics was evident. However, he did not show that bilingualism was the cause of such a deficit. His known "balance effect" hypothesis was based on the premise that while a child is acquiring L2 skills, it is at the cost of L1 skills.

A similar conclusion was made by Lambert and Macnamara (1969) in their comparison of Grade 1 French immersion and English Control groups on measures of language and word skills, vocabulary reading, intelligence and arithmetic. They found that the Experimental group's performance was lower than the English Controls in English language skills (word discrimination knowledge, reading). However, since the

sample was small the authors advised the readers to interpret the results with caution.

In the 1970's, a new trend negating previous hypotheses, seemed to have emerged and reflected in longitudinal evaluative studies. In an explicit fashion Lambert and Tucker in their follow-up study of the St. Lambert children (1972), concluded that "The Experimental children have acquired French language skills far beyond the level which they would have attained through traditional second language teaching methods and at no cost to their English language ability" (p. 101). Similar results were obtained by Swain (1978) who also concurred that middle-class majority language children have their first language skills well developed from the environment, and learning intensely a second language will not endanger their native language skills.

Results from a study by Sweetman, Leblanc, and Lawton (1975), coincide with the above findings. In their studies which involved Grade 5 Experimental and Control groups who were administered the Canadian Test of Basic Skills, CTBS (1968) and the Otis-Lennon Mental Ability Test, Elementary Level II, Form K (1967) for adjusting IQ, that aimed at determining if French immersion pupils would become proficient and develop English language skills they found that first-language development of an English-speaking child is not impaired because of being involved in a French immersion programme. In their report, the authors posed the following questions that may be of value

in conducting such studies: (a) Will children fall behind in their first-language skills? (b) Will children learn fewer words? and (c) Will children's reading and comprehension be below their peers not learning a second language?

Also similar results were obtained from two studies (Toronto & Ottawa) by Swain and Barik (1978), and Barik and Swain (1974a). From the data analysis of tests results obtained from the Metropolitan Readiness Test (1964) that was administered to two groups of children, one completing French immersion kindergarten and the other, English kindergarten, the authors concluded that English language skills were developing well and the children's level of readiness skills enables them to learn to read in Grade 1.

On the other hand, a certain number of studies have examined the specific skills in the shape of the English language programme. These studies have focused on the development of English language skills at different grade levels that occurs in the form of a transfer of skills from French to English. Swain (1974) views this phenomenon as a positive transfer of reading skills when French is taught before English since French possesses "A more systematic sound-symbol correspondence than does English" (p. 121).

Of importance is the study by Swain and Barik (1976b) that involved 600 Kindergarten children, 600 Grade 1 children, and 700 Grade 2 children over a span of 3 years, 450 Grade 3 students over a two-year period and 150 Grade 4 students over one year. All students

involved in the study followed the immersion programme in the Ottawa and Carleton Boards of Education. Results revealed that at the Kindergarten level immersion pupils' scores did not differ from students in the English stream in terms of English skills (vocabulary, listening comprehension, visual discrimination, auditory perception of beginning sounds of words) although they only had instruction in French. However, word knowledge, word discrimination and reading caused more problems to the Grade 1 immersion pupils but they did not score below the 35th percentile and in some instances had reached the 60th percentile. In Grade 2, these students had received 60 minutes of English instruction per day. They ranked lower than regular students in reading and spelling but were equal in word discrimination. The lag manifested in spelling still remains in Grade 3 since immersion pupils scored significantly lower than the comparison group.

The above results are similar to earlier studies by Lambert and Tucker (1972) who found that Grade 1 French immersion pupils did not fall behind in speaking and listening skills but lagged in reading.

Therefore it may be hypothesized that if English is only introduced at Grade 3 some pupils are able to match their English counterparts whereas the majority have not attained the desired level in the areas of spelling and reading comprehension. This may be due to lack of previous formal exposure and possibly the mastery of language rules.

#### Transfer of French Reading Skills to English Classes

A review of the literature revealed that there have not been



many studies which have focused on the transfer of reading skills, when a second language (direct method) is taught before the native language. One study that endeavored to determine the interlanguage transfer of reading skills was conducted by Cziko (1976) who compared the French and English reading skills of immersion students with those of English and French Controls. Because of the audio-lingual French training of the late immersion group it was found that these students performed as well in French as the early immersion group. He found that the English reading skills of both groups were at the same level and that there were no significant group differences noted. However, he stated that there was significant positive correlations for these two groups who "Were able to transfer the reading skills developed via one language to the language introduced subsequently, regardless of whether they were first taught to read in native or second language" (p. 538). He further concluded that in the acquisition of bilingual skills through the direct method or the native language approach no preference seemed to emerge in this particular study.

Tucker (1975) stressed the easy transfer of reading skills from French to English occurring when reading achievement in French is a good predictor of reading achievement in English at each grade level (Grades 1 and 2).

In their study McDougall and Bruck (1976) compared "The effects of delaying English reading until Grade 3 on native language skills"

(p. 38). Their study investigated the effect on first language skills when second language instruction is introduced at different times using as a sample, six groups of Grade 3 and 4 pupils who had received English reading instruction at different times from two-thirds of a year ( $2/3$ ) to three and two-third years ( $3\ 2/3$ ). Pupils' non-verbal IQ was measured by the Canadian Lorge-Thorndike Intelligence Test (1954-66) and their English reading ability with the Spache Diagnostic Reading Scales (1972). Based on the results of their findings, they recommended that it is to the benefit of the pupils that the formal introduction of English Language Arts be delayed until Grade 3. Although the data-analysis did not definitely support the hypothesis of delaying English reading by a year, in discussing their results two points were made: first, learning to read in a second language does not cause a delay in the acquisition of academic skills; second, native language skills do not suffer if they are taught later on. At this point it is difficult to measure with accuracy the amount of transfer from French to English that has taken place over the preceding years. The study revealed that transfer for immersion pupils occurs very rapidly. "In only  $2/3$  of a year they are able to catch up to the early French immersion group, who have been reading English for  $1\ 2/3$  years and to the English group who have been reading English for  $2\ 2/3$  years" (p. 42).

The same issue that of a natural transfer of reading skills was examined in the context of Irish (L2) and English (L1) experience.

Cummins' findings (1977) are parallel to Canadian findings although teachers in Irish immersion schools predicted long-term detrimental effects for the children's motivation to read (L2) since their English vocabulary was already established prior to learning L2. However, it appears that there have been no specific study that has ascertained to which extent the delaying of L1 instruction may have a negative effect on a child's motivation to read in L1. Further investigation was suggested as to children's individual difference and reactions when L1 and L2 are introduced. Also, it was hypothesized that parental involvement may contribute to the rapid transfer of reading skills (L2 to L1). In general, it was found that "immersion parents" will assist their child in acquiring L1 reading skills even before it is formally taught at school.

It is believed that there may be a differentiation existing in the reading process between immersion and English programme students. Using "miscue analysis" as a quantitative and qualitative measure, Dank and McEachern (1979) examined the oral reading strategies employed by ten Grade 3 French immersion pupils in contrast to pupils in an English stream. In order to obtain miscues (oral reading deviations) the sample read orally a fable in English at the Grade 4 level. Each miscue was then categorized (9 linguistic questions) according to high, partial or no similarity between the correct response and the uttered one. Finally, each subject retold the story recorded on tape. Results demonstrated that the French immersion

group used more effectively grapho-phonemic cues, syntactic and semantic relationships. By being able to correct its miscues, it achieved a higher degree of reading comprehension than its English counterparts. Moreover, the main idea and supporting details as expressed by the French immersion group when retelling a story showed higher proficiency concluding that offering instruction in a second language, French in this case, is not detrimental to the development of reading and comprehension skills.

The way in which immersion pupils perceive English and French words (recognition of spelling patterns) and make use of orthographic structure while reading orally was examined recently by Mes-Prat and Edwards (1981). In their study, two groups of Grade 3 and 6 boys, read and wrote letters of words, pseudowords and nonwords. Results showed that the Grade 3 pupils performed better with the French pseudowords ("muit" for example) than with the English ones ("snick" for example). However, at the Grade 6 level a significant difference between the pseudowords and nonwords (uitm: French; ftog: English) in French and English tend to indicate that orthographic structure is used when reading in both languages. "A capacity to induce regularities within and across languages may help to explain the high correlation found between the Grade Three's performance in English and French ... attributed to transfer of skills across languages" (p. 689).

Finally, in his two-year study, Roy (1980-81; 1981-82) evaluated

the Grade 3 pupils' performance in listening comprehension, reading (French and English), speaking and writing proficiency, social studies and science. Among the various instruments used in the 1980-81 study the French version of Bilingual Syntax Measure, Bautier-Castaing (1977), Message Writing Test, interviews, questionnaires, and the California Achievement Test: Reading (Tiegs & Clark, 1970) were administered to a sample of 36 pupils. The group who had been attending an immersion school since Grade 1 was for the first time receiving one hour of English Language Arts instruction per day.

Results obtained from the California Achievement Test placed the group at the Grade 4 level in vocabulary recognition and just above this level in comprehension and general English reading ability. A particular strength was noted in syntactical analysis.

In 1981-82, the Canadian Test of Basic Skills (1976) was used and the students read in English at approximately the same level as their English peers.

After careful examination of the statistical data there were indications showing that the child's ability to read in French is related to the ability to read in English. Roy's interpretation is that "A pupil's achievement in French reading may be predicted when s/he started to read in English the alphabet, candy wrappers, signs on stores and restaurants and street signs. The pupil's achievement in English reading may be predicted by when s/he started to read in English candy wrappers, color names and words in paper headlines" (p. 36).

In summary, on the basis of the literature reviewed, it is believed that a child's English skills will not deteriorate when instruction of his native language (English) takes place after a second language has been taught. Since they have already developed essential strategies while learning French (grapho-phonemic, syntactic and semantic cues) many pupils experience a rapid transfer of skills.

## CHAPTER III

### SUBJECTS, MATERIALS AND PROCEDURES

In this chapter, background information on the subjects involved in the study, procedures employed in gathering and analyzing the data over a four-year period will be described.

#### Subjects

##### Background Information

In this English-speaking family there are 5 children (3 boys and 2 girls), the last three being a set of triplets with one girl and two identical boys.

The data sheet included in Appendix B, was designed for the subjects' parents so as to collect valuable background information for the study. The content was partly based on the works of Berry and Eisenson (1956).

On both sides of the family there are no indications of health problems, learning difficulties, or incidences of multiple births.

When the mother was 5½ months pregnant, the parents were informed that a set of triplets would be born. At that time the expecting mother was 32 years old and had had previous difficult pregnancies. She remained in hospital until giving birth to the children in the following order: (a) Joseph, (b) Jack, and (c) Alice. The last one weighed the most (5½ lbs.) and the second one was the lightest (4 lbs). These infants premature by one month displayed neither health nor

feeding problems. They seemed to develop in the same manner as other children like sitting alone at the age of 8 months and taking their first steps with support at 12 months. Alice took longer to walk alone (18 months) in comparison with both boys (16 months). All three had chicken pox at age 8 and the boys adenoids removed; tubes were inserted in their ears due to hearing problems.

At an early age the children developed right-handedness. Also the boys communicated in their own language using a limited vocabulary whereas Alice displayed more advanced verbal skills which facilitated interaction with the rest of the family.

When they were 3 years old the triplets attended an English-speaking pre-school before entering the French immersion programme. They enjoyed listening to stories rather than memorizing nursery rhymes. Jack participated actively in art and poetry whereas Joseph in science. The 3 children exhibited an average interest in school and in the learning of the French language. English was the only language through which all communication took place in the household.

Since Grade 2 Alice has had private lessons in French reading mainly, and also in mathematics. From Grade 1 she has been considered socially and emotionally well-adjusted. It appears that she failed to develop her own expectations about school performance which ultimately resulted in her frustration. After a period of 4 months private tutoring in mathematics, Joseph was functioning at grade level. He preferred to accomplish certain tasks provided he was going to



receive a reward at the end; hence, his own interest came first.

Jack was seen as a high achiever striving to do well. As a more conservative subject he would be quite apprehensive at exploring new ideas unless he fully understood the concepts involved.

From an early age the children have been taking violin lessons, played soccer and learned Hebrew. In view of Alice's initial language difficulties in English, Hebrew lessons had been discontinued for her only. Constant exposure to their mother's artistic works have made the triplets appreciative of activities related to art which they truly enjoy.

No particular behavior problems are seen by the parents however Joseph appears as a very nervous and possessive child who can be sometimes aggressive in his milieu. Jack is sometimes possessive, bickering and manifests a tendency to show off.

The family as a unit offers love, security, sociability, as well as opportunities for expanding one's horizons in various areas. The triplets have developed differently with their specific personalities hence similarities appear to be uncommon.

#### Materials

Both formal and informal tests were administered over a period of four years. Beginning at the Kindergarten level, the screening battery is fully outlined in Appendix D. The linguistic tests in English are included in Appendix E, the French reading tests in Appendix F, the psycho-educational tests in Appendix G and finally Appendix H

describes the English tests in Grade 3.

#### Procedures and Discussion

The data collection took place over a period of three years. All formal and informal educational test results as well as complete analysis of performance and observations were gathered in separate folders for each subject per grade level. Table 2 presents the list of all the standardized and informal tests used for evaluating the sample during the four-year period.

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Insert Table 2 about here

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#### Year One Evaluation: Kindergarten Screening Battery

The Kindergarten screening recently introduced in the school District usually takes place in the fall and aims at identifying children suspected to have potential difficulties which could interfere with their success in school. It is felt that since the greatest emphasis is placed on the assimilation and manipulation of oral language to Grade 2 in a bilingual context, the receptive or listening language problems of some children should be monitored. The screening process is not designed as a diagnostic tool but rather provides some general indications of a possible problem without determining either its significance or its extent.

In the second year screening procedures are comprised of standardized as well as informal tests. Some are selected to meet the needs of

Table 2  
Standardized and Informal Measures Utilized to Evaluate the Triplets'  
Performance per Grade Level, during a Four-year Period

Standardized Tests	Informal Measures
A. <u>Kindergarten: Screening Battery</u> (Alice, Jack, Joseph)	
1. Bilingual Syntax Measure (BSM);	1. Hearing;
2. Boehm Test of Basic Concepts, Form A, Booklets 1 and 2 (BTBC);	2. Speech;
3. McCarthy Screening Test (MST);	3. Language;
4. Peabody Picture Vocabulary Test, Form a, (PPVT).	4. Report card ratings and comments for the three terms;
	5. Notes and other observa- tions.
B. <u>Grade 1</u>	
1. Test in French (Alice, Jack, Joseph) Test Diagnostiques de Lecture pour les Classes d'Immersion, Première année (French Diagnostic Reading Tests for Early French Immersion Classes, Grade 1).	1. Hearing (Alice & Jack)
2. Linguistic tests in English (Speech and hearing therapist)	2. Area counsellor class observations (Alice)
a. Illinois Test of Psycholinguistic Abilities (I.T.P.A.); (Alice)	3. Report card comments for the three terms.
b. Lindamood Test of Auditory Conceptualization (L.A.C.); (Alice)	
c. Test of Language Development (TOLD-P) (Jack)	

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Standardized Tests

Informal Measures

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C. Grade 2

- |  |  |
|--|--|
| <ol style="list-style-type: none"><li>1. Test in French (Alice, Jack, Joseph)<br/>Tests Diagnostiques de Lecture pour les Classes d'Immersion, Deuxième année (French Diagnostic Reading Tests for Early French Immersion Classes, Grade 2).</li><li>2. Psychological tests in English (Alice, Jack, Joseph)<ol style="list-style-type: none"><li>a. Wechsler Intelligence Scale for Children, Revised (WISC-R);</li><li>b. Beery and Buktenica Developmental Test of Visual-Motor Integration;</li><li>c. Draw-a-Person;</li><li>d. Motor-Free Visual Perception Test (MFVPT);</li><li>e. Peabody Picture Vocabulary Test (PPVT);</li><li>f. Wide Range Achievement Test (WRAT: Arithmetic)</li></ol></li></ol> | <ol style="list-style-type: none"><li>1. Report card ratings and comments for the three terms.</li></ol> |
|--|--|

D. Grade 3

- |  |  |
|--|--|
| <ol style="list-style-type: none"><li>1. Test in French (Alice, Jack, Joseph)<br/>Tests Diagnostiques de Lecture pour les Classes d'Immersion, Troisième année (French Diagnostic Reading Tests for Early French Immersion Classes, Grade 3).</li><li>2. Tests in English (Alice, Jack, Joseph)<ol style="list-style-type: none"><li>a. Gates-MacGinitie Reading Tests (Level C, Forms 1 and 2);</li><li>b. British Columbia Mathematics Achievement Tests (Grade 3/4, Revised 1980);<ol style="list-style-type: none"><li>i. Operations with whole numbers,</li><li>ii. Sets and numbers.</li></ol></li></ol></li></ol> | <ol style="list-style-type: none"><li>1. Report card ratings and comments for the three terms.</li></ol> |
|--|--|

a bilingual school. All tests were given in English only.

Involved in the screening process, which began in the spring were the school psychologist, speech and hearing therapist and nurse, assigned to the school, the learning assistance and Kindergarten teachers, and area counsellor. The schedule for administering the screening battery is presented below:

April	Hearing
April 10	Boehm Test of Basic Concepts; Form A, Booklets 1 and 2
April 17	Peabody Picture Vocabulary Test, Form a
April 18	McCarthy Screening Test
April 20	Bilingual Syntax Measure
May	Speech, Articulation, Language

Table 3 gives the raw scores obtained by the sample on the Boehm Test of Basic Concepts (BTBC). The maximum score for each booklet is 25.

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Insert Table 3 about here

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On Booklet 1, Alice attained a perfect score of 25 whereas her two brothers, an equal score of 24. Booklet 2 presented more problems to Jack in particular, who was the weakest in all 4 categories: space, quantity, miscellaneous and time. He was at the 30th percentile (on middle socio-economic level) in contrast to Alice (60th percentile)

Table 3  
Boehm Test of Basic Concepts:  
Raw Scores Form A, April and September

	Alice	Jack	Joseph
	Maximum score 25		
Form A			
April			
Booklet 1	25	24	24
Booklet 2	13	8	16
September			
Booklet 2	16	14	N.A.

and Joseph (70th percentile). Joseph surpassed Alice by 2 points on total scores and was the strongest on this instrument (Table 3).

All 3 subjects had not mastered two concepts related to space (#29 beginning, #39 forward) and two of quantity (#47 equal, #50 least).

At that time the school psychologist, a member of the assessing team, suggested that children achieving a raw score of 13 or under, ought to be re-tested at a later date with further diagnosis if warranted. Therefore, Alice was considered borderline, and Jack in serious difficulties. A posttest given 5 months later in Grade 1

(September) revealed an increase in the knowledge of concepts of 33% by Alice, in English. The learning assistance teacher gave the Boehm Test of Basic Concepts (BTBC) to Alice in French in order to ascertain if the concepts taught in French were also unknown to her in English. The concepts not identified in the September re-test in French (Grade 1) are marked with an asterisk on Table 4.

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Insert Table 4 about here

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Jack's score improved by 75% but upon closer examination of Jack's errors in Booklet 2, in April (Kindergarten screening), he had a tendency to guess a number of the presented items but would rather omit them when re-tested in September (Grade 1). It can be then assumed that certain concepts had not yet been mastered (center, zero, separated, equal, least). Since he performed so poorly on this test it was not known if he had a problem with a particular concept, or whether it was a language difficulty (labelling a concept), or if the pictorial representation was not part of his experience or none of these.

For the purpose of the school's Kindergarten screening, differences between the chronological and mental ages have been examined rather than IQ or percentile scores on the Peabody Picture Vocabulary Test (PPVT).

Table 5 presents the results obtained on the Peabody Picture Vocabulary Test.

Table 4  
List of Unknown Concepts as Measured by the  
Boehm Test of Basic Concepts, Booklet 2  
in Kindergarten Year

Item no.	Item Description		
	Alice	Jack	Joseph
26	center	center	-
27*	-	-	as many
28*	side	-	-
29	beginning	beginning	beginning
30*	-	other	-
31*	alike	-	-
32	-	-	-
33	never	never	-
34*	below	-	-
35*	-	matches	-
36	-	always	-
37	-	-	medium-sized
38*	right	right	-
39*	forward	forward	forward
40	-	zero	-
41	-	above	-
42	-	-	-
43	-	separated	-
44	left	left	-
45*	-	pair	pair
46	skip	-	skip
47*	equal	equal	equal
48	-	in order	in order
49*	third	third	-
50*	least	least	least

Note. \* Concepts not mastered in French by Alice in the Grade 1 re-test (September).



Table 5  
Raw Scores, Percentile Ranks and Mental Ages  
Obtained on the Peabody Picture Vocabulary Test  
in Kindergarten Year

	Alice	Jack	Joseph
Raw Score	53	47	50
Percentile rank	37	16	24
Mental age	5-07	4-08	5-01
Chronological age	5-09	5-09	5-09

As can be seen from the above table Jack obtained a very low mental age level of 4 years 8 months indicating more than a one year delay in receptive language ability. Joseph who had been superior on the Boehm Test of Basic Concepts, scored better than Jack but was weak in comparison with Alice who had reached a mental age of 5 years 7 months. As can be seen, all three children were low on this test suggesting that hearing acuity and/or comprehension of spoken words in English was poorly developed. The underlined concepts as shown on

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Insert Table 6 about here

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Table 6 indicate the common errors in the comprehension of words made by the children.

Table 6  
List of Unknown Words on the  
Peabody Picture Vocabulary Test

Item no.	Item Description		
	Alice	Jack	Joseph
15	-	catching	-
18	-	tying	-
22	bush	-	-
23	-	pouring	pouring
27	<u>building</u>	<u>building</u>	<u>building</u>
32	caboose	caboose	-
39	<u>coach</u>	<u>coach</u>	<u>coach</u>
42	-	freckle	freckle
45	-	-	shining
49	signal	-	-
53	projector	projector	-
55	-	-	tackling
56	-	transportation	transportation
57	-	counter	-
58	<u>ceremony</u>	<u>ceremony</u>	<u>ceremony</u>
59	<u>pool</u>	<u>pool</u>	<u>pool</u>
60	<u>bronco</u>	<u>bronco</u>	<u>bronco</u>
61	directing	-	directing
62	funnel	-	-
64	lecturer	-	-
66	archer	-	-

Perceptual, verbal, quantitative performance, perceptual grouping and motor of the triplets were assessed utilizing the McCarthy Screening Test (MST).

As shown on Table 7, all subjects passed the 6 subtests at the 30th percentile within the age range of 6 years.

Table 7  
McCarthy Screening Test Subtests Results  
in Kindergarten Year

Subtests	Minimum raw score (age 6-0)	Alice	Jack	Joseph
		Raw score		
Right/left orientation (Perceptual performance)	5	7	8	8
Verbal memory (Verbal)	22	26	22	25
Draw-a-design (Perceptual performance)	7	7	9	7
Numerical memory (Quantitative)	6	9	8	10
Conceptual grouping (Perceptual grouping)	7	8	10	7
Leg coordination (Motor)	10	13	13	10

More accurate analysis indicates that Jack was superior to his

siblings in Draw-a-design and Conceptual grouping but the lowest in Verbal and Numerical memory. Also Alice and Joseph barely passed the Draw-a-design subtest. Alice scored the lowest of the three on Right-left orientation, but above the minimum raw score for the corresponding age range. Joseph displayed a strength in Numerical memory.

The results tend to indicate normal functioning in cognitive development with little fluctuation between scores.

The screening assessment team decided to administer the Bilingual Syntax Measure (BSM) which measures comprehension and production of spoken language to the subjects as a result of their performance on the Boehm Test of Basic Concepts and the Peabody Picture Vocabulary Test.

Results showed that Alice obtained the top rating, Level 5, since she answered correctly grammatically, a minimum of 6 of 8 designated questions. Both boys were experiencing little difficulty in communicating ideas in English but did not fully control some basic grammatical structures (verb endings, regular past, some irregular past forms, past participles and conditional "would"). They only achieved Level 4 proficiency. Below is a sample of errors made by Joseph when responding to selected questions based on illustrations:

Question 1 - Direction: Point to baby birds.

- Question: Why do they want food?

- Response: "Because they hungry."

Question 2 - Direction: Point to dog.

- Question: What would have happened if the dog  
hadn't eaten the food?

- Response: "eh, he might have ate it."

Hearing, Articulation, Language. Kindergarten classes were administered a hearing acuity test as part of the Kindergarten battery. Joseph passed the screening but Alice failed on her left ear whereas Jack's left ear was questioned. In May of that year, screening for articulation of speech showed a tongue thrust for Jack, and identical errors in producing the "th/s" and "f/th" sounds for all 3 children.

On the language screening, Jack obtained a below average rating in all skills except oral vocabulary where he rated high. Joseph had difficulty with syntax in both comprehension and expression. Both auditory memory and sequencing skills were below norms for age. The speech and hearing therapist had recommended at that time speech therapy for Joseph and transfer to an English programme for both boys. Alice's case was to be reviewed in Grade 1 (early in the fall) in view of her low vocabulary and poor auditory listening skills.

At the team's year end conference parents were informed of all test results. At that time a set of specific remedial exercises was presented and an in-depth language assessment suggested for Jack and Joseph who had shown significant difficulties on the Peabody Picture

Vocabulary Test and Bilingual Syntax Measure. Jack was considered the weakest of the three on overall screening performance and the most "at risk" because he scored very low on 3 tests: Boehm Test of Basic Concepts, Peabody Picture Vocabulary Test and Bilingual Syntax Measure. The school nurse referred him for further language assessment. Jack was followed by Joseph although the strongest on the Boehm Test of Basic Concepts, had some language difficulties identified on the Peabody Picture Vocabulary Test and Bilingual Syntax Measure. Finally, Alice achieved the highest level on the Peabody Picture Vocabulary Test, McCarthy Screening Test and Bilingual Syntax Measure but was borderline on the Boehm Test of Basic Concepts. She appeared to be the strongest on the Kindergarten screening battery.

Kindergarten Teacher's Evaluation. The Kindergarten teacher with many years of experience in teaching French immersion at that level had the triplets in one class. She rated Alice as being the most mature and capable of the 3. Alice was rated as self-confident, with good coordination as well as facility to learn oral French. Good social interaction helped her become independent before her twin brothers.

Jack was rated second by his teacher. She indicated that he had good comprehension of spoken French though he would be hesitant in following directions. Immaturity and lack of self-confidence made him feel insecure in the school setting. However, a good effort was noticed on his part to learn the language. His poor fine-motor skills caused difficulties in beginning printing the letters of the alphabet.

Joseph was the "slowest" one who would prefer to play with calmer children. He had a "babyish" attitude and lacked some coordination and spatial awareness. In the same manner as Jack, he had difficulty in following oral directions in French.

The teacher remarked very little interaction between the triplets since each was socializing with his/her own friend(s). The school-based team issued the Kindergarten screening results to this teacher who did not feel any of the 3 children should repeat the Kindergarten year.

#### Year Two Evaluation: Grade One Performance

Linguistic Tests. Due to personnel change there was a delay in re-assessing hearing and language skills of Alice and Jack. Jack was the first to be seen only in December (Grade 1) as he was estimated to be seriously "at risk" on the basis of his poor language performance on the Kindergarten battery. He was given the Test of Language Development, TOLD (Newcomer & Hammill, 1977). For a description of the linguistic tests see Appendix E (in English only).

Jack performed in the following fashion on selected subtests of the TOLD in terms of language age (chronological age was 6 years 8 months):

1. Picture vocabulary: 4 years 0 month (25 items) similar to the PPVT (Listening, semantics);
2. Oral vocabulary: 6 years 3 months (20 items) similar to the WICS-R (Vocabulary part speaking, semantics);

3. Grammatic understanding: 7 years 3 months (25 items):

Syntax, listening;

4. Sentence imitation: 5 years 1 month (30 items): Syntax speaking;

5. Grammatic completion: 6 years 9 months (30 items), similar to Grammatic closure of the ITPA: Syntax, speaking.

For comparison purposes, Jack had a mental age of 4 years 8 months on the PPVT Kindergarten screening battery (April) and on the Picture Vocabulary subtest of TOLD (December) a language age of 4 years. This was his lowest ranking on the TOLD from the subtests presented to him. An interdental "s/z" also persisted at that time. At this point no other testing took place since his classroom teacher felt he was progressing well. Results from posttests administered at the end of Grade 1 (June), 6 months later, indicated improved vocabulary and well developing English language skills.

Both boys who were placed in different classes had made significant gains during their first year of formal academic training and no particular concern had been raised as to their performance.

On the other hand, Alice, who had been identified as the strongest on the Kindergarten screening battery showed some weaknesses. Hearing in the left ear was still questioned. On the TOLD, given in May (Grade 1), she achieved a low average score on the subtest of expressive oral vocabulary. According to the speech and hearing therapist during the performance on this particular task, "She tended to



ramble, make verbal associations, make quick guesses and try to change the subject. In fact throughout the testing session, Alice repeatedly needed to be brought back to task. Her style of constant verbal questioning appeared somewhat attention getting and her attentiveness varied. She seemed most anxious to do well and showed a low tolerance for boredom and failure" (Speech and hearing therapist's report, May). The therapist also commented that Alice's language skills appear to be developing within the normal range for her age and any learning problems would not seem to be language based. She did have poor listening behavior and her inattentiveness and attention seeking behavior was of some concern.

Alice was also given the Lindamood Test of Auditory Conceptualization (LAC) by Lindamood and Lindamood (1971). She scored at the mid Grade 2 level on the ability to discriminate, sequence and pattern auditorilly presented phonemes.

The third language test administered to Alice, was the Illinois Test of Psycholinguistic Abilities, ITPA (Kirk et al., 1968). No areas of auditory weakness were apparent and even strengths were evident in visual memory and visual closure. Since all scores were within the auditory-vocal and visual-motor range, clustered fairly close to the mean score, she achieved an overall psycholinguistic age of 6 years 8 months (chronological age was 6 years 10 months) placing her in the average scale.

A clinical psychologist dealing with personality and behavior

problems was considered during a meeting between the therapist, classroom and learning assistance teachers. Alice's Grade 1 teacher expressed great concern as to her mathematics achievement, the lack of concentration and the attention seeking behavior. Consequently, the area counsellor observed her in class in May. During a casual conversation, Alice revealed she liked reading. It was found that in mathematics she was better with addition than subtraction. Neat and legible printing was noticed in her written work. She seemed to be quite outgoing, alert, squirming, verbal and articulate though she was eager to receive one's attention. No peer problem in class was seen. She liked to do well and be approved of, but found it hard to be second. At that time she was attending Hebrew school three times a week, taking violin lessons and swimming.

Upon medical examination, it was found that Alice's left eye was weak, however, the parents' main inquiry was focused on her self-esteem. She had become aware of her brothers' progress and success and used extensively oral expression (her strength) to convey her feelings. At home and at school she had difficulty concentrating. The problem was considered to be rather attitudinal and/or emotional than academic.

French Reading Test. A new series of French Diagnostic Reading Tests for Early Immersion Primary Classes (Tourond, 1980) was given to the two Grade 1 classes in June. This instrument does not assess specific objectives of any reading programme but evaluates silent reading performance. See Appendix F for complete test description.

Table 8 presents raw scores and percentile ranks the subjects achieved on the French Reading Test.

Table 8  
End of Grade 1 Results on the French Diagnostic Reading  
Test for Early French Immersion Primary Classes

Subtests	Alice		Jack		Joseph	
	Raw score	%tile rank	Raw score	%tile rank	Raw score	%tile rank
Reconnaissance des mots (Word recognition)	15	10	22	70	21	60
Lecture de mots (Word meaning)	12	20	23	95	23	95
Compréhension de courts textes (Sentence and short story comprehension)	9	20	19	80	17	70

The test author suggests giving special attention to individual differences of percentile ranks before they can be considered significant. As shown on Table 8 there is a substantial discrepancy between Alice's performance and her siblings' demonstrating that her poor listening skills mostly evident in the classroom and tapped in the earlier formal English language tests may have had an impact on her achievement on the French Word recognition subtest requiring the

auditory and visual discrimination of spoken words by the teacher as well as paying attention to detail.

The boys performed very well. Jack had made an enormous progress in the mastery of French concepts by the end of Grade 1.

Teacher's Evaluations. Teacher's evaluations have been reported on Table 9 for each of the 3 terms of the school year.

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Insert Table 9 about here

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At first glance there are not many "very good" ratings for the subjects suggesting that their performance was in the average range.

Alice presented as a very sociable girl striving for popularity among her peers by seeking the teacher's constant attention. More effort was recommended especially in mathematics and reading, as well as in the desire to work independently. She did improve in listening and oral comprehension, mathematics, handwriting and personal development, but in reading comprehension, she declined during the year.

Jack had shown marked improvement in oral comprehension, mathematics, handwriting, art and personal development with only a slight decrease in listening skills. He demonstrated an interest in learning.

Joseph made steady progress in oral comprehension and reading, mathematics, science, handwriting and personal development. In fact in no area was there a decline in academic achievement.

From the above comments it can be concluded that the two boys outperformed the girl. All three students were promoted to Grade 2.

Table 9  
Grade 1 Teacher's Report Card Evaluation\*

Skills	Term 1			Term 2			Term 3		
	Alice	Jack	Joseph	Alice	Jack	Joseph	Alice	Jack	Joseph
<u>French Language Arts</u>									
A. Listening skills									
1. Listens attentively	2-	1	2+	2-	2	1	2	2	2+
2. Comprehension	2	2	2-	2	2	2+	2+	2	2+
B. Speaking skills									
1. Fluency of expression	2	2	2	2	2	2	2	2	2
2. Clarity of speech	2+	2	2	2	2	2	2+	2	2
C. Reading skills									
1. Comprehension	1	2	1	2	2	2+	2	2	2+
2. Oral reading	2+	2	2	2	2	2+	2	2+	2+
D. Writing skills									
1. Spelling		N/A			N/A			N/A	
2. Sentence writing	2-	2	2+	2	2	2	2	2	2+
<u>Mathematics</u>									
1. Understanding of principles	2-	2-	2	2	2	2	2+	2	2+
2. Computational skills	2	2-	2	2-	2	2	2+	2+	2+
3. Problem solving skills		N/A			N/A			N/A	
<u>Social Studies</u>	2	2	2	2	2	2	2	2	2

Skills	Term 1			Term 2			Term 3		
	Alice	Jack	Joseph	Alice	Jack	Joseph	Alice	Jack	Joseph
<u>Science</u>	2	2	2	2	2	2	2	2	2+
<u>Handwriting</u>	2-	2	2+	2-	1	2+	2	1	1
<u>Physical Education</u>	2	2+	2	2+	2	2	2+	2+	2+
<u>Art</u>	2	2	2-	2	2+	2	2+	1	2
<u>Music</u>	2	2	2	2	2	2+	2	2	2+
<u>Personal Development</u>									
1. Respect for others	2	2	2	2	2+	2	2	2+	2
2. Sense of responsibility	2	2	2	2	2+	2	2+	2+	2
3. Participation	2	2+	2+	2	2+	2	2+	2+	2+
4. Independent work	2	2	2-	2	2+	2+	2-	1	2+
5. Work Habits	2-	2	2	2-	2+	2+	2	1	2+
6. Self-control	2-	2	2	2	2+	2	2	1	2

\* Note:

1	very good
2+	very satisfactory
2	satisfactory
2-	less satisfactory
3	needs improvement

Year Three Evaluation: Grade 2 Performance

Psychological Tests. Early in Grade 2 Alice was referred by the family physician, for psychological assessment outside the school District. While the boys were doing well in French immersion she had poor self-image and was not oriented academically. Her reading skills were low. Her former Grade 1 teacher was then engaged to tutor her in problem areas. Initially when Alice was tested and upon discovery of significant discrepancies it was suggested to evaluate the two boys as well in order to distinguish specific similarities and differences characteristic of the triplets.

During the testing sessions, the three manifested a variation in behavior pattern. Alice was extremely "test anxious" requiring constant reassurance while Jack was "quite nervous" only initially, and Joseph "more cool" with greater internal control.

Psychological tests are described in Appendix G (in English only).

In order to consider discrepancies emerging from the assessment of the above mentioned skills, it is necessary to examine the triplets' results from the psychologists' report as illustrated in Table 10.

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Insert Table 10 about here

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On the first two tests, Alice was significantly behind her brothers who scored identically in visual-motor integration. On the

Table 10  
 Psychoeducational Tests Results Obtained  
 by the Triplets in Beginning Grade 2

Tests	Chronological age: 7 years 3 months		
	Alice	Joseph	Jack
Beery and Buktenica Developmental Test of Visual-Motor Integration	6yr.07mths.	9yr.04mths.	9yr.04mths.
Draw-a-Person	6 yrs.	7yr.06mths.	8yr.06mths.
Motor-Free Visual Perception Test (MFVPT)	-	over 9 yrs.	-
Peabody Picture Vocabulary Test (PPVT)	7yr.03mths.	-	-
Wide Range Achievement Test (WRAT)	grade level 2.6 standard score 105 %tile 63	-	-
Wechsler Intelligence Scale For Children, Revised (WISC-R)			
Verbal			
Information	8	10	7
Similarities	7	12	8
Vocabulary	11	10	12
Arithmetic	8	11	10
Comprehension	9	13	11
Digit span	9	10	8
Average verbal range	average (low end)	average (high end)	average (middle)
Performance			
Picture completion	10	11	12
Picture arrangement	14	12	12
Block design	12	13	13
Block assembly	13	9	15
Coding	13	11	11
Mazes	-	13	-
Average performance range	above average (high end)	above average (low end)	above average (high end)
Full scale	split of 26 points	average (high end)	split of 21 points



other tests only a few similarities are to be seen between the boys whereas Alice and Jack are both characterized by depressed verbal scores and considerable splits between verbal and performance areas. Joseph was regarded as having extremely appropriate verbal and non-verbal scores. A common characteristic was that all children had difficulty with the Similarity subtest where they were rather concentrating on finding differences.

It was recommended that Jack's verbal skills ought to be monitored but, so far, no intervention was required for him and his brother. With Alice joining her brothers in the same class, she seemed to have gained confidence, and became more receptive to receiving after-class tutorial classes in French reading. Since she perceived herself as different from the other two boys she found it difficult to accept that her parents' attention had to be shared among all children. However, there were no major impairments recognized at that time though some developmental difficulties and reading performance were to be watched closely.

French Reading Test. Table 11 shows the standings the triplets obtained on the Grade 2 test. At this level the test measures word

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Insert Table 11 about here

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synthesis (Word blending and grapheme discrimination), selecting and matching a word with a visual cue (Word meaning), filling out the

Table 11  
End of Grade 2 Results on the French Diagnostic Reading  
Test for Early French Immersion Primary Classes

Subtests	Alice		Jack		Joseph	
	Raw score	%tile rank	Raw score	%tile rank	Raw score	%tile rank
La synthèse de mots et la discrimination de graphèmes (Word blending and grapheme discrimination)	34	80	36	95	34	80
Lecture de mots (Word meaning)	21	60	23	80	21	60
La compréhension de phrases (Sentence completion)	19	50	26	95	22	60
La compréhension de textes (Story comprehension)	18	60	19	70	20	80

blank with a word chosen from a set of four (Sentence completion) and selecting one answer from four possible ones to specific questions related to a passage (Story comprehension). Again Jack surpassed his siblings in overall scores. He showed remarkable strength in Word blending and grapheme discrimination, and Sentence completion thus, achieving an equal percentile rank for the two subtests. He was somehow lower than Joseph on Story comprehension. Alice and Joseph ranked

the same on Word blending and grapheme discrimination as well as on Word meaning. Alice was the weakest on Sentence completion and Story comprehension. It should also be noted that a marked difference is seen in Alice's percentile rank between Word blending and grapheme discrimination and Sentence completion (choosing one of four words to form a sentence).

Teacher's Evaluations. The triplets were all in the same class with one teacher only during Grade 2. Comments regarding Year 3 performance will follow Table 12 showing rankings for the 3 terms.

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Insert Table 12 about here

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Alice obtained very good standing in listening, oral reading, handwriting and personal development. In fact, not one area had been identified as in need of improvement. She performed in the satisfactory and very satisfactory range in the remainder subjects. Her teacher considered the year as being a very good one for Alice in that she had maintained her level of sociability and had progressed.

Likewise Jack had very good standing in all areas of French Language Arts, handwriting and personal development throughout the 3 terms. His teacher referred to him as an excellent Grade 2 student. Satisfactory performance was only seen in social studies and physical education even though he continued to show motivation for learning.

Joseph did achieve an almost euqually very good standing as his

Table 12  
Grade 2 Teacher's Report Card Evaluation\*

Skills	Term 1			Term 2			Term 3		
	Alice	Jack	Joseph	Alice	Jack	Joseph	Alice	Jack	Joseph
<u>French Language Arts</u>									
A. Listening skills									
1. Listens attentively	1	1	1	1	1	1	1	1	1
2. Comprehension	2+	1	1	2+	1	1	2+	1	1
B. Speaking skills									
1. Fluency of expression	2	1	1	2+	1	1	2+	1	1
2. Clarity of speech	2	1	1	2+	1	1	2+	1	1
C. Reading skills									
1. Comprehension	2+	1	1	2+	1	1	2+	1	1
2. Oral reading	1	1	1	1	1	1	1	1	1
D. Writing skills									
1. Spelling	2	1	1	2	1	1	2	1	1
2. Sentence writing	2	1	2	2	1	2+	2	1	2+
<u>Mathematics</u>									
1. Understanding of principles	2	1	1	2	1	1	2	1	1
2. Computational skills	2	1	2+	2	1	2+	2	1	2+
3. Problem solving skills	2	1	2+	2+	1	2+	2+	1	2+
<u>Social Studies</u>									
	2	2	2	2	2	2	2	2	2

Skills	Term 1			Term 2			Term 3		
	Alice	Jack	Joseph	Alice	Jack	Joseph	Alice	Jack	Joseph
<u>Science</u>	2	1	1	2	1	1	2	1	1
<u>Handwriting</u>	1	1	1	1	1	1	1	1	1
<u>Physical Education</u>	2	2	2	2	2	2	2	2	2
<u>Art</u>	2	2	2	2	1	1	1	1	1
<u>Music</u>	2	1	1	1	1	1	1	1	1
<u>Personal Development</u>									
1. Respect for others	1	1	1	1	1	1	1	1	1
2. Sense of responsibility	1	1	1	1	1	1	1	1	1
3. Participation	1	1	1	1	1	1	1	1	1
4. Independent work	1	1	1	1	1	1	1	1	1
5. Work habits	1	1	1	1	1	1	1	1	1
6. Self-control	1	1	1	1	1	1	1	1	1

\* Note:

1	very good
2+	very satisfactory
2	satisfactory
2-	less satisfactory
3	needs improvement

brother in all subjects except sentence writing in French on which he obtained very satisfactory rating. It was commented that he had worked hard all year and had a positive approach to learning.

During that year the two boys presented a similar excellent performance whereas the girl fell in the above average range. From the results Grade 2 can then be considered the best year the triplets had at the primary level because of the high ratings accorded by their teacher.

#### Year Four Evaluation: Grade 3 Performance

English Reading Tests. Grade 3 is the transitional year in this particular bilingual setting. For the first time the students receive English Language Arts instruction at the rate of two hours per day. There are some students who have learned to read on their own prior to being formally taught at school. A natural transfer of reading skills from French to English has indeed taken place. Nevertheless, a number of pupils start at zero level in the acquisition of their mother tongue.

Early in the school year, a pre-test is given in order to establish the level of English proficiency the pupils have upon entry into Grade 3. The Gates-MacGinitie Reading Tests, Level C, Form 2 (MacGinitie, 1980), is administered in the fall and the posttest, Form 1, in the spring of the following year.

A short description of these tests is included in Appendix H.

Table 13 contains the results the triplets obtained on the pre-test given in the fall.

Table 13  
Results Obtained on the Gates-MacGinitie  
Reading Tests - Level C, Form 2  
Fall Pretest in Grade 3

	Vocabulary			Comprehension		
	Alice	Jack	Joseph	Alice	Jack	Joseph
Raw score	8	20	18	9	17	21
Percentile Rank	3	31	24	4	21	31
Grade Equivalent	B.N.	2.5	2.4	B.N.	2.2	2.4

Alice's score was significantly lower than her brothers. Both scores on Vocabulary and Comprehension were below norms.

There was hardly any variation between the boys who like a number of other French immersion children managed to achieve a Grade 2.5 ranking in overall performance. Jack was slightly above Joseph on the Vocabulary subtest but at the same time a little lower on the Comprehension subtest. The boys achieved a much higher level than Alice on this English reading test.

By the spring Form 1 was administered. Table 14 represents the posttest results which can be compared with the ones given in Table 13.

Table 14  
Results Obtained on the Gates-MacGinitie  
Reading Tests - Level C, Form 1  
Spring Posttest in Grade 3

	Vocabulary			Comprehension		
	Alice	Jack	Joseph	Alice	Jack	Joseph
Raw score	27	27	34	24	28	31
Percentile Rank	27	27	50	21	31	42
Grade Equivalent	3.1	3.1	3.8	2.5	3.1	3.5

Alice had made the most remarkable progress in Vocabulary development to the point of paralleling her score with Jack's. A discrepancy occurred in her acquisition of Vocabulary and Comprehension skills with more than a half-year delay in Comprehension. Jack was in the medium range among this group with an equal grade level on both subtests. On the other hand, it is Joseph who topped his siblings by improving his overall performance by a whole year. He was found to be relatively stronger in Vocabulary than in Comprehension.

French Reading Test. This test, devised by Tourond (1980) for Primary French immersion classes, evaluates silent reading performance solely to Grade 3. At this level the two parts consist in selecting a word from a set of four to complete a sentence and finding



synonyms (Sentence comprehension), and choosing the best answers from a set of four to questions pertaining to short stories (Story comprehension).

Table 15 presents the results of the testing. A disparity between Alice's scores and her twin brothers is evident. She seemed to

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Insert Table 15 about here

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have regressed in the mastery of French skills especially in synonyms and finding relevant details of a story. She had attained a very low score in both subtests. This time Jack was better than his brother in Story comprehension but equalled him in Sentence comprehension.

Teachers' evaluation. In Grade 3, the triplets had two teachers. Alice and Joseph were together in the same class, but Jack in a different class.

The format of reporting to parents had changed from the 1, 2 and 3 ratings, to more elaborate written comments related to the different skills taught at that grade level.

In French Language Arts Alice began the year with a short concentration span which had slightly lengthened by the end of this grade. Her strength was verbal expression evident in oral classroom discussions that went in pair with her social inclination. Some progress had been noted in oral reading though comprehension had suffered in view of the decoding difficulties she was encountering.

Table 15  
End of Grade 3 Results on the French Diagnostic Reading  
Test for Early French Immersion Primary Classes

Subtests	Alice		Jack		Joseph	
	Raw score	%tile rank	Raw score	%tile rank	Raw score	%tile rank
La compréhension de phrases (Sentence comprehension)	20	20	27	70	27	70
La compréhension de textes (Story comprehension)	12	20	20	80	19	70

Also, her sight vocabulary had been regarded as being limited. She seemed to feel more comfortable in silent reading indicating that the auditory input may have interfered with her comprehension. Throughout the year many copying mistakes were seen in her written work (possibly careless letter omissions) as well as poor organizational skills.

In all the other subjects taught in French (mathematics, social studies, science, etc.), Alice could produce some reasonably good work provided the presentation of new concepts and her participation were at the oral level. It seems that her poor reading skills had a detrimental effect on the comprehension and completion of written work as well. The concept of multiplication had to be taught through the

application of concrete material and much work had been suggested in order to master the timestable.

The acquisition of English skills presented initially some problems to Alice in that she could not follow directions and her basic sight vocabulary was weak. Good progress in oral reading and comprehension had occurred by the last term, and as in French, silent reading exercises were not as painful since she could derive meaning from selections read. However, spelling remained at a low level which influenced the quality of her written sentences.

Her teacher viewed her as a very verbal child who needed constant attention and reinforcement. A certain degree of hyperactivity was noticeable which could have hindered her acquisition of basic skills. No referral had been made to the area counsellor as to her behavior and attitudinal problems. The assigned homework was done irregularly and there was no consolidation of skills that would have facilitated academic learning. She was socially inclined and especially popular among boys. In fact she preferred to play with her male colleagues since she had an excellent rapport with her twin brothers whom she was approaching in a rather motherly manner.

Joseph, in the same class as Alice, presented more differences than similarities when compared with his sister. Interestingly, during oral questioning, the two children would always help each other and when reaching a high level of frustration had a tendency of exhibiting temper tantrums with others and pouting to the point of sobbing.

As with Alice, the multiplication concept and mastery of timestable seemed to be a laborious task for Joseph, too. However, he had good concentration ability and was both courteous and considerate to others. He possessed great internal self-discipline as well as an interest in learning. His oral reading in French lacked fluency but he managed to grasp the content of stories. Because of his organizational ability and greater effort he had improved in spelling, punctuation and capitalization.

Joseph's English word attack skills and listening were satisfactory from the beginning of Grade 3. During the year, oral reading and spelling had improved significantly. His performance in silent reading although not at level in the second term, presumably caused by a certain degree of distractibility, had progressed considerably in the next term. He was able to write sentences, respecting all the rules. Joseph appeared to be more aware of his problems than Alice but, on the other hand, there was eagerness to do better and his behavior's stability explained his Grade 3 progress.

Jack was on his own in a different class. He was a good listener and could follow teacher's directions without difficulty. During the first two terms he was reading and expressing himself quite well in French and his dictations had greatly improved. By the end of the year his performance in French deteriorated because less effort had been put in his work. In mathematics he worked slowly at the beginning but end-of-year results were encouraging since he had manifested

a special interest in the subject. His teacher had noticed creativity and concentration in art lessons possibly due to constant exposure to his mother's artistic work. Reading in English came quite easily to Jack early in the school year. According to his teacher he produced high quality work in all areas of English Language Arts.

All the children were promoted to Grade 4.

### Statistical Analysis

The main statistic applied in this case study was the Pearson product-moment-correlation ( $r$ ) with only raw scores included in all analyses.

In order to establish the best predictors in relation to the questions of the study, comparisons were made between scores on the Kindergarten screening battery and the Gates-MacGinitie Reading Tests and the Tourond French reading test at the end of Grade 3. Also correlated were scores of the Grades 1 and 2 Tourond subtests with Grade 3 results. An examination of the statistical data shows a scatter of patterns with some perfect negative and positive correlations indicating that the limitations incurred give unexpected results in this particular study. For example, it is unusual to have a negative correlation between the Peabody Picture Vocabulary Test and the Gates-MacGinitie Comprehension posttest,  $-0.5695$  ( $p = 0.307$ ) both of which are related to the understanding of language. Some entries had very high correlations but the  $p$  level was not near significance.

Table 16 presents the correlation coefficients of selected

Table 16  
Correlation Coefficients of Selected Predictor Variables to the  
Prediction of the Gates-MacGinitie Reading Tests:  
Posttest and the Tourond Grade 3 Test

Criterion variables	Predictor variables					
	KB	KPPVT	KM 2	KM 4	WISC 3	WISC 5
Gates-MacGinitie (posttest) Vocabulary Grade 3	0.7857 (p=0.212)	0.0 (p=0.500)	0.2774 (p=0.411)	0.8660 (p=0.167)	0.8660 (p=0.167)	0.0 (p=0.500)
Gates-MacGinitie (posttest) Comprehension Grade 3	0.2936 (p=0.405)	-0.5695 (p=0.307)	-0.3192 (p=0.397)	0.4271 (p=0.360)	0.4271 (p=0.360)	0.5695 (p=0.307)
Tourond sentence comprehension Grade 3	-0.1429 (p=0.454)	-0.8660 (p=0.167)	-0.6934 (p=0.256)	0.0 (p=0.500)	0.0 (p=0.500)	0.8660 (p=0.167)
Tourond story comprehension Grade 3	-0.2554 (p=0.418)	-0.9177 (p=0.130)	-0.7715 (p=0.220)	-0.1147 (p=0.463)	-0.1147 (p=0.463)	0.9177 (p=0.130)

Note. KB Kindergarten Boehm Test of Basic Concepts  
KPPVT Kindergarten Peabody Picture Vocabulary Test  
KM 2 Kindergarten McCarthy Screening Test Verbal Memory  
KM 4 Kindergarten McCarthy Screening Test Numerical Memory  
WISC 3 Wechsler Intelligence Scale for Children - Revised, Vocabulary  
WISC 5 Wechsler Intelligence Scale for Children - Revised, Comprehension

predictor variables to the prediction of the Gates-MacGinitie Reading Tests and the Tourond Grade 3 test.

Results revealed that there was no correlation between the Gates-MacGinitie Vocabulary subtest, the Peabody Picture Vocabulary Test and the Vocabulary subtest of the Wechsler Intelligence Scale for Children, Revised (WISC-R). The Grade 3 Tourond test yielded negative correlations with the Boehm Test of Basic Concepts, the Peabody Picture Vocabulary Test, the McCarthy Screening Test and the WISC-R Vocabulary subtest. However, the Tourond subtest (Comprehension) had the highest correlation ( $0.9177$ ,  $p = 0.130$ ) with the WISC-R Vocabulary but the level of significance was not close to  $.05$ .

There was a negative or no correlation between the Peabody Picture Vocabulary Test, the McCarthy Screening Test Verbal memory subtest and the predictor variables.

A correlation of  $0.3592$  ( $p = 0.383$ ) was observed between the pre and posttest Gates-MacGinitie Vocabulary subtest whereas the pre and post Comprehension subtest yielded an  $r$  of  $0.9942$  ( $p = 0.034$ ).

Table 17 presents the correlation coefficients of Tourond Grade 1

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Insert Table 17 about here

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and 2 predictor variables to the prediction of Tourond Grade 3 test.

From the analysis there appears to be a higher correlation between the Grade 1 and 3 tests than the Grade 2 and 3 tests. The

Table 17

Correlation Coefficients of Each Predictor Variable (Tourond Grade 1 and 2)  
to the Prediction of Tourond Grade 3 Test

Criterion variables	Predictor variables						
	ONET 1	ONET 2	ONET 3	TWOT 1	TWOT 2	TWOT 3	TWOT 4
Tourond sentence comprehension Grade 3	0.9912 (p=0.042)	1.0000 (p=0.000)	0.9820 (p=0.061)	0.5000 (p=0.333)	0.5000 (p=0.333)	0.8220 (p=0.193)	0.8660 (p=0.167)
Tourond story comprehension Grade 3	0.9998 (p=0.006)	0.9934 (p=0.037)	0.9972 (p=0.024)	0.5960 (p=0.297)	0.5960 (p=0.297)	0.8819 (p=0.156)	0.8030 (p=0.203)

Note. ONET 1 Grade 1 Tourond test - Word recognition  
 ONET 2 Grade 1 Tourond test - Word meaning  
 ONET 3 Grade 1 Tourond test - Sentence and short story comprehension  
 TWOT 1 Grade 2 Tourond test - Word meaning  
 TWOT 2 Grade 2 Tourond test - Word blending and grapheme discrimination  
 TWOT 3 Grade 2 Tourond test - Sentence completion  
 TWOT 4 Grade 2 Tourond test - Story comprehension



Sentence comprehension subtest correlates at the same level with the Grade 2 Word meaning and Word blending and grapheme discrimination subtests. Similar findings were obtained on the Story comprehension subtest.

On the basis of descriptive observations and statistical analysis questions of the study are addressed in the following text and their possible answers are also presented.

Question 1: From the screening instruments employed at the Kindergarten level, which instruments were the best predictors of the triplets' academic success at the end of Grade 3?

Information as to the predictive power of the Kindergarten screening battery and other tests used, is unjustifiable in this particular study due to the limited sample. Based on the results data, the Boehm Test of Basic Concepts correlated the best with the Gates-MacGinitie Vocabulary subtest (0.7857,  $p = 0.212$ ); the Peabody Picture Vocabulary Test had either a negative or no correlation with the criterion variables. The McCarthy Screening Test Verbal memory subtest had no correlation with the criterion variables but the Numerical memory subtest correlated with the Gates-MacGinitie Vocabulary posttest (0.8660,  $p = 0.167$ ).

Question 2: From the French tests used at the Grade 1 and 2 levels, which ones were the best predictors of the triplets' success at end of Grade 3?

The Grade 1 Tourond French reading test correlated highly with

the Grade 3 test (from 1.000  $p = 0.000$  to 0.9998  $p = 0.006$ ) but the Grade 2 test yielded a lower correlation (from 0.8660  $p = 0.167$  to 0.5000  $p = 0.333$ ).

Question 3: Were there sex differences in the predictor variable?

The possibility of sex differences in the predictor variable with only one subject as a female and two subjects as males, could not be demonstrated.

Question 4: What other variables can be used as predictors of success at the end of the primary grades?

Since a child's development is modified by his immediate environment, a specific set of variables affecting success at the primary level may not be possible for a general population.

There are children who exhibit difficulties in learning both at the Kindergarten and Grade 1 level, but after these grades they are able to function adequately. Reasons for success can only be tentative since they are unmeasurable. In the case study, the instruments used in French and/or English were not good predictors.

Question 5: To what extent significant factors contributed to a diversity in the development of certain academic and social skills from Kindergarten to Grade 3?

Factors which may have contributed to the attainment of a specific skill are difficult to identify in an objective manner therefore, any definite statements cannot be made.

## CHAPTER IV

## FINDINGS, CONCLUSIONS AND IMPLICATIONS OF THE STUDY

This chapter presents the findings, conclusions, limitations and implications of the study.

The purpose of the study was to evaluate the academic achievement of a set of triplets attending a Primary French immersion school over a period of four years. In addition the study sought to ascertain whether any of the formal and informal measures used at the Kindergarten level could be identified as predictors of a student's success in the French immersion programme. Also, non-scholastic skills covering a four-year period have been examined in terms of their impact on overall performance results in respect to each subject.

Major Findings of the Study

Based on the four-year evaluation of the triplets it appears that linguistic ability, personality factors and attitudes, and not IQ, were factors affecting their success in French immersion.

Cummins' "threshold hypothesis" interpreted as the minimal level of competence in first language (cognitive linguistic skills) may have been a factor influencing the attainment of French and English by the triplets. Since it has been proven that French immersion pupils acquire the necessary English skills when English language instruction is formally introduced, the acquisition of French oral language ought to be emphasized to a greater extent. Also a child's attention on

school-oriented activities may have some ramifications for future learning. In Alice's case, the limited attention span she has been exhibiting throughout her early schooling seemed to be a decisive factor in her subsequent academic performance. In focusing on Jack's achievement, it is likely that his perfectionist tendency identified already in Grade 1 has contributed to his attainment of good French and English language skills.

For the three children of average ability, motivation seemed to be a key factor in their success. Throughout the years, the triplets developed differently in the area of receptive language, listening comprehension, verbal expression and interests.

#### Limitations of the Study

There are three limitations of the study.

First, the study is restricted to a small sample of pupils rather than to an entire class within a given period of time.

Second, the researcher has relied heavily on information obtained from various sources as stated earlier since direct involvement with the triplets only occurred at the time of the Kindergarten screening.

Third, it becomes practically impossible to designate all the factors that may have contributed to a differentiation in the attainment of specific skills.

Hence, it should be noted that there was no control over the following variables:

1. The instruments used (test administration);

2. The teachers' comments on report cards;
3. Overall evaluation during the given period of time;
4. The instruction in the classroom;
5. Validity of observations made by various individuals (teachers' commitment to express their personal opinions, etc.);
6. The fact that only a similar standardized French diagnostic reading test was given from Grade 1 to 3 (one for each grade level) may also be considered another limitation.

#### Discussion and Conclusions

The discussion that follows is made based on the mentioned limitations of the study.

Testing measurements in French are still in an experimental stage. In the manual of the Tourond test (1980), the author cautions that the French test has not been utilized for a sufficient length of time, i.e. it does not permit measures of predictive ability.

Likewise, it should be acknowledged that the sample entered a French immersion Kindergarten with poorly developed first language skills. They mainly lacked conceptual base and receptive language ability. Since the test results did not indicate a significant delay in linguistic abilities, it is possible that the cognitive system of these children was not yet organized in their first year of formal schooling.

It might be hypothesized that if English language skills had been closely monitored, with less emphasis on the acquisition of

French these children would have had a firmer grasp of one language only. In addition, if they had attended a French pre-school there might have been a greater interest in the learning of French.

Results from Year 1 evaluation revealed that the triplets displayed no major strengths but rather weaknesses in various areas of English language. The three performed below the mental age level on receptive language. Both boys experienced difficulties in expressing themselves verbally but it is Jack who caused the greatest concern due to his linguistic deficits and poor auditory memory. Alice was already exhibiting poor auditory listening and vocabulary. And, finally, Joseph displayed subtle language difficulties.

The prognosis for these children to remain in a French immersion programme with the above mentioned characteristics did not appear too optimistic. Moreover, Jack's level of functioning was so low that on the basis of the screening results he was the one who would have certainly struggled throughout the primary grades. Upon completion of this critical introductory year, he improved beyond one's expectations beginning in Grade 1, and maintained a strong position in comparison with his sister and brother.

When he entered Grade 1 Jack's receptive language as in Kindergarten was still weak. In general it appears that some children advance to Grade 1 with some difficulties on the Kindergarten screening but do improve during the summer possibly as a result of specific exercises programmed for the home by school professional staff and/or

private tutoring. Hearing acuity was not recognized as being the cause of his low language ability. After more exposure to language-oriented activities, Jack's vocabulary and English skills were at a much higher level by the end of Grade 1. On the French reading test he obtained the highest score of the three.

Although he started the year with stronger English language skills and continued to progress during that grade it was noted that Joseph followed his brother closely academically but not socially.

In Alice's case no specific language disability was identified by the speech and hearing therapist though some behavior and personality problems had been noticed. She achieved very low scores on the French reading test and her yearly performance was average. Her attention-seeking behavior may have been a drawback in the learning of basic academic skills. She indeed lagged behind both boys starting in Grade 1.

At the Grade 2 level, the triplets obtained the best ratings from their teacher (only one) for the four-year period. Alice was receiving private tutoring in French reading but her overall performance was lower than her twin brothers. Poor visual-motor integration and depressed verbal scores could not be matched with any brother. Similar results were observed for the attainment of French language skills.

Jack has also a low verbal range on a psychological measure in comparison with his performance range. He was the best on the French

reading test by reaching a high level of French language proficiency.

Although Joseph did not meet Jack's academic level he scored quite well on the psychoeducational tests and did not encounter any problem in the acquisition of French language skills.

Greater variation was observed in evaluating the triplets (Grade 3) with two teachers assessing them. All three children did not excel in mathematics but rather were struggling to keep up with the demands of the curriculum.

Alice kept up her high verbal skills in both languages. She entered this grade with non-existent English skills. However, by the spring she had made more progress in vocabulary than comprehension and her range was in the mid Grade 2 to beginning Grade 3 category. Poor spelling skills hampered the development of French and English sentence writing. She had also a preference to approach a problem through the manipulation of concrete material.

Jack and Joseph started Grade 3 at an equal level of English language proficiency. Jack had a good academic year due to motivation and concentration which helped him improve in French oral expression and spelling. On the English language posttest he achieved a beginning Grade 3 level but no major problems had been identified then.

Joseph, showing greater interest in academic subjects at the end of Grade 3 level rated the best on the English language posttest. However, he experienced difficulties with mathematics.



In conclusion reference is made to Cummins' (1979) belief that minimal cognitive-linguistic skills are necessary in order to be successful in second language learning. Since the speed of learning is related to the rate of maturation and the children's ability to grasp new concepts was slow in comparison with other pupils it may be that the late immersion concept might have been more suitable for the triplets.

### Implications of the Study

Implications of the study will focus on both the school level and the research level.

#### School Level

The study presented a systematic developmental pattern of an unusual sample of children by observing various individual characteristics emerging over a four-year span.

On the basis of this case study it is suggested that early intervention by school staff at the Kindergarten level may reduce the difficulties some children will experience in the primary grades. The subjects of the study did not attend the learning assistance center for specific remediation but were being tutored privately. At this point, it is recommended that the Grade 1 teachers become more familiar with the Kindergarten screening process and focus their attention on children who have been identified "at risk".

It is suggested that a test battery such as Trites' Early-Identification Assessment Battery be administered to children who did

not perform satisfactorily on the school's regular screening.

Also, that a four-year programme instead of three-year programme be offered in the French primary grades for children who have no learning disability but need more time to learn a foreign language and show a high motivational level to learn French.

Finally, there appears to be a need for teachers' input in the development of appropriate French immersion material especially in reading content area.

#### Research Level

To this date research has focused on native language development, second language acquisition and general intelligence. There seems to be a need for research in:

1. The development of French immersion standardized and diagnostic tests measuring all facets of French Language Arts at each grade level (early and late immersion option);
2. The improvement of screening procedures taking into account second-language learning at the beginning of Kindergarten;
3. The preparation of a study on a group of French immersion Kindergarteners upon completion of French pre-school (effects of longer language exposure and earlier language training);
4. A closer examination of the composition of French immersion groups to see more characteristic traits and differences/similarities within the group;
5. The description of oral and written production of French

immersion students at each grade level;

6. The evaluation of French immersion students experiencing learning disabilities at the primary level;

7. Reasons for dropping out of French immersion at all levels (elementary and secondary schools) of students from various socio-economic status;

8. Psychological implications of below average pupils entering French immersion;

9. Examining the impact French immersion has on the school achievement of below average pupils;

10. Special attention to socio-economic, ethnic and intellectual factors for minority group children (third language is involved).

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## APPENDICES

## APPENDIX A

## ST. LAMBERT TESTS DESCRIPTION

TESTS DESCRIPTION GRADE 1 LEVEL: ST. LAMBERT EXPERIMENT

PILOT AND FOLLOW-UP CLASSES (LAMBERT & TUCKER, 1972)

1. Progressive Matrices (Raven, 1956), non-verbal IQ test of general intelligence administered at the beginning and the end of the year.
2. Lorge-Thorndike Intelligence Tests, Level I, 1954-66, measure of intelligence at the end of the schoolyear.
3. Home-background schedules with interviews (Bloom, 1964; Dave, 1963; Wolf, 1963) and parent questionnaire (socio-economic status, child's linguistic environment attitude profile).
4. Metropolitan Achievement Tests (1959): Primary I Battery (word knowledge, word discrimination, reading, and arithmetic concepts and skills).
5. The Peabody Picture Vocabulary Test (Dunn, 1959): English, Form b; French, Form a, (auditory vocabulary, receptive language).
6. Listening Comprehension in English (comprehension of two stories read orally).
7. French Listening Comprehension (French version of the test in English).
8. Word Association Analysis: French and English (associational latency, paradigmatic, syntagmatic, semantic clusters, idiosyncratic, rhyming, transformations).
9. Word Discrimination in French (French version of the Metropolitan Achievement Test: word discrimination).



10. Phoneme Production, in French (auditory memory: repetition of sentences).
11. Speaking Skills in English, filmstrip story of "The Lion and the Rat" (story retelling: overall expressive ability, grammar, enunciation, rhythm, intonation).
12. Speaking Skills in French, filmstrip story of "Le Loup et l'Oiseau" (same description as in English).
13. Phoneme Discrimination in Russian (discrimination of phonemes foreign to all groups).
14. Test de Rendement en Français (1969-70), reading skills in French: word discrimination and sentence comprehension).
15. Test de Rendement en Calcul (1969-70), School Commission Mathematics Test, in French (solving identities, addition, subtraction).

APPENDIX B

THE ELGIN STUDY

The Elgin Study: Assessment Instruments  
for Grades 1 to 3 Evaluations

Tests	Grades		
	1	2	3
Otis-Lennon Mental Ability Test			
(PPrimary II Level, Form J, 1967)	S		
(Elementary I Level, Form J, 1967)	E	X	X
Metropolitan Readiness Tests			
(Form A, 1964)	S		
Stanford Early School Achievement Test			
(Level I) - SESAT (1969)	S		
Metropolitan Achievement Tests			
(PPrimary I Battery, Form A, 1958)	E		
(PPrimary II Battery, Form A, 1970)		X	
(Elementary Battery, Form A, 1970)			X
French Comprehension Test - 1973			
(Kindergarten Level)	E		
(Grade 1 Level)	E	X	X
IEA Listening Test of French as a foreign language			
(Population I Level, 1970)		X	X
Test de Rendement en Français			
(Grade 1 Level, 1971-1972)		X	N.A.

Note: S start of the grade  
E end of the grade

APPENDIX C

PARENT DATA SHEET

PARENT DATA SHEETA. Family historyMotherFather

Motor non-coordination

Speech defects

Reading problems

Mental deficiencies

Health status

Frequent illnesses

Chronic disorders

Incidence of multiple births

B. Prenatal history

- age of father

- age of mother

- health of mother during pregnancy (when was it diagnosed that a set of triplets would be born? Were there special measures undertaken then, if so, which ones?).

C. Natal history

1. Premature \_\_\_\_, Postmature \_\_\_\_, At term \_\_\_\_.

AliceJackJoseph

2. Order of birth

Weight at birth

## 3. Delivery:

- head \_\_\_\_\_; breech \_\_\_\_\_; Caesarean \_\_\_\_\_.
- length of hard labor \_\_\_\_\_
- use of anesthesia \_\_\_\_\_; instruments \_\_\_\_\_
- atypical behavior of infants:
  - feeding problems \_\_\_\_\_
  - respiration problems \_\_\_\_\_

## 4. General health index

Alice      Jack      Joseph

- crying
- reaction to stimuli

D. Developmental history

## 1. Nutrition

- Feeding: breast \_\_\_\_\_; bottle \_\_\_\_\_
- Gained Weight steadily \_\_\_\_\_
- Sensitivity to foods \_\_\_\_\_

2. Responses to stimuli: light \_\_\_\_\_; sound \_\_\_\_\_;  
moving objects \_\_\_\_\_; people \_\_\_\_\_

## 3. Age in months when the following took place:

Alice      Jack      Joseph

- a. raising head
- b. rolling over
- c. first tooth
- d. 8 teeth

	<u>Alice</u>	<u>Jack</u>	<u>Joseph</u>
e. sat alone			
f. crept			
g. took first steps			
- with support			
- alone			
h. balanced walking			
i. running			
j. established laterality			
(holding spoon,			
crayon, etc.)			
k. gained voluntary control			
of bladder and of bowels			
l. from what age did child			
show preference for one hand			
E. <u>Health</u>	<u>Alice</u>	<u>Jack</u>	<u>Joseph</u>
1. General health index			
- high			
- average			
- low			
2. List of diseases (note age,			
severity and duration)			
a. upper respiratory			
infections (cold,			
bronchitis)			

	<u>Alice</u>	<u>Jack</u>	<u>Joseph</u>
b. influenza			
c. pneumonia			
d. mumps			
e. measles			
f. scarlet fever			
g. chicken pox			
h. small pox			
i. whooping cough			
3. Medical problems and treatment (age and description)			
a. ears			
b. nose			
c. eyes			
d. teeth			
e. surgical operations			
4. Structural anomalies and severe injuries			
F. <u>Speech and Language</u> (date in months)			
	<u>Alice</u>	<u>Jack</u>	<u>Joseph</u>
1. Random vocalization			
2. Imitation of sounds			
3. Meaningful sounds			



	<u>Alice</u>	<u>Jack</u>	<u>Joseph</u>
4. First words (when and which ones)			
5. Who spoke first			
6. Intelligible phrases (when, who and which ones)			
7. Rate of development of sounds			
- normal			
- retarded			
- accelerated			
8. Description of vocabulary of child			
9. Need for speech			
10. Presence of speech models			
- Reading and speaking to child by others			
- Imitation of baby talk by elders			

G. Pre-school experiences

	<u>Alice</u>	<u>Jack</u>	<u>Joseph</u>
1. Pre-school attendance (duration, type)			
2. Learning nursery rhymes (memory and listening) Who learned them first?			
3. Interest in learning things heard			

Alice      Jack      Joseph

4. Interest in school
5. Interest in learning French

H. Early school experience in parents' perspective  
(to comment freely)

1. Social & Emotional adjustment
2. Academic performance and private tutoring
3. Expectations in different areas

I. Social history and adjustment

1. Number of individuals living in home  
(relatives, servants, etc.)
2. Communication
  - Languages spoken in home: \_\_\_\_\_
  - Standard of speech proficiency
    - in home: low \_\_\_\_ average \_\_\_\_ high \_\_\_\_
    - in community: low \_\_\_\_ average \_\_\_\_ high \_\_\_\_

- Amount of speech in home

- much \_\_\_\_ average \_\_\_\_ little \_\_\_\_

- Motivation to communicate in home:

Alice: \_\_\_\_\_

Jack: \_\_\_\_\_

Joseph: \_\_\_\_\_

3. Social interests Alice Jack Joseph

- clubs

- churches

- sports

- music

- art

- recreation

- games

4. Behavior problems (age Alice Jack Joseph  
began, description)

a. Nervousness

b. Shyness

c. Showing off

d. Negation

e. Rejection

f. Aggression

g. Prevarication

	<u>Alice</u>	<u>Jack</u>	<u>Joseph</u>
h. Temper tantrums			
i. Excessive jealousy			
j. Extreme possessiveness (objects, people, etc.)			
k. Enuresis			
l. Sleeplessness			
m. Nightmares			
n. Strange and persistent fears			
o. Talking, crying in sleep			
p. Thumb sucking			
q. Food idiosyncrasies			
5. Child reflects	<u>Alice</u>	<u>Jack</u>	<u>Joseph</u>
a. Stable adjustment			
b. Excessive tensions			
c. Great insecurity			
d. Overprotection			
e. General maladjustment			
6. Intra-family problems of adjustment (to comment freely)			

## 7. Discipline of children

- administered by
- usual form
- most effective form
- least effective

## 8. Atmosphere of home characterized by:

- a. \_\_\_\_\_ happiness
- b. \_\_\_\_\_ unhappiness
- c. \_\_\_\_\_ security
- d. \_\_\_\_\_ love
- e. \_\_\_\_\_ excess of affection
- f. \_\_\_\_\_ overprotection
- g. \_\_\_\_\_ sternness
- h. \_\_\_\_\_ rigidity
- i. \_\_\_\_\_ sociability
- j. \_\_\_\_\_ silence
- k. \_\_\_\_\_ interest in life and events beyond home

## APPENDIX D

### KINDERGARTEN SCREENING BATTERY

Boehm Best of Basic Concepts (BTBC)

According to the Manual, the Boehm Test of Basic Concepts (Boehm, 1971) is an "Instrument designed to assess beginning school children's knowledge of frequently used basic concepts widely but sometimes mistakenly assumed to be familiar to children at their time of entry into Kindergarten or first grade" (p. 4). Buros (1978b), states that this picture test intended for Kindergarten to Grade 2 pupils, is based on commonly found concepts in preschool and primary grade instructional materials. It is known that these concepts have a direct impact on a child's early school performance since they are repeatedly used in the directions pertaining to curriculum materials.

Peabody Picture Vocabulary Test (PPVT)

Buros (1978c) indicates that this individually administered test, was standardized for students between the ages of 2.5 and 18. A set of 4 pictures is presented to the child who upon hearing a word, points to the corresponding picture. The plates are ranked in order of difficulty with a heavy concentration at the early pre-school level, from dissimilar to more similar subjects on the plates. This test provides "An estimate of a subject's verbal intelligence through measuring his hearing vocabulary" (Dunn, 1965, p. 25). Specifically, it demonstrates the child's ability to hear and understand words. It is suitable for non-readers and children who have a reading disability

as well as other handicaps (physical, etc.). The extent of vocabulary knowledge seems to serve as a predictor of school success which is related to verbal intelligence. The test "Correlates equally well with language arts, social studies, and mathematics achievement" (p. 41).

In terms of predicting school success, Klaus and Starke (1964) found a correlation between the PPVT raw scores obtained at the beginning of the year and Metropolitan Achievement Tests (1958), word knowledge scores: 0.39, word discrimination: 0.35, and reading: 0.39, at the end of the school year (Dunn, 1965, p.41).

This test differs from the Revised Stanford-Binet Tests of Intelligence (Terman & Merrill, 1937) and Wechsler Intelligence Scale for Children (Wechsler, 1949) because no oral definitions of words is required. The PPVT is a receptive rather than an expressive language measure. All these tests however, measure comprehension of spoken words. In the PPVT, the obtained raw scores are converted into percentile scores (percentile norms), IQ (standard score norms) and mental age (age norms).

#### McCarthy Screening Test (MST)

This test devised by McCarthy (1972), is a compilation of subtests derived from the McCarthy Scales of Children's Abilities (McCarthy, 1972) which assesses the child's level in subscales of perceptual, verbal, quantitative performance, perceptual grouping and motor.



There are 6 subtests administered individually:

1. Right-left orientation (assessment of orientation in space by recognizing left and right, on oneself and the reverse);
2. Verbal memory (repeating a graded word series, concrete concepts, abstract words and sentences);
3. Draw-a-design (perceptual ability to copying geometrical designs);
4. Numerical memory (immediate memory by repeating series of digits in accurate order and in the reverse of the order given);
5. Conceptual grouping (ability to deal logically by classifying blocks on basis of shape, color, and size);
6. Leg coordination (maturity of motor coordination in the lower extremities, walking, standing, skipping).

Pass-fail scoring is based on an assigned score for each subtest as per child's age range. Depending on the number of tests failed, classification of a child may be in the "at risk" or "not at risk" category.

#### Bilingual Syntax Measure (BSM)

Buros (1978a) refers to this oral language test as one designed for children from Kindergarten through to Grade 2. It assesses second-language oral proficiency in English or Spanish but the manual (Burt et al., 1975) offers to use the test with children from other native language backgrounds. It is one of the few commercially distributed

tests that pertains to bilingual education. It indicates language dominance and facilitates grouping of students in instructional programmes.

The purpose of this individually-administered test is to elicit desired structures, a conversation that would constitute a part of grammatical structures acquired in the process of speech development. The test analyzes only syntax as an aspect of linguistic proficiency, since it is more stable across idiolects and dialects than vocabulary, pronunciation or the functional uses of language. There are seven cartoons on the basis of which the tester poses questions. Recorded responses are scored for their grammaticality of sentence structure. The test has five proficiency levels ranging from non-speaking or comprehension of the language to proficient speakers.

APPENDIX E

LINGUISTIC TESTS

The Illinois Test of Psycholinguistic Abilities, ITPA (Kirk et al., 1968) is a diagnostic tool used to define a child's specific cognitive abilities (channels of communications, psycholinguistic processes, levels of organization) and deficits that require remediation; it taps a variety of skills: (1) Auditory reception, (2) Visual reception, (3) Auditory association, (4) Visual expression, (5) Verbal expression, (6) Manual expression, (7) Grammatical closure, (8) Visual closure, (9) Auditory sequence memory, and supplementary subtests (10) Visual closure, and (11) Sound blending.

The Test of Language Development, TOLD (Newcomer & Hammill, 1982) is an oral or spoken language test that diagnoses a child's strengths and weaknesses in his receptive and expressive language competencies. The subtests are classified into 4 broad categories (composites) that serve to identify areas of concern such as listening, speaking, semantics and syntax.

The Lindamood Test of Auditory Conceptualization, LAC (Lindamood & Lindamood, 1971) is an individually administered test which measures auditory perception, the ability to discriminate one sound from the other, and to perceive the order and number of sounds found in a spoken pattern. Conceptualization of speech patterns is accomplished through the manipulation of wooden blocks. The authors indicate that the "Two categories of the LAC Test parallel the two skills basic to reading and spelling, conceptualization of isolated

phonemic units and conceptualization of contrasts within and between syllables, in respect to identity and sequence" (p. 25). This test has the power to predict reading and spelling achievement.

APPENDIX F

FRENCH DIAGNOSTIC READING TESTS FOR EARLY  
FRENCH IMMERSION PRIMARY CLASSES

French Diagnostic Reading Tests for Early  
French Immersion Primary Classes (Tourond, 1980)

These group diagnostic tests of French reading are given to children enrolled in primary French immersion classes where French is taught: (1) 80%-100% in Grade 1, (2) 70%-80% in Grade 2, and (3) 50%-80% in Grade 3.

For each grade level, special consideration has been given to the selection of subjects and illustrations such as people, animals, nature, real and imaginative stories, familiar and unfamiliar words (comprehension), various parts of speech, specific phonic skills, idiomatic expressions, paragraphs and dialogues varying in length.

At the Grade 1 level, there are 3 subtests: Word recognition (auditory/visual discrimination of words, 25 items), Word meaning (selecting and matching a word with a visual cue, 24 items), Sentence and Short story comprehension (marking a picture illustrating the meaning of a sentence and choosing the correct word to finish a sentence, 22 items).

The Grade 2 level foresees: Word synthesis based on sentences read by tester (Word blending and grapheme discrimination, 12 items), Selecting and matching a word with a visual cue (Word meaning, 27 items), Filling out the blank with a word chosen from a set of 4 (Sentence completion, 27 items), and Picking one answer (out of 4) to specific questions related to a passage (Story comprehension, 24 items).

Finally, the Grade 3 level has only 2 parts consisting in filling out the blank with a word chosen from a set of 4 (Sentence comprehension, 33 items) and finding synonyms and selecting the best answers (among 4) to questions pertaining to the short stories (Story comprehension, 24 items).

Percentile ranks derived from raw scores give an indication of the pupil's performance level. Once correction, tabulation and conversion into percentile ranks have been achieved, it is recommended to proceed to the Analysis of Errors Chart from tests which will show in which area of reading a child will need special assistance.



## APPENDIX G

### PSYCHOLOGICAL TESTS

A battery of 6 psychodiagnostic tests was administered by two psychologists. In some instances, there was no need to give a test to a particular child. The Developmental Test of Visual Motor Integration (1977) is a "Regular screening instrument that helps prevent learning and behavioral disorders through early identification of difficulties" (Beery, 1982). Sensorimotor development is assessed by having the child reproduce geometric forms, from simple to difficult. A comparison is then made between chronological age and visual-motor integration age equivalent.

The Motor-Free Visual Perception Test (Colarusso & Hammill, 1972) estimated visual perceptual ability in children. Though it has little commonality with social achievement (reading, etc.) or intelligence, it is used for screening diagnostic, and research purposes. No motor involvement, only perception in the areas of spatial relationships, visual closure, and visual memory is taken into account. In essence, the child is required to match or select geometric shapes, letter-like and number-like forms, stick figures and realistic designs.

The Wide Range Achievement Test, WRAT (Jastak & Jastak, 1978) assessed reading word recognition, pronunciation, written spelling and arithmetic computation. In reading, it involves recognizing, naming letters, and sounding words in isolation. In spelling, the subject writes a list of words from dictation and in arithmetic, counting, solving oral problems and written computations are required. The purpose of this test is to identify a specific learning disability

and the instructional level for children.

The Wechsler Intelligence Scale for Children, WISC-Revised (1974) examined mental abilities, current intellectual capacities of children. This individually administered test (Whitworth & Sutton, 1978) comprises 12 subtests:

1. Information, which measures a student's knowledge of particular facts;
2. Similarities, which measures ability to think and reason logically and associatively at concrete and abstract levels;
3. Vocabulary, which requires the definition of specific words;
4. Arithmetic, which measures the ability to solve arithmetic problems received auditorily through mental computation;
5. Comprehension, which measures the ability to evaluate properly a situation typical of real life and determine the appropriate set of responses;
6. Digit span, which measures the retention and repetition in correct sequence of both forward and backward numerical information received auditorily;
7. Picture completion, which measures the ability to identify visually a relevant part that is missing within a picture;
8. Picture arrangement, which measures the ability to place in correct sequence a series of pictures reflecting a real-life situation;
9. Block design, which measures the ability to look at an abstract design, analyze it into parts and reproduce it using appro-

priately colored blocks;

10. Object assembly, which measures the ability to assemble individual concrete parts to make a recognizable whole;

11. Coding, which measures the ability to reproduce symbols through pencil manipulation as a part of a set code;

12. Mazes, which measures the ability to plan, use foresight and perceptually organize according to a visual pattern.

APPENDIX H

GATES-MACGINITIE READING TESTS

The Gates-MacGinitie Reading Tests (MacGinitie, 1980) are Canadian standardized tests which present the general level of reading achievement of individual students by measuring reading vocabulary and comprehension. It assists educators in grouping students requiring either advanced instruction or remedial assistance. The Vocabulary section contains 45 items from which the child is required to choose a corresponding word, meaning the same as the test word (synonyms). Vocabulary words ranging from easy to more difficult, are real words representing nouns, verbs, adjectives and adverbs.

There are 22 passages in the Comprehension test followed by questions to answer. Various subject matters taken from children's books have been included in the passages.

The content has an international character and is suitable to students from various cultural backgrounds.

Raw scores are converted to percentile ranks, T-scores, stanines and grade equivalents.