

RETENTION AND MOTIVATION OF FRENCH AS A SECOND LANGUAGE
AMONG STUDENTS OF VARYING ABILITIES

by

KATHLEEN SUSAN MACDICKEN-JONES

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Department of LANGUAGE EDUCATION

The University of British Columbia
Vancouver, Canada

Date August 12/94

Abstract

Teachers routinely conduct a period of review after a semester or summer holiday break due to expected loss of material learned. In the area of second language (L2) acquisition, this matter is of particular concern to instructors and students because, in general, during the period of disuse students have had little, if any, contact with the language. One factor which has proven to influence the maintenance of an L2 is that of motivation. Gardner and his colleagues' (1959, 1971, 1973, 1985, 1987, 1988) studies of French as a Second Language (FSL) have highlighted strong correlations between attitude and achievement and achievement and language retention. Research on individual differences among learners (Brounstein, Holahan, William, & Sawyer, 1988; Gardner, 1990) has also contributed to identifying what leads to a successful learner.

This study examined the loss of linguistic and reading comprehension skills among learners of all ability levels in FSL, with a focus on high ability learners, following summer vacation. In addition, between-group comparisons of motivational factors, as based upon subjects' pre-test scores were conducted.

Tests performed consisted of an analysis of exam questions and components to confirm an equal level of difficulty of both test versions used, as well as tests of reliability. Pre- and post-test measures were compared to identify any loss incurred, followed by Pearson correlations and t-tests. Ability groupings were then categorized as high, medium, and low according to their pre-test scores. Within these groupings,

questionnaire statistics were calculated and contrasted to highlight any motivational differences between them.

Findings from this research suggested that language skills among FSL learners of varying abilities deteriorate significantly after a period of disuse. In addition, these findings confirmed that highly proficient FSL learners are more immune to attrition due to their having a more stable language base. With reference to the motivational questionnaires, analyses concluded few significant differences among the three ability levels.

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Dedication

This thesis is dedicated to Mom for helping me get this far, and to Glenn for seeing me through it.

CHAPTER ONE

Introduction

A common complaint of former students of French as a second language (FSL) is that after having completed five or six years of study, they retain little of what they had learned during that time. Upon exiting secondary school, former French students rarely find an opportunity to speak French in an anglophone environment, such as that of British Columbia, unless they choose to study in a French-speaking university, or to live in a Francophone community. One would hope that the purpose of education is not solely to provide a final grade, or to learn study habits and mental discipline, but rather to provide a basis of knowledge upon which to build in future. Yet, as Gardner points out, "Even language teachers assume that language material can be forgotten after a period of disuse..." (Gardner, 1991, pp. 55).

Because Richmond School District, where the study was conducted, philosophy maintains that "our [their] focus is on the learner," (Richmond School Board, 1990, p. i) many options are open to children in this school district, all of which strive to provide them with the richest educational environment, while responding to their needs, abilities, and interests. At Richmond Senior Secondary School (RSSS), in the area of FSL, there exist Core French (CF) and International Baccalaureate (IB) programmes, both of which have different syllabi. The content of each programme may be influential upon the maintenance of French after a period of disuse. Hence, in studying retention of the two

FSL programmes, one must look not only at the period of attrition, but also at the characteristics of each programme.

Although each programme has a different curriculum (particularly in the second year), and teaching methodologies, there are common threads that weave throughout the two approaches, because they are both second, rather than first, language programmes. The composition of students, however, may be quite distinct. Students in the IB programme tend to seek out challenges. In general, they are high achievers who strive to extend their knowledge base and who enjoy working with fellow students who have similar interests, attitudes¹, and goals. These students are also inclined to have a more positive outlook on study in general.

Background of the Study

French has been taught since the early 1900s in B.C. The Secondary French Curriculum Guide, produced by the B.C. Ministry of Education, and current at the time of this study, was published in 1980. It has, however, recently undergone revisions in order to reflect the present philosophy in language teaching. The general objectives stated in the draft document (1992) are to communicate in a meaningful and purposeful

¹The terms *attitude*, *aptitude*, and *motivation* are often used almost interchangeably. These terms are used within this report to represent quite distinct attributes of students. For the purposes of this study, these three terms are defined as follows, as based on Webster's Collegiate Dictionary (1976):

Attitude - a mental position, a feeling, or an emotion with regard to a fact or state;

Aptitude - a capacity, an inclination, or a natural ability for learning;

Motivation - a need or desire that causes a person to act.

way, using all four language skills (reading, writing, listening, and speaking), and to develop a cultural understanding via the language. One should note, however, that at the time of this study, subjects involved had been exposed to a structured, grammar-oriented approach to language learning.

In B.C., students begin their CF study in grade five, where they may receive between one and three twenty minute periods per week. There is no prerequisite for entry into the programme at the secondary level, but at the senior high level French 10 is required. For the purpose of this study, students will have completed French 11. The latter runs for three hours per week, with a total of 100 hours of classroom time. Language instruction incorporates as much French as possible.

The origins of the International Baccalaureate programme date back to the post World War II era. At that time, several International Schools were created to accommodate the children of diplomats and United Nations personnel. These schools' intentions were to provide the students with internationally recognized curricula and to establish academic standards acceptable to all countries. As a base from which to work, the schools soon formed the International Baccalaureate Organization (IBO), with its headquarters in Geneva, Switzerland. Here, they outlined common syllabi, curricula, and evaluation methods for the programme. The focus of the language component is to enable students to think internationally, and use this foreign language learning as both a training for later language acquisition and "a testing ground for tolerance," (IBO, 1987, p. 1). In North America, the IB is often considered to be a programme for gifted and talented students.

The IB is a two year programme, for which some schools require entrance exams and interviews. Once again, depending upon the institution, hours may vary. At RSSS, the sole requirement is that students have a good standing (A,B,C+) in French 10 or that they require the credit for the IB diploma. The IB French course runs for three hours, forty minutes per week in the first year. Thus, students entering the programme must be prepared to devote more personal time to the course, as the forty minutes are taken from their lunch break. Secondly, similar to the CF programme, the IB students involved in this study also encountered the traditional approach to L2 teaching, but in an immersion-style setting. As a personal estimation, ninety to one hundred percent of language instruction and learning was conducted in French. In conjunction with the structured approach, however, was much discussion of topical issues. Therefore the IB could be considered not only a structured but also a communicative programme. As the course is taught almost entirely in French, students must be adaptable enough to overcome this initial change. At the junior high level, students are accustomed to most communication being in English.

Just as is often the case in specialized programmes, the IB has been criticized for being elitist, as it caters to a supposedly select group of students. Consequently, one often perceives high achieving children as a homogeneous group. Yet, within that group, one finds many differences in abilities and backgrounds, just as one does among average children, (Matthews, in press). Therefore, children in the IB French programme would not necessarily all be classified as gifted. Students follow the IB for various reasons:

they may be in the diploma programme; they may like to be challenged, or they might simply enjoy studying French.

As is commonly known, motivation and attitudes towards study are prime factors of successful language learning. As Gardner (1991) states:

Research into the relation of attitudes and motivation with the retention of second language skills suggests that attitudes and motivation are implicated in retention, even though many of the correlations with change are generally quite low, and often not significant. Gardner et al. (1987) show that aspects of the integrative motive (i.e. a positive attitude toward learning French and a desire to pursue a personal study of the language) are related to second language retention, and the reason seems to be that they tend to account for individual differences in attempts to use the second language once training ends. Whether language fluency, skill, or knowledge is retained would tend to depend upon such use of the language, and thus attitudes and motivation can be seen to have an indirect effect on retention through the mediator of use. (p. 56)

As attitude and motivation are known to be inherent to success in any subject matter, which subsequently may lead to improved retention, one must then identify which motivational factors are influential upon language learning and retention. As high achievers are perceived to be self-motivated (McVey & Snow, 1988), this group has been studied in isolation from the rest and focussed upon more closely to see how these children differ from one another in attitude and motivation. This resulting information may allow educators to respond better to the needs of each individual learner.

Statement of the Problem

The purpose of this study was to identify to what extent an L2 is subject to loss following a period of disuse. In addition, this research sought to determine which intrinsic and extrinsic motivational factors were influential upon long-term retention of L2 reading and writing skills, among students of different ability levels. Finally, the study examined individual differences in motivation within the high achieving group. By analyzing relevant data, the study sought to identify L2 areas that were subject to attrition, and to provide the basis for recommendations leading to the improvement of French as a Second Language programmes.

Significance of the Problem

Most teachers, regardless of subject-area, assume that, over the summer break, students lose a percentage of the material learned the year previous. FSL teachers, in particular, feel that their subject is even more susceptible to loss, given the fact that the majority of students will not even encounter the L2 during that time period, let alone use it. Thus, many FSL teachers conduct massive periods of review during the fall of the new school year, to ensure that no grammatical structure is forgotten.

Yet, one must ask oneself if students could truly lose most, if not all that they have studied after only three months of disuse. Perhaps some aspects of language, such as oral and grammatical skills, are more open to attrition than others. Clearly, attitude and motivation are influencing factors. Generally, if one is interested in a certain subject, one explores it more and thinks about it more outside of class than a subject

which is less appealing. Often, with increased study, one finds greater success, and with greater success, improved retention is a frequent result.

Therefore, it would be helpful to pinpoint motivating factors which lead to success. Perhaps students are motivated by marks rather than by sheer enjoyment of the subject. Other aspects which may affect one's increased performance in FSL may include career goals, and outside factors, such as parental pressure and a work ethic, specific to a nationality or culture.

To have a clearer picture of students' backgrounds would assist in improving future educational planning of FSL courses. This information may also lead to a better response by the teacher to individual needs and differences among L2 learners. Ideally, one would be seeking a more successful FSL programme which would have greater purpose for both teachers and students.

Research Questions

The following questions were outlined as a basis for this study:

- Given the summer months as the period of disuse, to what extent are reading and written language skills subject to loss?
- Which motivational factors are influential upon improved retention of FSL?
- How does motivation differ among FSL learners of varying ability levels?
- What is the nature of individual differences among high ability FSL learners?

The literature relevant to the research questions will be reviewed in the following chapter.

CHAPTER TWO

Review of the Literature

The literature review is divided into seven sections dealing with Motivation and Achievement, Language Retention, Motivation and Language Retention, Language Attrition over Longer Time Periods, Conceptions of Giftedness, High Ability Language Learners, and Individual Differences.

Motivation and Achievement

One of the initial investigations of the relation of language aptitude, attitudes, and motivation, and L2 proficiency was conducted by Gardner and Lambert (1959). The authors felt that achievement in an L2 was dependent upon essentially the same type of motivation necessary as that of a child learning his or her first language. Gardner and Lambert believed that there were two fundamental motivational factors for learning an L2, which they entitled the "Orientation Index": 1) integrative, where the purpose of language study was to learn more about the language group or to meet more and different people; and 2) instrumental, which implied a practical, utilitarian reason for learning the language.

An example of an integrative approach to learning would be to connect the L2 in a social setting and to actively seek out venues where the language is used. Listening to French radio or television, following Quebec or French politics, or speaking with native speakers living in the community, either at the local French bakery or through a French community centre such as Alliance Française would all constitute an integrative or

process oriented approach to improving language acquisition. An individual using an instrumental approach would have a vested interest in learning the L2. S/he may be transferred through his/her work to a French-speaking community, or perhaps a holiday in France, Quebec, Haiti, or any French-speaking area may be planned.

The distinction between the two methods is thus an interest in the subject matter for its own sake, as opposed to an interest in the language for some other reason. Students who have a love for the language may therefore seek out opportunities to use it. Students who are taking the L2 for credit or for some other practical reason may not pursue its use to the same degree. Active communication, regardless of errors, may be more pleasurable, and thus may have a more positive effect upon the individual's attitude toward the L2. The latter, on the other hand, may be frustrating as the individual struggles with dictionary in hand, only to possibly miss out on that personal touch with the language, because s/he has been too preoccupied with conveying the message correctly. The end result for the latter, may be a less favourable regard for the L2.

Gardner and Lambert's (1959) sample consisted of 42 male and 32 female English speaking Grade 11 students from Montreal, who had had, on average, 7 years of formal French training, and were still studying French. The French instructor of each class was asked to rate each student on two attributes: oral skills and aural comprehension. The ratings were made on a 5-point scale, from poor to excellent, and since the ratings were found to be highly correlated, they were combined, then standardized, and this became the achievement rating, Variable 1. Variables 2-6 were based on sub-scales from the *Psi-Lambda Foreign Language Aptitude Battery* (Carroll, 1959), which consisted of various

linguistic aspects, such as phonetic script and words in context. Variables 9-14 included attitudes and motivation with regard to language learning. Correlations were found between French achievement and language aptitude, and French achievement and social motivation, that is, subjects had a vested interest in acquiring the language, such as obtaining a job, understanding French Canadians, meeting and conversing with new people, or any other personal reason. The conclusions from this study, not surprisingly, suggested that achievement in an L2 was correlated to both ability and motivation.

Language Retention

Although the study of memory has been a subject of research since Ebbinghaus' commitment to it during the last century, "it is only comparatively recently (see, for example Lambert & Freed, 1982) that attention has been devoted to the study of language loss following a period of disuse" (Gardner, 1991, p. 55). Much of the work conducted in this area has concentrated on the roles of attitudes and motivation and how they influence language loss. Other influencing factors that one must also consider are practice, use, or attention to the language during the retention interval.

With specific reference to retention of an L2, Smythe, Jutras, Bramwell, and Gardner (1973) conducted a study in response to a request from the District Modern Languages Consultant to assist him in calculating the loss of language skills as a result of the summer vacation between the end of French 9 and the beginning of French 10. Subjects included 220 students enrolled in the grade 9 French programme at three secondary schools in London, Ontario. Schools were chosen to represent varying academic achievement levels: high, medium, and low. Pre-testing took place in late

May or early June of the students' grade 9 year, and the post-test in September of their grade 10 year. Materials consisted of locally developed achievement tests, focussing on listening and reading comprehension. Correlated t-tests were conducted separately on subjects' listening and reading comprehension scores to identify any differences in pre- and post-vacation performance. Results from this study concluded that listening comprehension, although minimal, showed a statistically significant increase of 2%. Reading comprehension, however, dropped by approximately 5%. Hence, it was generally felt that considerable review of these language skills was unnecessary. Although not stated in the study, these results may have been due to the maturation process, or perhaps there was also an improvement in students' L1 skills, which may have had some influence on their L2 skills as well.

In conjunction with the above research, a second study, also conducted in London, Ontario, investigated more extensively the influence of student aptitude and attitudes on L2 acquisition (Gardner, Bramwell, & Smythe, 1973). This research included students enrolled in grade 9, 10, and 11 French courses at one secondary school. As this school had just introduced the semester system, and because data were available using a standardized test--the 1961 version of the Canadian Achievement Test in French (C.A.T.F.), it was possible to test the generalizability of the results of Study 1, while examining the effect of other variables such as time lapse and grade of student.

Similar to Study 1, students were first tested in June, upon completion of a full-year course. Follow-up testing took place either in September or February of the next school year, depending upon the semester in which the student had enrolled. The

C.A.T.F. included four language components: Vocabulary, Grammar, Comprehension, and Pronunciation. Due to time pressures, (40 minute periods), each component was given an arbitrary limit, rather than the open-ended 60 minutes that are normally allowed for the whole exam. Subsequent to applying a three-factor (Grade [9 vs. 10 vs. 11], Time Lag [1st vs. 2nd semester], and Test Session [Pre vs. Post]) analysis of variance with unequal N's to all scores and a comparison of means using the Scheffe technique, the conclusion was that the two semester groups did not differ significantly at the time of initial testing in June. Hence students were not biased in their choice of semester because neither group was superior to the other. Thus one may not assume that the stronger students enrolled for the first semester session.

As was to be expected, the grade 9s performed more poorly than the grade 10s, and likewise, the grade 10s did not do as well as the grade 11s. Clearly with increased training one does find increased achievement. However, one did find that students who were enrolled in the first semester performed better than students who enrolled in the second semester. Surprisingly, the first semester group had improved since the June exam, whereas the second semester group showed a decrease in performance.

These outcomes suggested that the improved achievement in September was a result of students' being refreshed from the summer break, and that this short a time span may not be detrimental to retention. This may also indicate that, although first semester students may not have been academically superior to their peers, they may have preferred French as a course option, and thus enrolled in it in September, rather than in February. The second semester decrease might have been due to not only the longer time lapse, but

also to interference from other subjects being studied during the first semester. Fatigue, boredom, and test weariness may also be factors which contributed to the latter sessions's poorer results. Thus course selection may have an effect upon retention results of the L2.

The above findings would lend support to the notion that since attitudes and motivation are related to language proficiency, then attitudes, motivation, and language proficiency may be related to language retention. In other words, if a subject is successful in learning an L2 and is motivated to pursue his/her studies of that language beyond the classroom, one might conclude that, due to this personal agenda to acquire the language, the subject would ultimately retain more than if s/he were less interested or competent in that language.

Motivation and Language Retention

Gardner, Lalonde, and MacPherson (1985) pursued the study of social factors, but with specific reference to L2 attrition. The subjects for this study had been registered in a six-week immersion French course in Quebec. Both immediately after and six months following their programme of study, students received self-assessment questionnaires based on their perceived FSL skills. Attitudinal/motivational variables were also assessed, as well as their use of French during that six month period. Initially 12 factors were involved, but these were ultimately reduced to 10 as 2 factors proved to be unrelated to other measures obtained. Of the first four factors, which were related to attitude, the first two were derived from the *Attitude and Motivation Test Battery* (Gardner, Clement, Smythe, & Smythe, 1979). The latter two items, numbers three and

four, were developed by the authors, specifically for this study. The four factors included: 1) Attitudes toward learning French; 2) Attitudes toward French Canadians; 3) Motivational Intensity; 4) French Use Since Trois-Pistoles (the location where the immersion course took place). Clark's (1981) Can-do reading, speaking and understanding scales comprised the six-item self-assessment component.

For the above study, results from the language test showed that for speaking and understanding skills, there was no significant loss on low-level or overlearned aspects, such as greetings and weather expressions. Yet, medium-difficulty items did experience significant attrition. No significant loss was noted for reading skills. A factor analysis revealed predictably, that subjects residing in areas where French was available spent more time using their L2 skills than subjects living in a non-French-speaking environment. "Analyses of variance demonstrated a loss of speaking and understanding skills as a function of attitudes as students with less favourable attitudes and motivation evidenced significant language loss on these skills" (1985, p. 519). Although positive attitudes were related to retention of speaking, understanding, and reading skills, contrary to expectations, use of the language was found to be independent of attitudes. Clearly, the opportunity to use the language is vital to develop L2 skills, regardless of the learner's attitude toward the language.

One may thus possibly conclude that language loss takes place with skills that have some level of competency, but are not completely ingrained. A second interpretation might be that language loss befalls recently acquired skills. The final

suggestion offered would be that language loss occurs mostly on active skills, as they require interaction with speakers of the other language.

Similar to the aforementioned research, Gardner, Lalonde, and Moorcroft (1987) returned to the London, Ontario school district to further their work on the role of motivation and use with regard to L2 attrition (1987). This study involved French 12 students and their loss of FSL skills following the summer break. Students were tested in June of their grade 12 year, and in September of the following school year. Of the total 98 subjects, 66 had enrolled in Grade 13 French, whereas the remaining 32 had dropped the course. Materials for testing not only included various language aspects, such as vocabulary, grammar, style and syntax, but also a questionnaire based on the Attitude/Motivation Test Battery (Gardner, 1985) and the Can-do Scales (Clark, 1981).

As one third of the subjects had chosen to drop French, a comparative study between the two groups was conducted. At the time of the pre-test, the groups did not differ significantly on any of the objective measures of French achievement, and did differ only on one (the speaking component) of the self-assessment pre-tests. However, the post-test results did show significant differences for nine of the ten post-test measures, on all of which the drop-out students scored more poorly. As found in earlier studies (Dorian, 1982; Edwards, 1976; Gardner, 1985), the weaker students evidenced less positive attitudes toward French Canadians and their study of French. These results may be due to a negative experience of the French course, which caused the students to have a more negative attitude toward Francophones. The negative attitude of the weaker students may also be due to poor self-esteem and self-confidence in French, which then

carries over to a broader negative perception of anything related to the French language and Francophones.

The authors found that positive attitude and positive motivation measures did not correlate with loss of skill as indexed by simple change scores. Further analysis using a causal modelling analysis indicated that "attitudes and motivation were implicated in second language acquisition and retention, the latter primarily because motivational variables determine the extent to which individuals will make use of the second language during the summer period" (Gardner, Lalonde, & Moorcroft, 1987, p. 29). One might therefore consider motivation to be an indicator of time on task.

Further research addressing L2 retention and social factors was conducted with the graduates of a Spanish Immersion programme at the elementary level established in Culver City, California (Snow, Padilla, & Campbell, 1988). The purpose of this research was to examine the relationship between attitudes, motivation, and self-assessment of Spanish proficiency and the retention of Spanish following seven years of immersion education. As there had only been five graduating classes of immersion at the time of the study, there existed only 55 possible subjects, of which 38 remained in the area. The sample consisted of 18 males and 20 females, ranging from grades 7 to 11, as well as the current grade 6 immersion class for purposes of a baseline comparison. The junior high school students had the option of continuing their bilingual studies in any or all of math, science, or Spanish for native speakers. At the senior high level, traditional L2 classes were offered. Some students chose to continue their Spanish studies beyond elementary school; others did not.

For the high school students, the Modern Language Association (MLA) Co-operative Test of Spanish was administered, and the elementary school students received the Comprehensive Test of Basic Skills in Spanish (CTBS-Espanol). The MLA consists of the four language skills: speaking, listening comprehension, writing, and reading comprehension. Due to time considerations, the oral component, which has to be administered individually, was given to a randomly selected sub-group. The CTBS-Espanol examines reading and mathematics. As the researchers were interested in attitudinal variables, they created a questionnaire with selected items adapted from the *Attitudes and Motivation Test Battery* (Gardner, et. al., 1979), supplemented by region-specific elements. ANOVA tests revealed that students who continued their studies in Spanish had higher achievement levels than those who discontinued. Although at the high school level significant differences were found across all four language skills (writing, speaking, reading, and listening), one noted that "the first signs of language attrition occur with the productive skills of writing and speaking" (Snow, Padilla, & Campbell, 1988, p. 188), the oral aspect of which would concur to some extent with Gardner, Lalonde, and MacPherson's (1985) research. The latter found little loss on over-learned oral skills, but a significant loss of more difficult items. These losses in skills are representative of the "reverse order hypothesis," (Jacobson, 1962, cited in Yoshitomi, 1992). That is, what one learns earliest is best retained. The more knowledge one acquires, the less new knowledge one retains. Although reading skills showed no significant loss, to Gardner and his colleagues (1985), this may have been due to some transfer from the L1.

A second possible explanation for these results may be that the mind must sort much more rapidly with regard to the productive skills, because greater fluency is required. Comprehension skills, on the other hand, are not as easily forgotten, for when one listens to another speaker one has the benefit of body language, and one may ask the speaker to repeat. When reading, one has time to ponder and infer meaning from the words and context. If this is the case, it would be important to place greater emphasis on writing and speaking, thus better compensating for the future loss of those skills.

The Snow, Padilla, and Campbell (1988) questionnaire consisted of three factors: Spanish Language Use, Motivational Intensity, and Attitudinal Results. Spanish Language Use dealt with the frequency of use, both in and outside of school, the latter being clearly voluntary frequency. Questions posed referred to contact with native speakers, Spanish media, literature, and frequency of travel to Spanish-speaking destinations. Interestingly enough, 67% claimed that they spoke Spanish away from home, 57% read in Spanish, and 78% had travelled to a Spanish-speaking area.

The Motivational Intensity questions inquired about students' motivation with regard to becoming actively involved in their language learning process. 43% indicated that they would be willing to take part in a Spanish club, and 30% said they would attend occasionally. When asked if it had been their decision to enroll in the immersion programme, 40% answered that they would enroll again, and 50% said that they were unsure. 12% would not have enrolled.

Finally, the initial attitudinal scales consisted of five dimensions: 1) integrative and instrumental motivation; 2) interest in a foreign language; 3) attitudes toward

other cultures, specifically Spanish/Hispanic; 4) need achievement and anxiety in Spanish class; 5) parental encouragement. From this data, a Pearson correlation matrix was constructed to determine the internal consistency of the items, and to eliminate weak items from the scale. From the remaining 66 per cent of the items, a factor analysis was employed to construct the attitudinal scales. The four factors were: 1) Interest in a foreign language; 2) Encouragement and pride in work; 3) Integrative orientation; 4) Parental/Integrative, which included items such as, "My parents feel I should continue Spanish all through school", and "Study of Spanish helps me better understand Spanish speaking people and their way of life" (1988, p. 192). A Chi-square test was then conducted on each of the following: the relationship between the four attitudinal factors and MLA subtests; factors by Language Use; and factors by self-assessment. For the first test, Interest in Foreign Languages had a significant relationship with writing and speaking retention, and also with the use of Spanish at home. Results for the second test showed that Encouragement and Pride in Work was significantly related to writing retention, self-assessment of Spanish academic proficiency, and travel to Spanish-speaking countries. The third factor, Integrative Orientation, displayed no relationship to retention, use, and self-assessment measures. Finally, the fourth test concluded that there was a significant relationship between the Parental/Integrative factor and writing and speaking skills, as well as use of the Spanish media, Spanish outside the Home, and Travel to Spanish-speaking countries.

Overall findings from the questionnaire would suggest that "the attitudinal predisposition underlying the four factors influences the extent to which students retain

their Spanish skills in writing and speaking. These factors appear, however, to be unrelated to retention of receptive skills in Spanish" (1988, p. 182). Thus an active pursuit to use the language in society is definitely beneficial to retention of productive skills.

Language Attrition Over Longer Time Periods

Bahrck's (1984) theory of "Permastore-Content" may also offer an understanding of language acquisition and attrition. The purpose of Bahrck's study was to investigate L2 "attrition covering fifty years, and to relate the results of this investigation to a research programme which yields benefits to teachers and students of foreign languages" (1984, p. 105). The study included 773 individuals, of which 146 students were, at the time of testing, enrolled in a high school or college-level Spanish course, or had recently completed such a course. Testing was conducted during the last week of course attendance or within two months thereafter. Among the subjects, 587 individuals had taken one or more courses during their high school or college years and their Spanish instruction had occurred from one to fifty years prior to testing. These subjects were assigned to one of eight groups which were identified by the time lapse between their last Spanish course and testing. Forty other individuals who had never studied Spanish were also included as a baseline for performance, which differentiates knowledge acquired through formal instruction as opposed to knowledge acquired incidentally, as well as correct answers through guessing.

The test was comprised of ten sub-tests: 1) Reading comprehension;
2) Spanish-English recall vocabulary; 3) Spanish-English recognition vocabulary;

4) English-Spanish recall vocabulary; 5) English-Spanish recognition vocabulary; 6) grammar recall; 7) grammar recognition; 8) idiom recall; 9) idiom recognition; and 10) word order. In accompaniment to the language testing, Bahrick added a questionnaire designed to provide information about Spanish instruction, grades obtained in Spanish courses, and various opportunities to actually put both Spanish and other Romance languages to use during the retention interval. Both the test and questionnaire were completed, for the most part, in one hour. However, individuals were not restricted to this time limit.

Through an initial comparison of test results, and then by following a procedure of regression to eliminate inconsistencies, such as length of study, Bahrick discovered that, although a large portion of the language is lost within three to six years of termination of study, no further loss will be incurred for up to 25 years. Bahrick (1984) calls "the portion of knowledge with a life-span in excess of twenty-five years the *permastore-content*" (p. 111). From his research, the author concluded that 1) much information can survive in the permastore with minimum rehearsals during the interval; 2) the amount of content in permastore is a function of the level of training, that is, the length of training, final course level and grade; and 3) a large proportion of semantic knowledge (especially receptive vocabulary) is retained in permastore-content.

Even more recently, research in the area of L2 retention in the Dutch school system has been done. Weltens, Van Els, and Schils (1989) examined the retention of FSL secondary students over a four year period following their training period. As the Dutch system offers two durations of training, four and six years, the authors, assuming

that students with six years of study would have greater proficiency in the language, chose to focus on: a) whether different proficiency levels are equally resistant to attrition, b) the quantitative forgetting pattern, that is, whether attrition sets in immediately after the learning process stops, slows down after a few years, and then stabilizes itself, or proficiency initially remains at its original level, or increases somewhat, then starts to degrade only after some time has elapsed, and c) whether different skills and varying levels within these skills are affected to the same degree by attrition processes.

As the study was carried out over a period of four years, and because there were two groups with distinctive training periods, the authors had six groups of 25 subjects, each group with different periods of training and non-use of FSL. Three testing sessions were held: a) immediately following training, b) two years hence, and c) four years hence. Tests included: 1) general receptive proficiency 2) listening and reading proficiency, and 3) phonology, lexicon, and grammar. Of the three components, only the listening and reading proficiency were taken from tests developed by the Dutch National Institute for Educational Measurement. The other two sections were created by the authors. Apart from the language test battery, subjects were also given a number of self-assessment measures in which they were to rate their proficiency of French on a 5-point scale from (1) very bad to (5) very good. The authors also included Clark's (1981) Can-do Scales for listening and reading proficiency.

A comparative study was conducted among the various groups, the results of which demonstrated that the number of years of training had a definitely positive

influence upon language proficiency, regardless of the number of years of non-use. However, it is interesting to note that with the period of non-use, an actual increase in proficiency of global skills occurred, particularly for the subjects with four years of training. This may be due to the influence of the subjects' first language (L1), to possible contact and use of the L2 during the summer months, or simply the aging and maturation process. The only component that demonstrated any remarked loss was that of lexicon and grammar, for which 10 to 15% of the original knowledge had decreased. Unlike the test results, subjects' self-perception of language proficiency was much more negative. The reported loss was about the same for both the four and six year groups, and the loss was concentrated in the first two years of non-use. This too, was reflected in the Can-do scales.

In response to the authors' initial questions, the amount of attrition was surprisingly small. Possible explanations for this may be due to the study of other foreign languages, further academic training, or simply cognitive maturation. Subjects were also given no time limit, and were only tested on receptive skills. Thus, it was found that no serious drop in proficiency occurs after four years. Secondly, the data seemed to suggest, for the training levels studied, that attrition is independent of training level. Finally, the authors were able to identify specific areas of knowledge that were susceptible to attrition. With regard to the self-assessment, it was felt that the subjects were perhaps thinking of real communicative situations in which they would have to respond on the spot, rather than having much time to think, thus causing them to have a poorer perception of their knowledge-base.

Subsequent to this initial effort, Schils and Weltens (1992) pursued their study of language loss, but with specific reference to levels of proficiency. Having taken the original data, the two authors analyzed the tests they had administered to identify any inconsistencies that may have existed, and which areas were sensitive to differences in language proficiency. Schils and Weltens tried to answer the question of why the cloze test indicated no change in general proficiency and the listening and reading tests showed an increase. Earlier research attempts at an explanation suggested that the increase may have been a result of "an increase in 'universal' language proficiency - not just French - as a result of continued learning of other foreign languages and continued acquisition, to some degree, of the mother tongue" (Schils & Weltens, 1992, p. 179).

The reliability of the results was assessed by using a computer-based bootstrap approach. This method is used to study the "sampling distribution of statistics, especially in situations where an analytical sampling theory of the particular statistic is (as yet) lacking, or where the assumptions underlying an existing sampling theory are not met" (1992, p. 179). As a result of this analysis, the authors found that the cloze test was a much more valid indicator of French language proficiency than the listening and reading comprehension tests. The reading comprehension component appeared to be quite sensitive to differences in universal language proficiency, whereas the listening comprehension test tended to hold an intermediate position in this respect. The authors acknowledged that the reading selection may have been less suitable for adults, as it was initially directed to an adolescent audience. With regard to the listening component, it was discovered that indeed two thirds of the material tested listening comprehension, but

there were strong indications that the other third tested not only listening skills, but also a general intelligence or knowledge of the world. These factors may explain the lack of loss of language skills, as identified in the original research.

The one item that remains inconsistent is that of the cloze test. Although the analysis showed that the test relied heavily on the knowledge of grammar and vocabulary, those items being the areas which apparently suffer the greatest loss from disuse, the cloze test itself failed to reveal any loss. Gardner et al. (1987) had found similar results in their research. Schils and Weltens thus concluded, as had Gardner et al., that the slight loss of language, and in some instances growth of language, only highlighted the difficulty of measuring change using objective measures.

Once again one sees the parallel between the loss of productive skills versus the retention of comprehension skills. Similar to the results found from the study conducted on Spanish Immersion graduates (Snow, Padilla, & Campbell, 1988), Schils and Weltens' (1989, 1992) research, which focussed particularly on comprehension skills, has shown that these skills suffer little attrition after a period of non-use. This may be due either to the fact that the measures used were not sensitive enough to loss, and therefore the results were less obvious, or that listening and reading are simply less interactive skills than are speaking and writing. Bahrick's (1984) theory of permastore-content, as mentioned earlier, which identifies a certain percentage of knowledge immune to attrition, may also assist in explaining the improved retention of receptive L2 skills.

Age and the maturation process must also be factors to consider when assessing L2 attrition (Carey, 1984; Olshtain, 1989). Olshtain (1989) conducted a longitudinal

study of the attrition of English as an L2 among Hebrew-speaking children, aged 5 to 14, living in an English-dominant environment. Upon their return to the Hebrew-dominant environment, Olshtain found that those children with native-like fluency in English suffered gradual attrition of the L2. Results also revealed that the younger children, aged 5 to 8 years old, showed a reversal process of acquisition in their uses of irregular noun plural forms and verb past forms, whereas the older children did not. Olshtain (1986) suggested "that the older children's knowledge of irregular forms had reached a level of stability which reduced the possibility of losing them despite the lack of positive feedback" (cited in Yoshitomi, 1992, p. 299). Oral and written skills also demonstrated greater loss among the younger children. "Thus it may be hypothesized that the younger the learner and the more limited the learner's level of literacy in the target language, the stronger attrition might be under similar circumstances (Berman & Olshtain, 1983; Cohen, 1989)" (cited in Olshtain, 1989).

Further explanation of the aforementioned results may relate to the "reverse order" and "inverse relation" hypotheses (Jacobson, 1962, as cited in Yoshitomi, 1992), which are two related but different characteristics of language loss. The reverse order hypothesis "states that attrition is the mirror image of acquisition, that is, the last thing learned is the first to be forgotten" (Yoshitomi, 1992, p. 295). This process would parallel that of L2 learning, for one acquires the receptive skills of listening and reading first, followed by the productive skills of writing and speaking. The inverse relation hypothesis suggests that "there is an inverse relationship between proficiency level prior to the onset of attrition and the rate and/or the amount of loss. In other words, what is

learned best is least forgotten, and those who have learned better, or become more proficient, are less vulnerable to loss" (Yoshitomi, 1992, p. 296). This hypothesis would lend support to the notion that a proficient learner would have a more stable grasp of the language, and would thus be less susceptible to language loss. A weaker learner, on the other hand, due to his/her more unstable knowledge-base, would be more apt to forget the L2 after a period of disuse. This type of situation creates the same measurement problem as a ceiling effect. When one tests overlearned aspects, little loss of the L2, following the holiday break, may occur, because these items are so ingrained.

It is noteworthy that, apart from the Schils and Weltens (1989,1992) studies mentioned, which do not focus on attitudes *per se*, attitudes are influential upon retention of writing and speaking skills, but appear to be unrelated to listening and reading. The more positive the attitude, the greater the retention of the productive skills of writing and speaking. Students who enjoy learning other languages will seek out opportunities to use their new language skills. The main goal of any language learning is to communicate, and there are few better ways than by practising with native speakers, either by letter, or face-to-face.

It is this personal link that may hold the key to tomorrow. As the awareness of a world economy heightens with the approach of the year 2000, one sees a greater emphasis placed upon foreign language instruction and study. Nations may no longer think of themselves as isolated, for with the advancement of technology, a global community is a reality. To maintain a competitive edge, improved communication, particularly in the international target languages, is becoming a necessity.

Consequently, language attrition is of great concern on a much broader scale. The U.S. government has encountered continual difficulties both in finding staff who are competent in other languages, as well as English, and in maintaining their competency levels of those languages (Lowe, 1982). How can one conduct foreign policy effectively if language loss increases with time? Lowe has found that in the U.S., school language requirements have diminished. Consequently, the number of foreign language programmes have been reduced, and in some instances eliminated. As a result, personnel fully qualified for work in foreign service are difficult to find. The remaining alternatives are to retain existing employees, or to hire employees with foreign language skills who may have shortcomings in the standard language. Lowe points out that the U.S. government has thus had to expand its budget continually, to guarantee that suitable foreign language skills are accessible when needed.

The U.S. shortfall in foreign language programmes, which was a finding of the President's Commission on Foreign Language and International Studies (1982), received several responses. The Pennsylvania Department of Education (1982) focussed upon "Foreign Languages for the Gifted and Talented." Their position was not one of offering these options only to gifted children. On the contrary, they were in favour of equal opportunity for all. Yet, the committee felt that they should take "advantage of the special qualities of academically gifted children to help produce something this country sorely needs: a cadre of real bilinguals competent in the languages widely used internationally in today's increasingly interdependent world" (p. 1). The National Council of State Supervisors of Foreign Languages (1982) also felt that, although

language study should be encouraged for all students, the lack thereof would be most detrimental to the gifted. Because the Council envisioned these children as leaders of the nation's business, governmental, and educational sectors, the members believed the gifted should be allowed to broaden their educational experience by providing them with opportunities for personal enrichment. Yet, in order to create this cadre of bilingual speakers, the U.S. Congress needed to establish a certain criteria for its gifted and talented foreign language programmes.

Conceptions of Giftedness

When speaking of giftedness, one enters upon a complex issue. Many attempts to answer the question, "Who are the gifted?" have been made, some with greater success than others. Basically, there exist two schools of thought: the implicit and the explicit theorists. Implicit theorists offer definitions of giftedness, that is, explanations or descriptions of what constitutes a gifted individual, according to their own perceptions. Due to their definitional nature, implicit theories cannot be tested, simply because they are exactly that: definitions. "Explicit theorists presuppose definitions, and seek to interrelate such definitions to a network of psychological or educational theory and data" (Sternberg & Davidson, 1986, p. 3). Such theories may therefore be tested, and proven true or false; however the definitions upon which they are based may not be falsified. One must thus always keep in mind the underlying conception of giftedness that has created the theory and data, and determine whether this conception is a valid one.

Implicit theorists, such as Tannenbaum, Renzulli, Gallagher, Courtright, Feldhusen, Haensly, Reynolds, and Nash (Sternberg & Davidson, 1986) maintain four

main themes : 1) one must first identify the domain that serves as the basis of one's definition, that is, from a society's, individual's, or psychological perspective; 2) cognitive abilities form an essential part of giftedness; 3) motivation is a primary prerequisite to giftedness; 4) the developmental course of one's talents is extremely important; that is, how one responds to rewards, nonrewards, and punishments (which may be related to cultural influences, such as a work ethic) will determine in some part whether an individual is gifted, and in what respect s/he is so identified; 5) coalescence, that is, the combination of one's abilities working together in a motivated way and outside societal forces which may allow for a demonstration of one's giftedness.

Explicit theoretical approaches are divided into two categories: cognitive theory and developmental theory. Cognitive theorists, such as Jackson, Butterfield, Borkowski, Peck, Davidson, and Sternberg (Sternberg & Davidson, 1986) highlight four main themes: 1) one concentrates not on the lexical meaning of giftedness, but rather on the mechanics behind the term; that is, in order to be identified as gifted, what is it that a person can do well? 2) one uses an isolation-of-variables strategy for understanding the cognitive mechanisms underlying giftedness; that is, one will gain depth in the understanding of a single characteristic while emphasizing the cognitive in intellectual functioning; 3) there is a greater emphasis on higher- rather than lower-level processes in understanding giftedness; 4) one is committed to theory-driven empirical research as the means to advance one's knowledge of giftedness.

The second heading under explicit-theoretical approaches is that of developmental theory. Gruber, Ciskszentmihalyi, Robinson, Erikson, Feldman, Walters, H. Gardner,

Albert, and Runco (Sternberg & Davidson, 1986) maintain six common themes:

1) development of giftedness carries on throughout one's lifetime; it does not stop at late adolescence; 2) gifted individuals excel in one or more areas; they do not progress rapidly through the Piagetian stages of development, mastering various operations more quickly than do others; rather, extraordinary individuals excel in one or more domains of talent, in which their progress may be quite idiosyncratic; 3) giftedness is defined, shaped, and adjudged in a societal milieu; 4) case-study analysis of gifted individuals is essential; 5) naturalistic or biographical observation rather than laboratory techniques is the preferred method when studying the gifted; 6) socio-emotional aspects of development are of equal importance as are cognitive aspects.

Given this variability in conceptions of giftedness, and because a consistent working definition was essential, the U.S. Congress passed the following:

Gifted and talented children are now referred to as, "children who give evidence of high performance capability in areas such as intellectual, creative, artistic, leadership capacity, or specific academic fields, and who require services or activities not ordinarily provided by the school in order to fully develop such capabilities" (Sec. 582, cited in Clark, 1988, p. 6).

During this research, an explicit theoretical approach to studying high ability L2 learners was used. Assessment in the area of language content may identify stronger language capabilities, but as to why these children may be more talented than average learners is aided by observation and ascertaining their personal objectives in studying the L2 and their inner motivation and drive to pursue study beyond the basics. Empirical measurements may give us a broad picture of high ability children. However, a closer look at the individuals may offer greater detail. Each child is different in his/her

approach to learning an L2. By offering a venue, a specialized programme, such as the International Baccalaureate, one may explore students' options, develop further skills, and ultimately achieve functional bilingualism in the L2. Through this focussed study, within a classroom setting, one may attain greater insight into the individual aspects of each learner. Once isolated and identified, one may better understand what is befitting of the title of gifted.

Just as the definitions of giftedness are multi-faceted, so are levels of giftedness. As McVey and Snow (1988) have pointed out, one may not think of students as equally 'gifted', as, in effect, it is their performance that is considered gifted. Gifted cognitive processing differs not only from that of average performance, but also there may exist many styles and degrees of gifted performance. Research has shown that many high ability individuals tend to be more idiosyncratic when processing information. As a result, their knowledge system is often well organized and may be readily tapped. These individuals work well both in familiar and foreign or complex situations.

Given this flexibility in thinking and organizing information, persons of high ability would have an obvious advantage in learning an L2. To be constantly confronted with the unknown can be rather intimidating at the best of times. Having the capability to classify this knowledge with ease could only facilitate such a situation. Such skills may well lend to superior retention of an L2 after a period of disuse. The data from this current study may illuminate L2 areas which may benefit from this greater flexibility in cognitive processing.

High Ability Language Learners

How then might a good L2 learner be different? As the Ontario Institute for Studies in Education (OISE) (1975) has researched and outlined, the successful L2 learner has a specific set of characteristics, some of which may apply to good students and gifted learners in general:

1. Field independence--the students' facility in separating information from noise, that is, selecting appropriate linguistic stimuli while ignoring inappropriate ones.
2. Ambiguity tolerance--the learner's ability to cope better with the new, the different, the paradoxical in a given task.
3. Balanced generalization--the ability of good second language learners to classify linguistic data in neither too wide nor too narrow a manner. Good language learners use the target language as a separate reference system independent of the native language.
4. Extroversion--students who are successful in oral fluency in the target language usually possess a degree of aggressiveness and daring.
5. Good language learners know something about their learning style. Regardless of the teacher's style or the style of the materials, the learners can integrate things into their own cognitive styles.
6. Successful language learners feel comfortable taking risks, and they do so often. They are willing to place themselves in situations where they might feel silly in order to communicate their intentions by any means with their power.
7. A successful language learner actively seeks arenas in which to use the target languages.
8. They are excellent guessers. They manipulate linguistic clues to form hypotheses or guesses, which are then tested and evaluated.
9. Successful language learners pay attention to form as well as meaning. They consciously want to know about underlying patterns and rule-governed relationships. They are excellent monitors of their own target language use, and they request judgment and correction from native speakers of the target language.
10. Good second language learners quickly adjust to the new target language as early as possible.

11. A marked degree of empathy is a major characteristic of successful second language learners. They are sensitive to others and have outgoing relationships with people around them. (Cited in Bartz, 1982, p. 330).

It has also been suggested that gifted children can deal with extraordinary quantities of information and, in particular, have unusual retentiveness (Clark, 1988). Studies in neurobiology and the efficiency of language processing (Haier et al., 1988 cited in Yoshotomi, 1992) have shown that "people with high scores on intelligence tests require less brain energy than people with lower scores" (Yoshotomi, 1992, p. 306). Through use of positron emission tomography (PET) scans, Haier et al. (1988) examined the intensity of brain activity by recording the amount of injected substance (a radioactively tagged glucose compound) absorbed by brain cells while subjects were involved in cognitive tasks. Results from this research found that not only did proficient task performers show the least active brain metabolism, but also that this information implied that highly proficient L2 learners may be energy-efficient as well.

In sum, proficient L2 learners may have a rich connection of networks in long-term memory which enables energy-efficient processing when acquiring new L2 knowledge. The neuronal connectivity in long-term memory is better developed and more extensive, thus, less immune to loss. In the same vein, the critical threshold of L2 knowledge may correspond to a certain amount and strength of storage in long-term memory which enable acquisition to be more energy conserving (Yoshotomi, 1992, p. 307).

These superior skills in processing language are extremely beneficial, particularly in the early stages of learning an L2. Although all students acquire knowledge in a different manner, each individual excels in his/her own way. A gifted language learner may have most if not all of the above-mentioned talents; thus teachers must be prepared

to answer a wide range of needs among both average and gifted students (Garfinkel & Prentice, 1985).

To date, research in language loss has focussed mainly upon attitude and motivation as inherent factors to superior retention after a period of disuse of the L2. Work has also been done in the area of gifted and talented L2 learners, and in neurobiology and language learning. Yet, very little study has seen an interconnectedness among these subjects. Achievement motivation, however, may offer that link. From studies which combined cognitive and motivational aptitudes (Snow, 1987), one concluded that "among highly able students the instructional treatment that works best depends on differences in need for achievement and fear of failure" (McVey & Snow, 1988, p. 105). Thus, motivation may not be considered a force separate from cognitive processing, but rather an "integral aspect of learning that affects both immediate cognitive performance and long term or cumulative achievement" (McVey & Snow, 1988, p. 105). This latter aspect may offer insight into whether or not superior performance may necessarily predict superior retention.

With respect to individual differences (McVey & Snow, 1988), one may expect to see motivational processes to be distinct both within as well as between individuals. Aspects such as seeking out challenges, fighting boredom, and wanting to explore beyond the boundaries may well offer important sources of individual differences in gifted performance.

Results from this present study may offer an improved understanding of L2 retention after a period of disuse, and how motivational factors may influence improved

retention, both among average and high ability learners. As each individual has his/her own pursuits, interests, needs, and personality, these differences should form the basis of a teacher's educational planning. Providing a response to those needs and differences may also lead to a superior performance by all, students and teachers alike.

Individual Differences

In Gardner's (1991) review of L2 learning in adults, he highlights four classes of individual difference variables: attitudes and motivation, language aptitude and intelligence, language learning strategies, and personality variables.

Initially, Gardner points to the question of an optimal age at which to learn an L2. His discussion centres around results from past research (Smythe, Stennett & Gardner, 1975) which included subjects at different ages. Conclusions were rather mixed. Although they found older individuals to be more efficient learners than younger ones, they nonetheless favoured the early introduction of L2 learning. Reasons given were: a) the greater time factor to absorb the language; and b) young children are less likely to have already developed attitudinal/motivational characteristics that could impede successful language learning. Gardner (1991) suggests that although there are different problems facing adult L2 learners from those facing children, the underlying processes are not that different.

Gardner's study of adults used college-level students of 18-19 years old. The research conducted at RSSH involved late adolescents, of 16-17 years of age, and within that group focussed on high ability students. As Gardner noted, language learning processes differ little between adults and children. Consequently, one may deduce that

the older a child is, the closer his/her attributes resemble those of an adult. Many characteristics of adults, as highlighted by the author, are identical to those from OISE's (1975) description of gifted L2 learners. Thus, when comparing attributes of an average adolescent L2 learner, a high ability adolescent L2 learner, and an average adult L2 learner, one finds that the high ability adolescent is much more like the adult learner than is the average adolescent.

Gardner speaks of the conceptual development of adults as both an asset and a drawback to language learning. Because many adults have problem-solving experience and a well-developed level of intellectual functioning, they are accustomed to communicating on a relatively sophisticated scale. Writing, speaking, or processing information in an L2 can often be cause for frustration, as ideas may be in one's mind, but expression thereof may be awkward or impossible. Yet, with maturity comes patience; adults may be willing to pace themselves better as they understand that language learning is a long and on-going process. High achieving adolescents are faced with a similar situation. From personal experience, the IB is treated like a super-late immersion programme; consequently, it is not uncommon to find students tongue-tied and stammering over the simplest of phrases, when it would be so much easier to express themselves in English. Yet, the high achievers' tolerance level (OISE, 1975) often seems to be greater than that of an average student, thus their coping skills are obviously better refined. Gardner (1991) notes that these types of individual differences in conceptual and affective development should be considered when interpreting data.

Attitudes, as mentioned earlier, may greatly influence language proficiency. Consequently, as Gardner points out, adults' well-articulated sense of self-identity may influence L2 acquisition. Because language is an integral part of one's being, for some individuals learning an L2 may be considered "an attack on their perceptions of self" (Gardner, 1991, p. 3). Fear of losing touch with one's own culture has been found to correlate with low self-ratings of L2 proficiency. Thus, depending upon how an individual perceives the L2 may well predict his/her success in the target tongue. Although the adoption of immersion programmes has widened the appreciation of studying French, the teaching of FSL on the west coast of British Columbia has long been an uphill battle. Prejudices exist and are passed on from generation to generation. Therefore, for most children, FSL is simply a requirement or prerequisite to further study.

Personality variables are Gardner's last consideration in his review of L2 learning in adults. Highlighted aspects include elements from OISE's (1975) list of characteristics of good language learners: a) they have a willingness for risk-taking; b) they are good guessers; and c) they make active use of the language. Gardner (1991) points to Beebe's (1983) argument that this risk-taker trait is linked with perceptions of self-identity, feelings of self-esteem and motivational determinants of L2 proficiency. Certainly submitting oneself to a foreign environment can be risky. A feeling of embarrassment and awkwardness as one fumbles for words is not uncommon. Gardner states that most studies conclude that anxiety has a negative effect upon L2 proficiency.

A second discussion dealing with individual differences focusses on the expectations and motivations of students involved in a summer programme for the gifted (Brounstein, Holahan, & Sawyer, 1988). Subjects for this study included 612 extremely gifted adolescents from 16 states who were accepted to the Talent Identification Program (TIP)--two three-week terms of high-level academic courses offered at Duke University in North Carolina. This programme has been running since 1981 and has stringent entrance requirements. Students must first of all score in at least the 97th percentile on age-normed achievement tests, and, to be accepted to the programme itself, students must score at or above the 70th percentile of college-bound seniors on Math and Verbal subsections of the Scholastic Aptitude Test.

The purpose of the TIP study was to determine if any differences in expectations, motivations, satisfaction, and performance existed among the 612 candidates. Although "the public, and many researchers as well, seem to view highly able students as comprising a single, homogeneous group, simply referred to as 'the gifted'" (McVey & Snow, p. 99), Brounstein et. al. (1988) discovered three discernible groups among the participants: a) Academically-Oriented; b) Socially-Oriented; and c) Highly Motivated-Gregarious. These characteristics were derived from analyses of a questionnaire developed specifically for this research. Assessment included academic and social expectations and attitudes of students as well as outcomes of their participation in TIP's summer residential program. Specifically the questionnaire covered demographic information, reasons for attending, expectations about quality of course content and

teaching and social activities, satisfaction with amount learned, academic performance, and attitudes regarding their subsequent return to the program.

Initially, a comparison of the two semesters was conducted. Few differences between the two groups were found within the demographic and ability variables. Having concluded the groups to be alike, the authors continued their principal components analyses first for each semester, and then for the group as a whole. Results from this study showed that students were extremely satisfied with their social life and with their academic performance within the program. On a scale from 1 to 5, with 5 being the most positive rating, social activities scored a mean of 4.5, and academic ability scored 4.5 and 4 for the two semesters. Further, 91% of students stated that they benefitted from the program, and 94% said that were it their decision, they would definitely return the following summer. Finally, almost all participants (97.3%) claimed that academic challenge was a motivating factor in their attending the program. This last finding, more than any other, led to the conclusion that the program is a success. Teacher evaluations of student performance also correlated highly with the five traits rated.

From the original grouping of extremely gifted adolescents, statistical analyses produced three distinct clusters of students. The Academically Oriented group, which was the largest of the three, representing 54% of the sample, was composed of students whose main focus regarding expectations, satisfactions, and outcomes was on academics. Although this group reported high expectations of its academic performance, it reported

rather low levels of academic motivation to attend the program, and evidenced the lowest rate of gregariousness and social motivation.

The second group, Socially Oriented, which comprised 35% of the whole, displayed the lowest levels of Academic Expectations and Outcomes. These students were only moderately motivated to attend TIP relative to others, and they were moderately gregarious. Consequently, this cluster tended to stress social as compared to academic expectations and outcomes.

The final and smallest group (11%) represented the Highly Motivated-Gregarious component. These students demonstrated a high degree of motivation both socially and academically, and they were exceptionally gregarious. Their academic expectations were moderate, and they achieved moderate levels of academic success.

The aforementioned research has clearly discovered that many distinct groupings do exist among a high achieving population which may initially appear homogeneous. These results have obvious implications for educators and for society in general. No longer may one perceive persons of high ability as a single cluster. Nor may one continue to instruct them as such. Even within a group of academically comparable students, one will find individual needs, attitudes, and motivational characteristics. It is to that which one must respond, for these aspects have proven to be influential upon both learning and an individual's development of personal and professional goals. With respect to L2 learning, one can see significant benefits to all students. By identifying particular objectives for themselves, students may better direct their learning, leading to ownership of the language and consequently improved interest and retention. Once

discovered, an instructor may assist a student in exploring this new language and culture, and to encounter a world which before may have been unknown or ignored. To that end, one achieves language acquisition, active language use, and retention of language.

Although the area of L2 retention is a relatively new field, throughout the above-mentioned research factors that seem to predominate as predictors of retention are attitude and motivation. Given this information, one may then apply these attitudinal and motivational factors to one's classroom situation. It is not uncommon for a teacher to be instrumental in awakening a student to a subject area. As research has shown that attitude and motivation are related to language proficiency, and that language proficiency is related to language retention, one may conclude that, given a stimulating learning milieu, greater long-term success may be achieved. Given a greater number of bilingual speakers, one may eventually see improved global communication.

As this study focussed upon retention of an L2 and motivational factors influential thereupon, the following hypotheses were outlined prior to beginning this research:

- A loss of knowledge in written language and reading comprehension skills would be found after the point of disuse.
- Students with a more positive attitude toward the language would have better retention of written and reading comprehension skills in FSL.
- Because little is known about the nature of individual differences among high ability FSL learners, no formal hypothesis was stated. Rather, this part of the study has addressed the question of what attitudinal, motivational, and achievement differences exist among high ability FSL learners.

Methodology used to test these hypotheses is presented in the following chapters.

CHAPTER THREE

Research Method

Introduction

In this chapter the research method is presented. The chapter begins with a brief description of the Richmond School District and follows with a summary of a pilot study conducted the year previous to this research. Subsequent to the pilot review is a description of the sample of FSL students involved in this research, and of the construction of the instruments used. The data collection procedures are explained and the method for analyzing the data is outlined.

Richmond School District

Richmond is a suburb of Vancouver, British Columbia, Canada. Its school district has currently a junior-senior school system. The junior grades run from eight to ten, and the senior schools complete with eleven and twelve. This study took place at one of the senior high schools, Richmond Senior Secondary (RSSS). Richmond has a broad range of nationalities, and the socio-economic standing of the district, as a whole, is middle class. The catchment area for RSSS, on the other hand, tends to be upper middle-class; many families have professional backgrounds, and this school does have a wide ethnic cross-section. Approximately 40% of the population may be classified as Asian, 40% as Caucasian, 10% as East Indian, and 10% as mixed nationalities.

Pilot Study

During the second week of September, 1992, a pilot study was conducted at RSSS, involving students entering French 11 and IB French 11. At that time, students wrote an exam consisting of four components: listening comprehension in the form of a dictation, linguistic questions with multiple choice options, a reading comprehension passage with multiple choice answers, and finally a written dialogue composition. This exam was part of the French 11 curriculum, and was based on the French 10 content material. Its purpose was not only to assess retention, but also to act as a placement exam at the beginning of the year. By administering such a test, teachers had a better idea of students' backgrounds, and could thus direct their planning and teaching accordingly. To assess pure retention of the language, students were not told of the test in advance. They were reassured that this was purely an evaluation of the knowledge they had retained, and that the results could only enhance, not hinder, their standing.

The aforementioned exam constituted the post-test of this pilot study. As students had come from various junior high schools, a pre-test was not feasible. Therefore the students' final Grade 10 letter grade, calculated as a percentage, was the standing identified as the pre-test result. In some cases an actual percentage was obtained, but where this was not possible, the median of the letter grade percentage equivalent (as identified by the B.C. Ministry of Education), was the value given to that letter grade. Letter grade equivalents are as follows: A = 86% to 100%; B = 73% to 85%; C+ = 67% to 72%; C = 60% to 66%; C- = 50% to 59%; D = 40% to 49%; E = 39% and below. Hence, if a student received a B as a final letter grade, the median

value, that is, 79%, was the pre-test score given. As this was clearly not an exact value for the pre-test, this rather vague assessment was avoided in the subsequent study by engaging subjects who were exiting French 11 and entering French 12, thus allowing for both a pre- and a post-test.

In conjunction with the test, students were asked to complete a questionnaire based on their likes and dislikes of FSL, their use of the language beyond school, and their reasons for taking French. The first section, Enjoyment of Studying French, incorporated that precise question, followed by seven items regarding specific likes and dislikes of their study of French, such as grammar, oral, listening, and reading practice. Section 2 involved use of the language outside of class. For both sections one and two, students responded Yes, It's OK, or No. Section 3 inquired about students' enrolling in French 12, and reasons for their enrolment. Section 4 offered a list of 15 possible reasons for students' taking French, which subjects checked if applicable. Section 5 inquired about the use of studying FSL in B.C. or at all, and, finally, section 6 regarded the number of years students had studied French, and if any or all of that time had been in an immersion programme. Students were informed that the data provided to their teachers would be extremely important, and would serve as a basis for the improvement of future FSL programmes. Students were also told that the information would be kept confidential and that this would be achieved by coding subjects by number.

Tests of correlation were first conducted on all questionnaire results, the post-test mark, the Grade 10 final mark, the difference between the two marks, and the sum of the positive attitudes. The validity of each correlation was determined by using a t-test.

flaws in the questionnaire format, as no true numerical value could be attached to any responses when calculating results. Consequently, the questionnaire was restructured for this present study, by using a scale format of 1 to 5. Nevertheless, the results did concur with former research in the area of how attitudes and motivation are influential upon success and achievement.

Although there tended to be a preponderance of females within the random sample selected (21 females to 15 males), gender proved to have no correlation with retention of the L2. Ability was not influential upon choice of furthering one's studies, as students from a wide range of skill levels chose to enrol in French 12. There was also no correlation between skill level and the thought that there was a use for studying French in British Columbia.

For the top 20% grouping, results suggested that high ability subjects have greater retention of an L2 than do average ability subjects. However, of the top 20%, only 38.9% of the subjects had selected the IB French programme. This finding suggested that many of the high ability students prefer CF to the IB. This may be due to the fact that these students have already a heavy academic load and do not wish to be further burdened, or perhaps they are under the impression that they will be more successful in CF than IB because it is supposedly easier. This is an unfortunate illusion, for, as a personal estimation, students from the IB invariably receive better marks on provincial exams than students from the CF programme, not because they are of higher ability, but because they have had a broader and deeper exposure to the language. These findings may also suggest that although students may receive comparable scholastic results, one

may not perceive them as a homogeneous group. High ability students have many individual differences, rationales, and preferences for studying French and a specific FSL programme, just as do average ability children.

Although all students within the high ability range believed it important to study French, of the CF group, one found a more skeptical attitude about the usefulness of studying French in B.C. These students felt that because B.C. is an English-speaking society, there was really no need to use French. With regard to their decision about taking French 12, all IB students answered yes, whereas 3 CF subjects chose not to continue on, mainly because they did not need it for their programme.

Having conducted a pilot study helped to foresee possible problems that could arise during the actual study. Thus, the year after the pilot study marked the beginning of the main research. What follows is a description of the study and analyses performed on the data.

Sample

For the present study, students were taken from four classes of French 12 students, and one class of IB French 12, at RSSS. Students ranged from sixteen to eighteen years of age and included 52 females and 27 males, to give a total number of 79 subjects. The mean age of all subjects was 17 years, 2.5 months.

Instruments

In order to obtain data that was curriculum-specific, both the pre- and post-tests, which were derived from products of the Richmond School District, but developed for this research, concentrated on written language skills and reading comprehension. The

test consisted of three components: a) grammar and vocabulary; b) a cloze passage; and c) a reading comprehension passage. The grammar section contained 30 questions and the cloze and reading sections posed 8 and 7 questions, respectively, to give a total of 45 questions. Section one was based on the French 11 curriculum, which included structures and vocabulary covered throughout the year. Section two, the cloze paragraphs, was taken and adapted from the workbook that accompanies Le Francais International 4 (Calvet, Germain, LeBlanc, & Rondeau, 1975) text. Levels 1 to 4 of this publication were those that the students had followed throughout both junior and senior high school. Section three, the reading comprehension passages, were selected from Heath's (1992) reader, Tous Ensemble! Réflexions, and the questions for the reading were composed specifically for this research. All questions followed a multiple choice format, (see Appendix A for copies of the tests). To assess motivation toward the study of FSL, two questionnaires (see Appendix B) were used: a) Harter's (1980) Scale of Intrinsic Versus Extrinsic Orientation in the Classroom, which asked students to respond to various items centered around motivational aspects within the classroom, while focussing on their study of FSL; and b) a questionnaire developed for this study which concentrated on likes and dislikes of studying FSL, use outside the classroom, and reasons for studying French.

For the Harter questionnaire, students were asked to check the box which best suited them. Statements were of a two-choice format: one half represented intrinsic motivation, and the other half extrinsic. Boxes ranged from 1 to 4, where 1 and 4 meant "Really true for me," and boxes 2 and 3 signified "Sort of true for me." A value

of 1 or 2 referred to extrinsic orientation, and 3 and 4 to intrinsic. Sample questions included references to: 1) Preference for Challenge vs. Preference for Easy Work Assigned, *e.g.* "Some kids like hard work because it's a challenge BUT Other kids prefer easy work that they are sure they can do;" 2) Curiosity/Interest vs. Pleasing the Teacher, Getting Grades, *e.g.* "Some kids work on problems to learn how to solve them BUT Other kids work on problems because you're supposed to;" 3) Independent Mastery vs. Dependence on the Teacher, *e.g.* "When some kids don't understand something right away they want the teacher to tell them the answer BUT Other kids would rather try and figure it out by themselves;" 4) Independent Judgement vs. Reliance on the Teacher's Judgement, *e.g.* "Some kids almost always think that what the teacher says is O.K. BUT Other kids sometimes think their own ideas are better;" 5) Internal Criteria for Success/Failure vs. External Criteria, *e.g.* "Some kids know when they've made mistakes without checking with the teacher BUT Other kids need to check with the teacher to know if they've made a mistake."

The second questionnaire, developed for this research, made specific reference to FSL. Unlike the pilot study, responses to this questionnaire were based on a 1 to 5 scale, whereby 1 strongly disagreed with the statement, and 5 strongly agreed with it.

The first section was comprised of nine items regarding students' likes about FSL. Sample statements included: "I enjoy studying French grammar and linguistics; I enjoy speaking in French; I enjoy reading French literature; I enjoy writing in French." Section 2 incorporated six statements of use of the language outside of class, for example, "I use my French outside of class with friends; I use my French with family;

I watch French films." Section 3 inquired about students' reasoning behind their enrolling into French 12. A sample of the 15 statements included: "I am taking French 12 because: a) my parents wanted me to; b) I wanted to; c) I need it for university; d) it's an easy credit; e) it will help my career."

A fourth aspect which may foster success in language acquisition is the prior knowledge of another language. Many of the subjects involved in both the pilot and the final study did not have English as their native tongue. Therefore French was, in effect, their third or possibly fourth language. As all languages have commonalities, the process of language learning becomes increasingly easier with practice which results in improved achievement (Schils & Welten, 1992). Although this question was not touched upon in the pilot, it is an important issue and was addressed in this study's questionnaire.

One last item included in this research inquired as to whether or not the subject had been exposed to the language during the summer break, that is, s/he had travelled to a French-speaking area and had used the language, or the subject had enrolled in a summer course. Any encounter with the L2 could influence the post-test results; therefore it was felt that these subjects would have to be treated separately when conducting the analysis.

Procedure

For the purpose of this study, approval from both students and parents was received prior to beginning this research (see Appendix C). Students and parents were informed that the information gathered throughout the study would prove to be most

helpful in improving future French programmes and that all information would be kept confidential by coding data by number.

This project took place at Richmond Senior Secondary School in June and September, 1993. As this research focussed on retention of an L2 after a period of disuse, an evaluation of students at the end of their Grade 11 French or IB French 11 course and at the beginning of their French 12 or IB French 12 course was necessary, thus identifying the summer break as the period of disuse. For ease of tracking, only students who had chosen to enroll in French 12 or IB French 12 were included in the study.

Pre-testing occurred in the second last week of classes, in June of the students' grade 11 year. Seven French 11 classes and one IB French 11 class were tested at this time. Two versions of the test (A and B) were administered on a randomly selected basis. As in a standard exam situation at RSSS, students had prior knowledge of the testing date. To lessen an already stressful week test-wise, students were informed that these exam results would only raise their standing at the time, not lower it. The teacher outlined clearly all instructions, noting that she could not answer any questions of comprehension, but only those related to the structure of the exam itself. Students had the full hour to complete the exam, although most finished within forty-five minutes.

Post-testing took place in the second week of the new school year. As most students had been pre-tested, this predicted which version of the exam they would receive, that is, the inverse of the June exam. For the post-test, 36 subjects wrote exam version A, and 43 wrote version B, to give a total of 79 subjects. Of that total, 52 were

females and 27 were males. Students who had not been involved in the pre-test session wrote a post-test exam, but their results were not included in the research. The purpose of the post-test was not only to assess retention, but also to act as a placement exam at the beginning of the year. By administering such a test, teachers had a better idea of students' backgrounds, and could thus direct their planning and teaching accordingly. As the exam was part of the curriculum, it was treated like all exams: students had advance warning, but they were also reassured that this was purely an evaluation of the knowledge they had retained, and that the results could only improve their standing. Test instructions mirrored those outlined in June, and students had the full period to write the exam if they so needed. As in the post-test session, most students completed the test prior to the end of the hour.

In conjunction with the test, but during the following class period, students were asked to complete the two questionnaires. Attached to the latter, in the form of a covering letter, was a letter of permission, (see Appendix C) to be signed by the student if s/he so desired. At this time, letters of parental/guardian consent (see Appendix C) were also passed out to all subjects, to be collected within the following week.

Data Analysis

Pre- and post-tests were scored and results were tabulated. An initial comparison of both pre- tests showed little difference between overall scores. Post-test scores were also studied, and again little difference was found on total scores. To confirm that the tests were reliable, a test, using the split-half method was conducted on the pre-test scores. To establish that the test versions were of equal difficulty, an item analysis was

conducted comparing tests A and B, where pre- and post-tests were combined, that is, pre-test A with post-test A, and pre-test B with post-test B. This analysis was achieved by comparing the mean score of each question of each test. A similar analysis was conducted on each component (linguistic, cloze, and reading comprehension) of the test versions to verify that they, too, were of comparable difficulty.

As the above-mentioned item analysis failed to show large differences in difficulty between the two exam versions (A and B), it was possible to collapse pre-test A with pre-test B, and post-test A with post-test B, thus treating them as simply pre- and post-tests. Similar to the initial analyses of the exams, a comparison of test question means and subsequently, a comparison of test component means were performed to identify mean losses of the L2, following the period of disuse. As each question of the pre- and post-tests was not identical, these items could not be compared individually. However, when questions were grouped, it was possible to compare sections within the exams. By doing so, one could assess significant losses within the components for the entire group of subjects. To test whether or not this attrition was attributed to individual subjects; losses of the L2, Pearson correlations and t-tests were conducted. A positive correlation would indicate that the two test were consistent on a component by component basis, in that students would do comparably well on the two tests.

At this point, individual groupings of high, average and low ability were established, based on their scores achieved in June. As there were three distinct groups, and as the sample size was not exceptionally large, it was felt that subjects should be equally divided in number. These categories were thus identified as 33%, 34%, and 33%

of the subjects, respectively, giving 26 subjects each to the high and low ability groupings and 27 to the average ability grouping. Of the high ability grouping, 12 of the 26 subjects were from the IB programme. Two IB students were in the low category and none fell within the medium ability section. Independent t-tests were conducted to identify significant differences between the pre- and post-test means. The grouping results were then studied in detail with a particular focus on the high ability grouping.

With reference to the questionnaires, the Harter (1980) scoring guide was used to determine each student's orientation to FSL. Using the above-mentioned groupings, for both the Harter (1980) and the FSL questionnaires, a study of significant between-group differences was conducted using a t-test. Again, the high ability grouping was highlighted to identify not only differences from the average and low ability groups, but also differences within the high ability grouping itself. The results of all analyses are presented in the next chapter.

CHAPTER FOUR

Results

Table 1 presents the mean scores of each test, by component and in total. In order to address the research hypotheses, it was necessary to demonstrate that the two exams used in this study were equal in difficulty. To do so, a question-by-question comparison of means of each test, where pre- and post-tests were combined, was conducted (see Figures 1 and 2). As there was a non-significant difference between the means of both tests, (Test A: $\underline{M} = .52$; Test B: $\underline{M} = .54$, $t(78) = .78$, $p > .05$), it was felt that a similar analysis should be performed on the components of each test to

Table 1: Statistics of Test A vs. Test B Components

Component	Test A		Test B		<u>SE</u>	<u>t</u>
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>		
Linguistic	15.46	4.79	16.38	4.93	.47	1.95
Cloze	3.95	1.62	4.44	1.40	.19	2.60**
Reading	4.28	1.48	3.30	1.28	.18	5.41***
Total Score	23.68	6.57	24.13	6.31	.57	.78

Note: $t(78) = 1.994$, * $p < .05$. ** $p < .01$. *** $p < .001$.

identify possible weaknesses within these sections of the exams, (see Table 2 and Figure 3).

Results from the latter analysis showed a non-significant difference between the Test A and Test B linguistic components (A: $\underline{M} = .51$; B: $\underline{M} = .55$, $t(78) = 1.95$, $p > .05$), but a significant difference between the two cloze components (A: $\underline{M} = .49$; B: $\underline{M} = .55$, $t(78) = 2.6$, $p < .01$), and a significant difference between the reading comprehension sections of the two exams (A: $\underline{M} = .61$; B: $\underline{M} = .47$, $t(78) = -5.41$, $p < .001$).

To confirm that the test versions were reliable internally, an alternate form reliability test was performed using the split-half method. Results from this analysis showed that both test A, $r = .89$, $p < .001$, and test B, $r = .72$, $p < .001$. were

Table 2: Comparison of Means of Pre-tests A and B, and Post-tests A and B

Test Component	Possible Score	Mean			
		Pre-test A	Post-test A	Pre-test B	Post-test B
Linguistic	30	16.65	14.03	16.75	16.07
Cloze	8	4.09	3.78	4.36	4.51
Reading	7	4.58	3.92	3.39	3.23
Total Score	45	25.33	21.72	24.50	23.81

Note: $n = 79$; subjects included 27 males and 52 females.

reliable, overall. Results from a standard error of measurement analysis showed that test scores fell within one standard error of the true scores (Test A: $s_m = 2.26$; Test B: $s_m = 3.26$, where overall score loss was 3.6).

Although the reading component of Test A appeared to be substantially easier than that of Test B, overall differences between the exam versions were small enough and their reliability was high enough to test the first hypothesis, that is, a loss of knowledge in written language and reading comprehension skills would be found after the point of disuse.

To identify attrition of the L2 due to the summer break, a comparison of the pre- and post-tests was conducted. As there was little difference in overall difficulty between Tests A and B, it was possible to collapse pre-test A with pre-test B, and post-test A with post-test B, thus treating them simply as pre- and post-tests. Similar to the initial analysis conducted, a comparison of questions and a comparison of components were both performed (see Figures 4 and 5). Results from the latter analysis showed an overall loss among questions, $t(78) = 4.0$, $p < .001$, as well as linguistic, $t(78) = 3.45$, $p < .01$, and reading comprehension, $t(78) = 2.42$, $p < .05$, components (see Table 3). The cloze results were non-significant, $t(78) = .19$, $p > .05$.

To determine the relationship and significant differences between the pre- and post-tests, Pearson correlations and t-tests were performed upon the pre- and post-test means. Means were divided into two groups: Group 1 represented pre-test B vs. post-test A, and Group 2 referred to pre-test A vs. post-test B (see Table 4 and Figures 6 to 11). Results from these analyses concluded a significant positive relationship between all

Table 3: Statistics of Pre- and Post-Tests

Component	Pre-Test		Post-Test		SE	t
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>		
Linguistic	16.70	5.08	15.14	4.54	.45	3.45**
Cloze	4.22	1.65	4.18	1.42	.20	.19
Reading	4.04	1.43	3.54	1.47	.20	2.42*
Total Score	24.95	6.55	22.86	6.16	.52	4.00***

Note: $t(78) = 1.994$, * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4: Pearson Correlations and t-tests Between Pre- and Post-Test Scores

Component	Group 1: Pre- B vs. Post- A		Group 2: Pre- A vs. Post- B	
	<u>r</u>	<u>t</u>	<u>r</u>	<u>t</u>
Linguistic	.60	4.34***	.75	7.28***
Cloze	.33	2.04*	.42	2.93**
Reading	.13	.76	.51	3.78

Note: Group 1: $t(34) = 2.03$, Group 2: $t(41) = 2.02$, * $p < .05$. ** $p < .01$. *** $p < .001$.

components except for reading comprehension of Group 1 ($r = .13$, $p > .05$). Having collapsed Groups 1 and 2, significant positive relationships were also found between the pre- and post- linguistic components, and the pre- and post- cloze components. The reading component correlation again proved non-significant ($r = .22$, $p > .05$).

To test the second hypothesis, that is, students with a more positive attitude toward the language would have better retention of written and reading comprehension skills in FSL, subjects were first divided into three ability groupings: high, medium, and low, according to their pre-test scores (see Table 5 and Appendix D). Means, standard deviations, and t-tests were performed. Overall significant losses of the L2 were found for the high, $t(25) = 9.76$, $p < .001$, and medium, $t(26) = 6.36$, $p < .001$, ability groupings. In contrast, the results for the low ability category showed a significant gain, $t(25) = 0-2.34$, $p > .01$. Table 5 outlines results of components per ability grouping.

To test the attitudinal factor of the second hypothesis, a comparison of questionnaire means using t-tests (see Appendix E) was conducted of which there were eight significant findings: 1) when comparing the high to medium ability groups, FSL question 5, "I enjoy listening to people speak French", proved statistically significant, $t(51) = 2.41$, $p < .05$; 2) FSL question 7, "I enjoy working with other students in French", was significant when comparing the medium to low ability groups, $t(51) = -2.10$, $p < .05$; 3) FSL question 16, "I am taking French 12 because my parents wanted me to", showed significant results when comparing the high to medium groups, $t(51) = -2.20$, $p < .05$; 4) FSL question 19, "I am taking French because I enjoy it", was significant when comparing the high to low groups, $t(51) = 2.78$,

Table 5: Pre- and Post-Test Statistics, by Ability Level and Component

Ability	Component	Pre-Test		Post-Test		SE	t
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>		
High (n=26)	Linguistic	21.65	3.53	18.77	4.25	.36	7.30***
	Cloze	5.42	1.21	5.00	1.30	.17	2.50**
	Reading	5.08	1.23	4.23	1.34	.20	4.17***
	Total	32.15	3.71	28.00	5.69	.43	9.76***
Medium (n=27)	Linguistic	17.22	1.85	14.33	3.75	.40	7.22***
	Cloze	4.00	1.44	4.22	1.19	.22	-1.01
	Reading	3.81	1.78	3.33	1.39	.19	2.49**
	Total	25.04	1.56	21.89	4.74	.50	6.36***
Low (n=26)	Linguistic	11.19	2.68	12.34	3.01	.41	-2.80***
	Cloze	3.23	1.50	3.31	1.29	.20	-.38
	Reading	3.23	1.24	3.08	1.47	.22	.72
	Total	17.65	2.84	18.73	4.07	.46	=-2.34**

Note: High: $t(25) = 2.06$, Medium: $t(26) = 2.06$, Low: $t(25) = 2.06$,
 $*p < .05$. $**p < .01$. $***p < .001$.

$p < .05$, and the high to medium groups, $t(51) = 2.48$, $p < .05$; 5) FSL question 20, "I'm taking French 12 because I'm good at it," was statistically significant when comparing the high to low, $t(50) = 3.41$, $p < .01$, and high to medium ability groupings, $t(51) = 2.19$, $p < .05$; and 6) FSL question 21, "I am taking French 12 because it's an easy credit", proved statistically significant when comparing the high to low groups, $t(50) = 2.90$, $p < .05$. None of the Harter (1980) findings were significant (see Table 6 and Appendix E).

As it was clear from the questionnaire findings that the high ability grouping was not distinctly different in motivation and attitude toward FSL, differences within this group would also not be distinct from the medium and low ability subjects. Thus no study of within-group differences among high ability learners of FSL was conducted.

Discussion of the above-mentioned results is found in chapter five. Conclusions, implications, and recommendations will follow.

Table 6: Harter Questionnaire Means by Ability Level

Ability	n	Challenge	Curiosity	Mastery	Judgment	Criteria
High	26	2.72	2.81	2.80	2.88	3.22
Medium	27	2.83	2.86	2.92	3.01	3.20
Low	26	2.53	2.66	2.64	3.02	3.23

Note: The coefficient used to determine the measure of internal consistency was the Kuder-Richardson Formula 20. $\alpha = .78$ to $.84$ for Challenge subscale, $.68$ to $.82$ for Independent Mastery, $.70$ to $.78$ for Curiosity, $.72$ to $.81$ for Judgement, and $.75$ to $.83$ for Criteria.

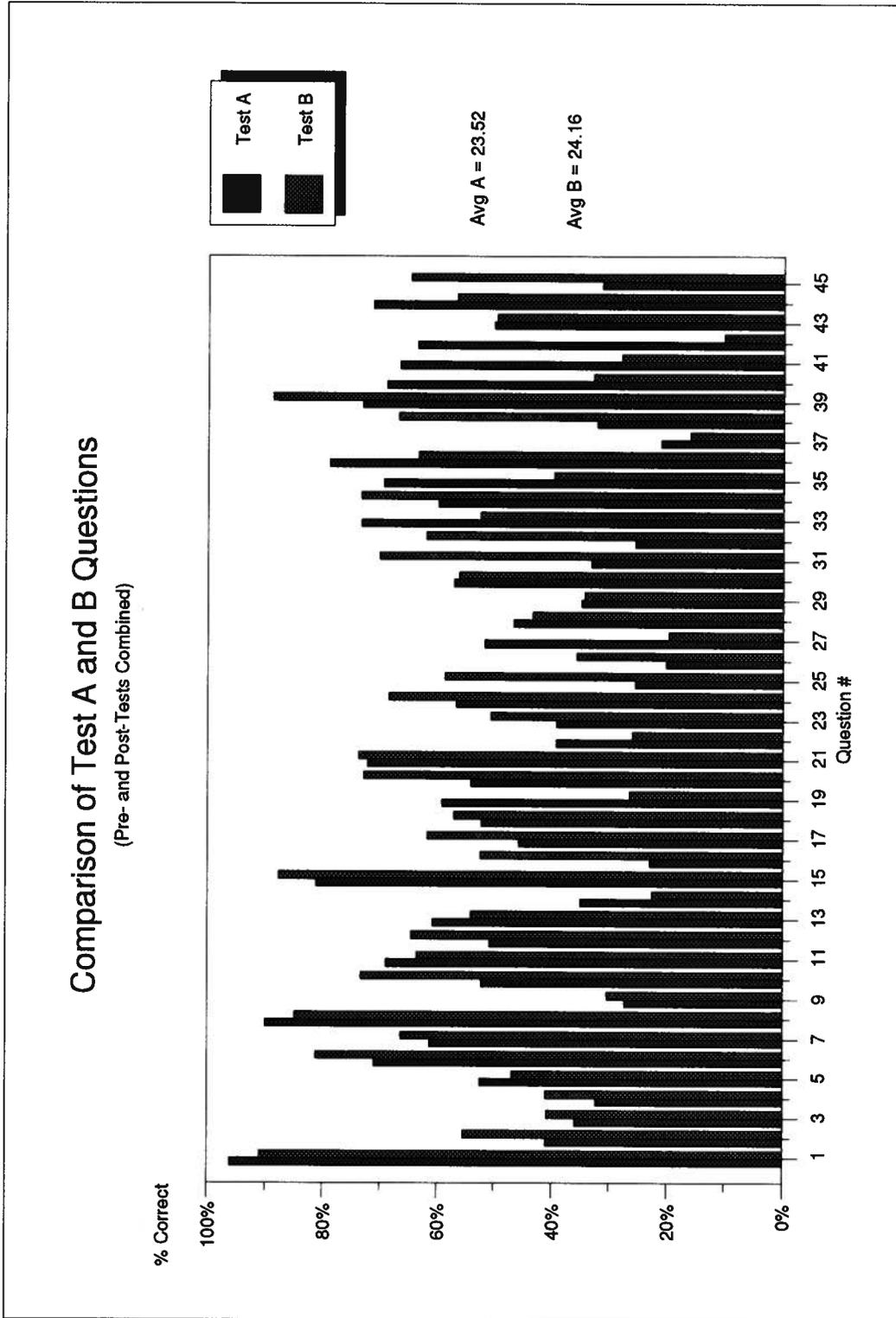


Figure 1: Comparison of Test A and B Questions, Pre- and Post-Tests Combined

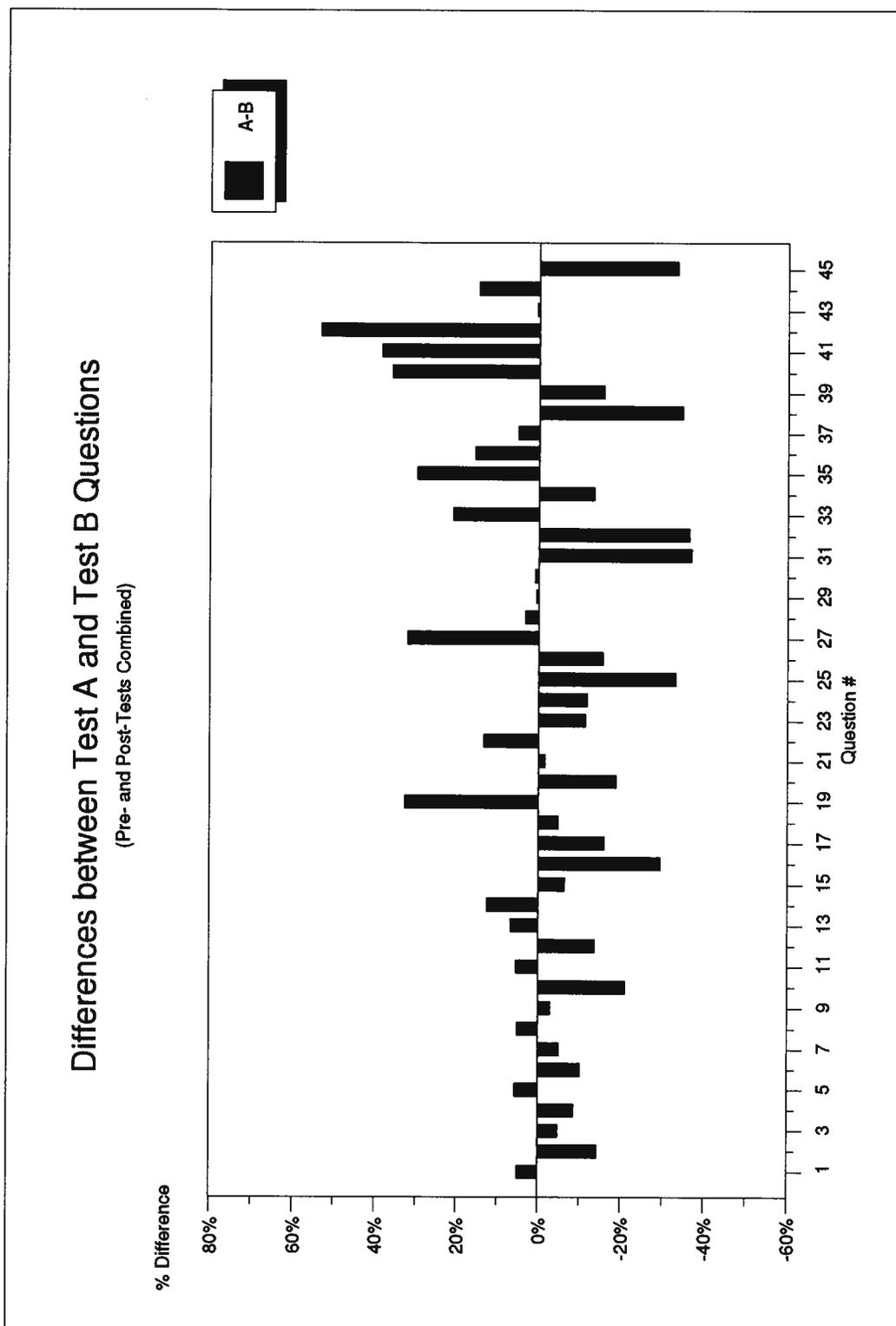


Figure 2: Differences Between Test A and B Questions, Pre- and Post-Tests Combined

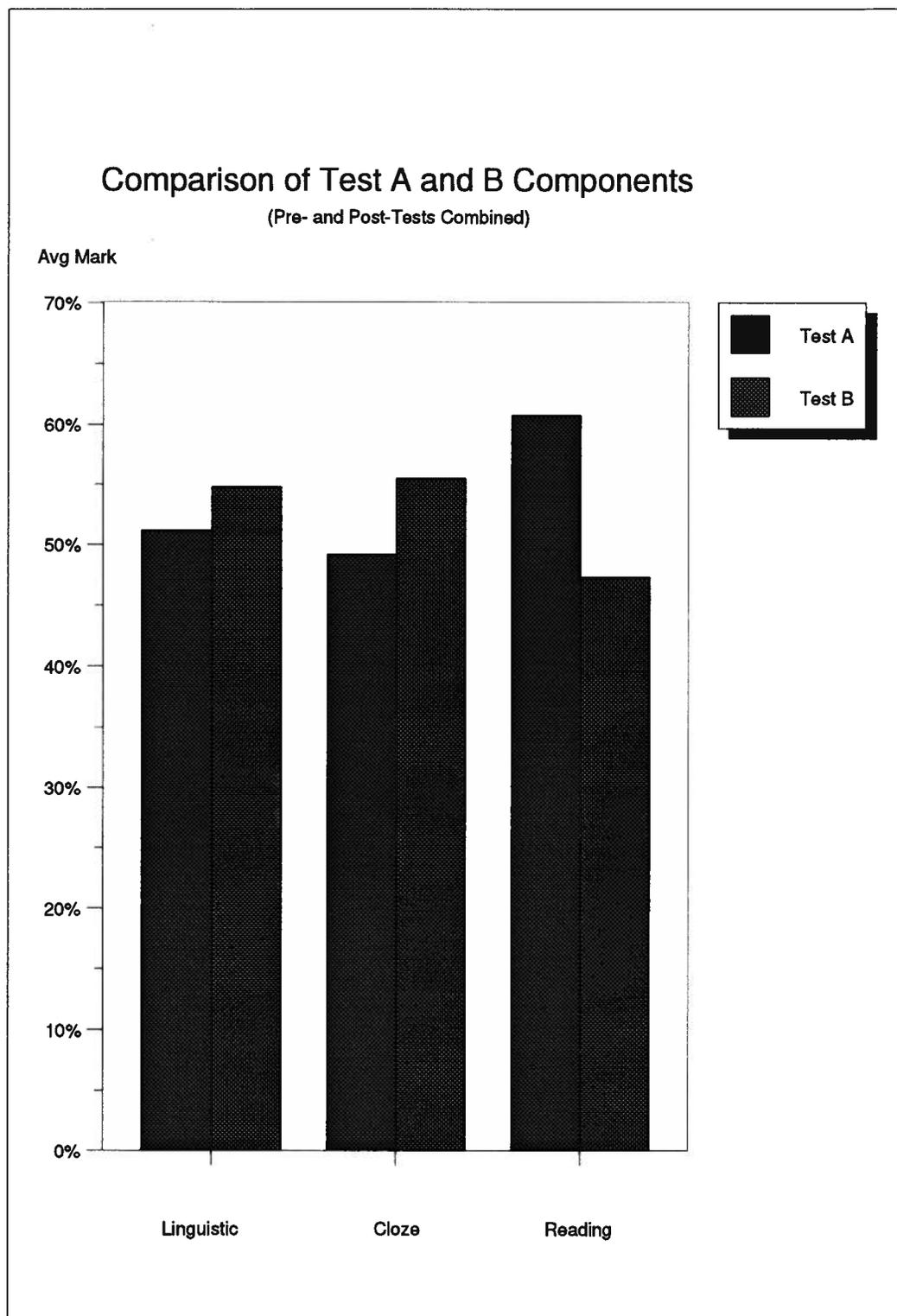


Figure 3: Comparison of Test A and B Components, Pre- and Post-Tests Combined

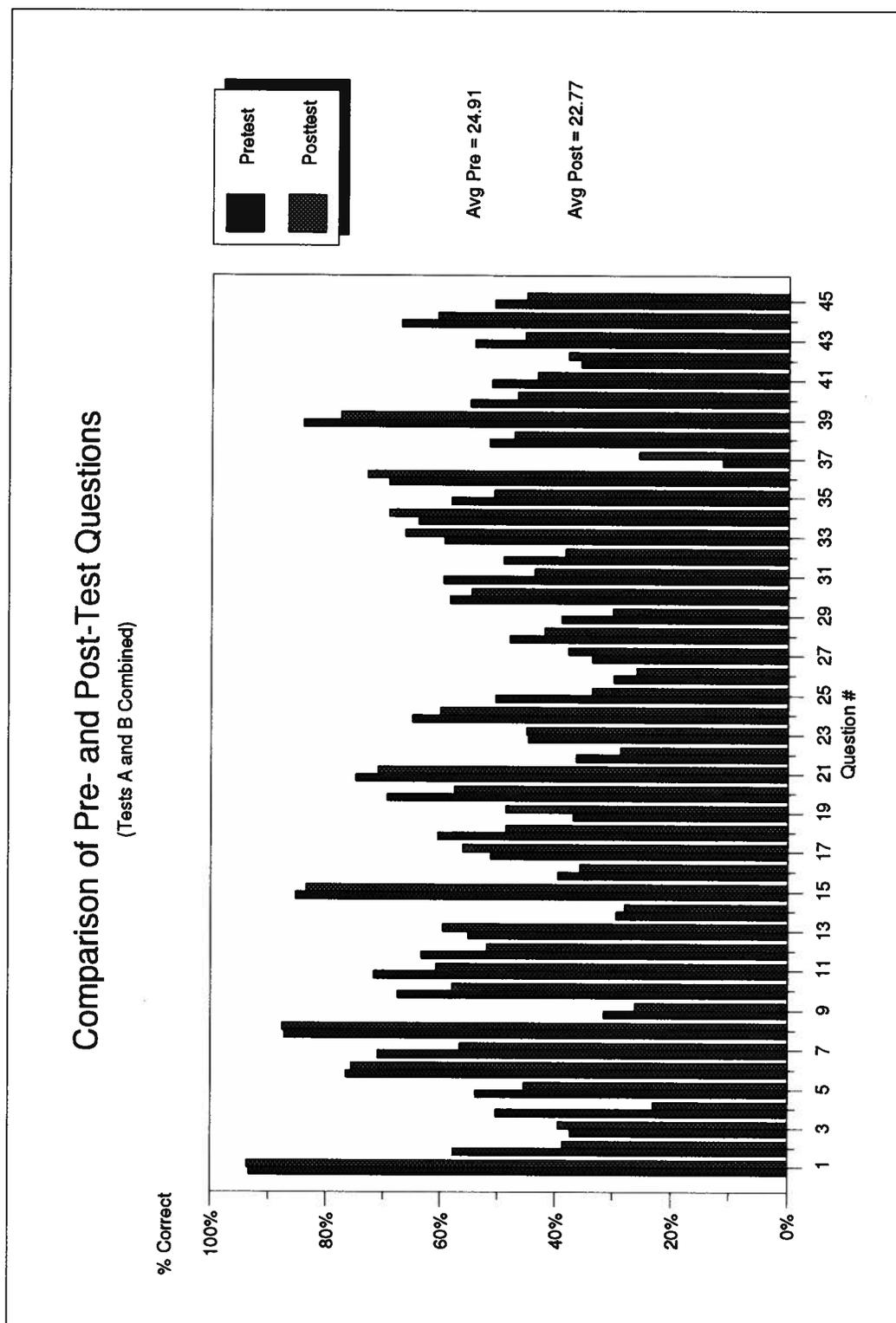


Figure 4: Comparison of Pre- and Post-Test Questions, Tests A and B Combined

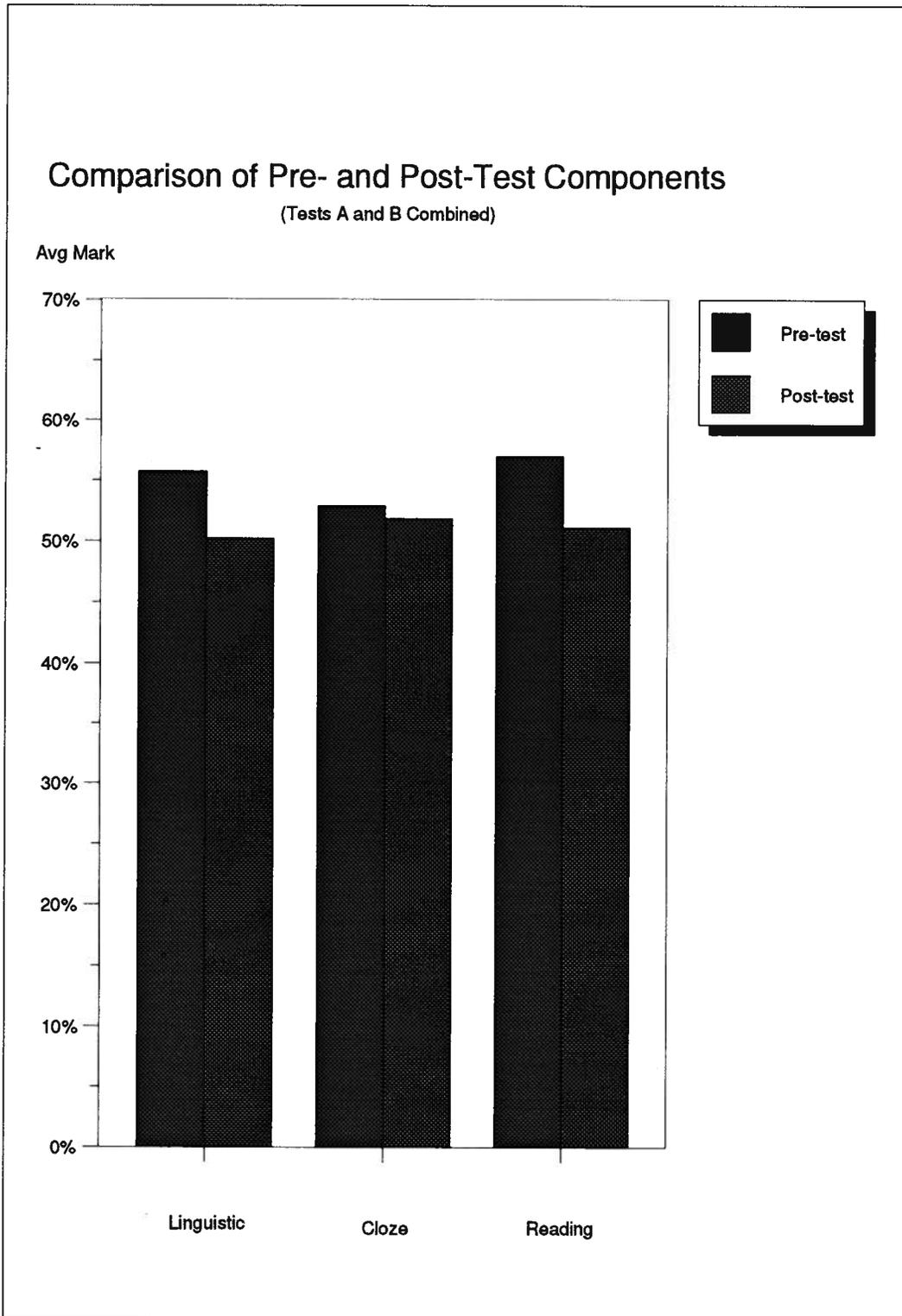


Figure 5: Comparison of Pre- and Post-Test Components, Tests A and B Combined

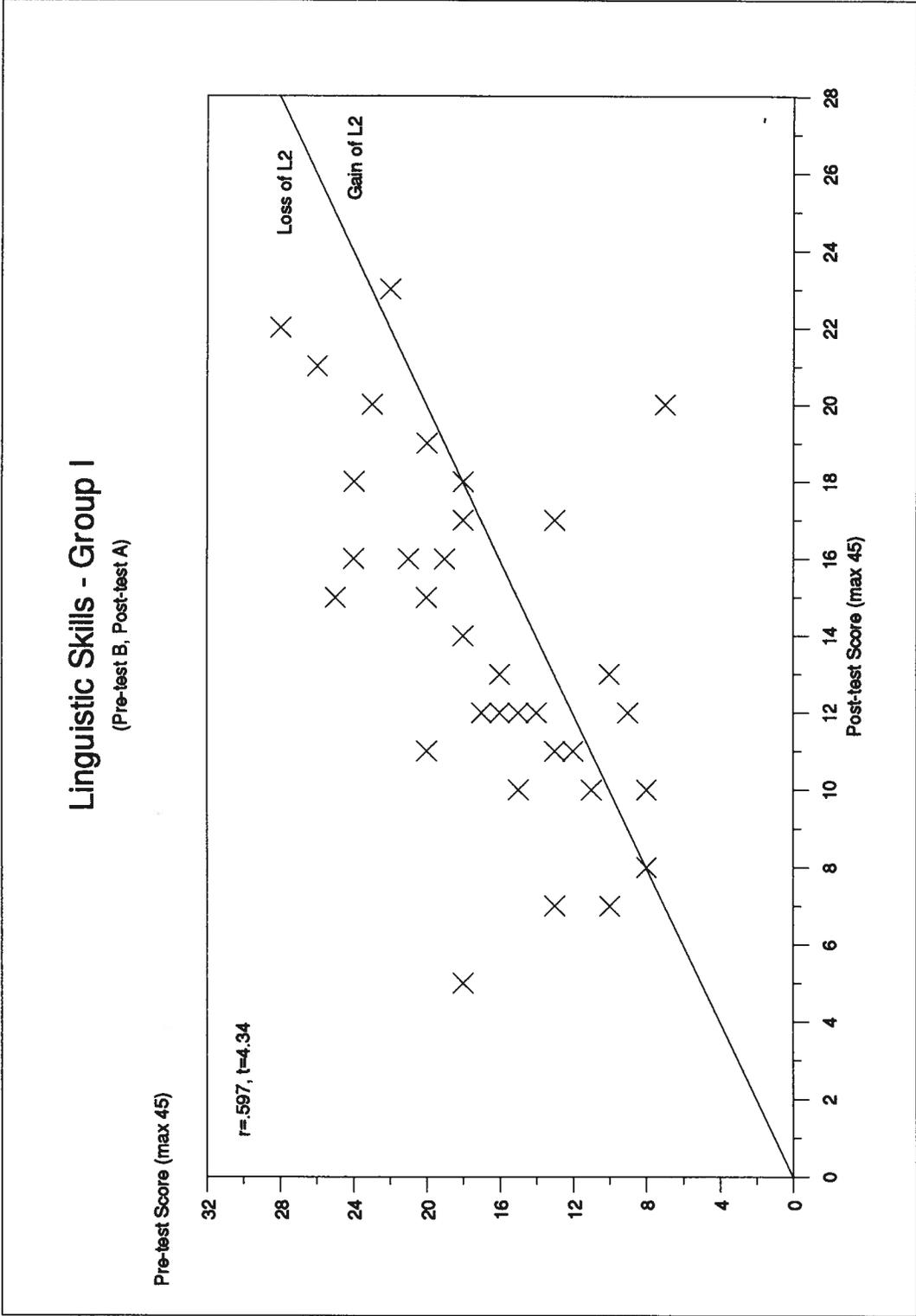


Figure 6: Linguistic Skills Retention, Group 1

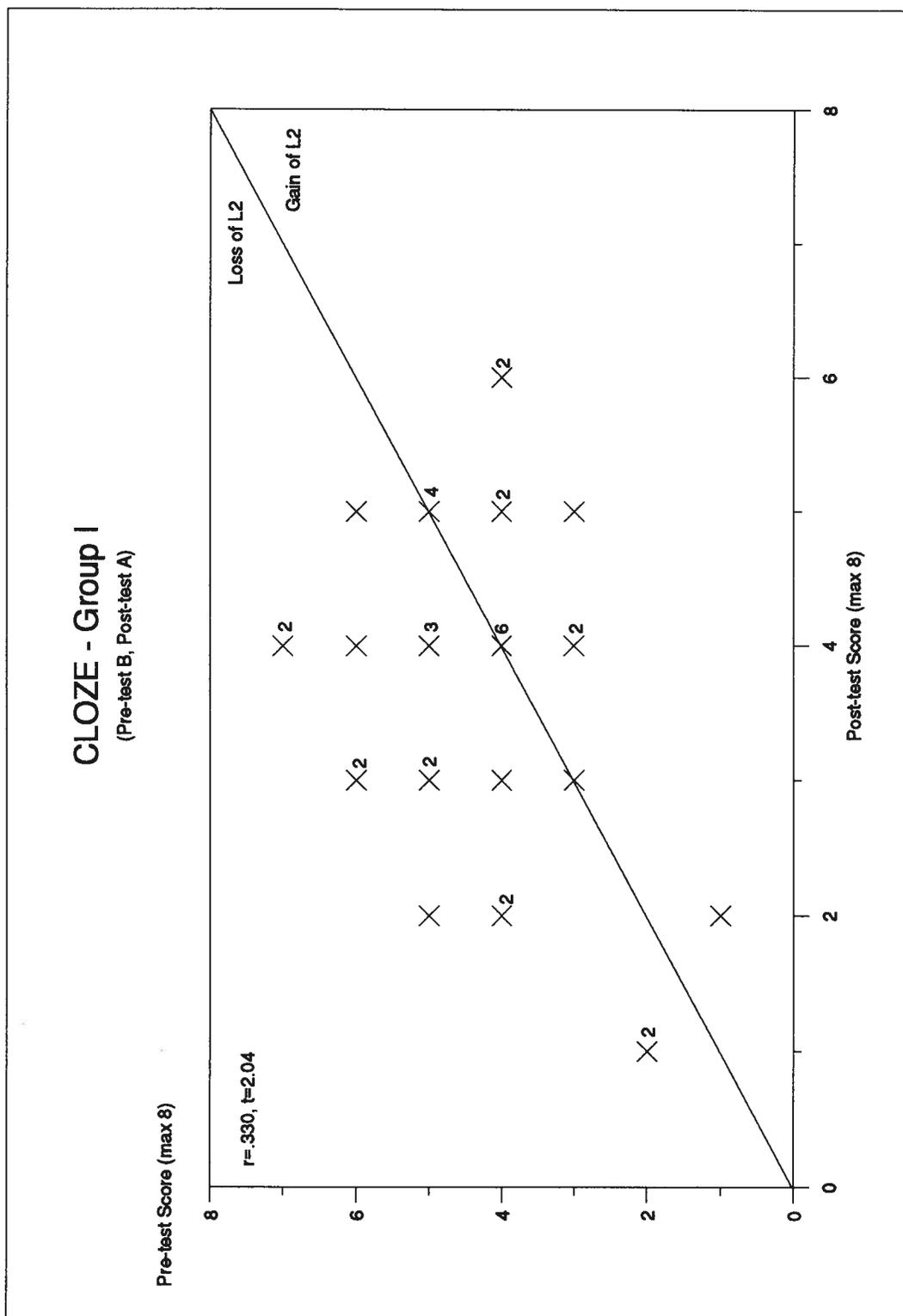


Figure 7: Cloze Retention, Group 1

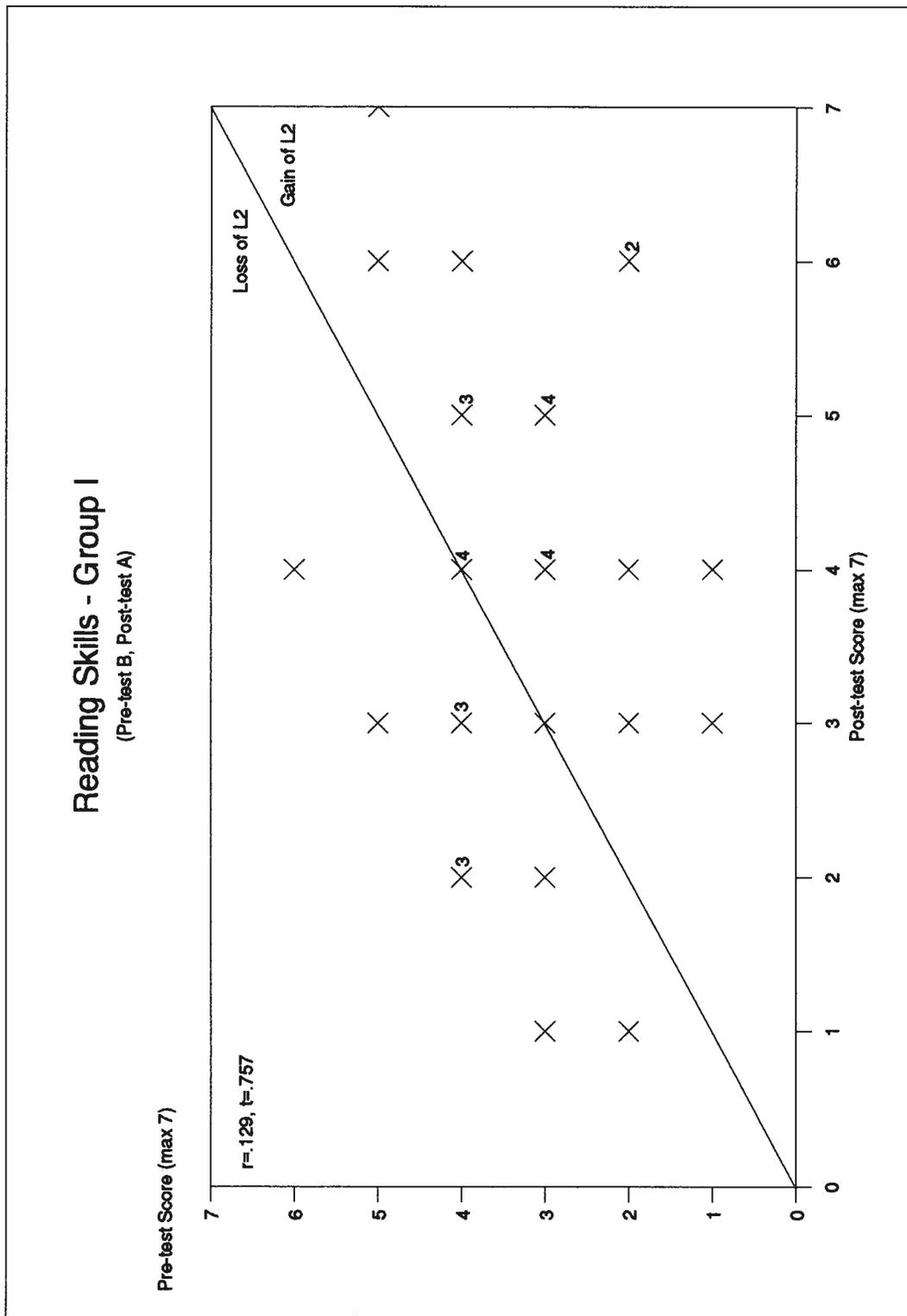


Figure 8: Reading Skills Retention, Group I

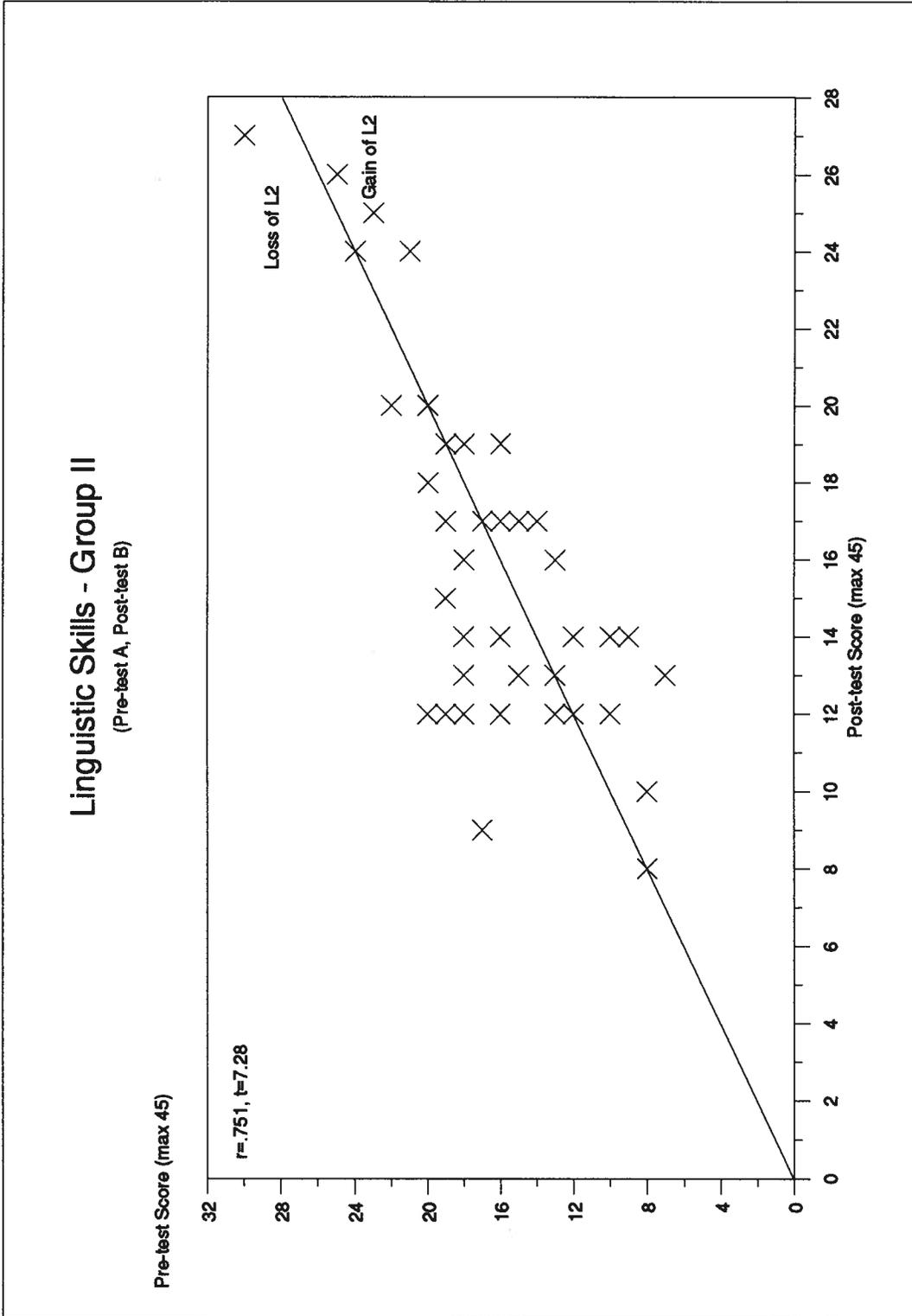


Figure 9: Linguistic Skills Retention, Group 2

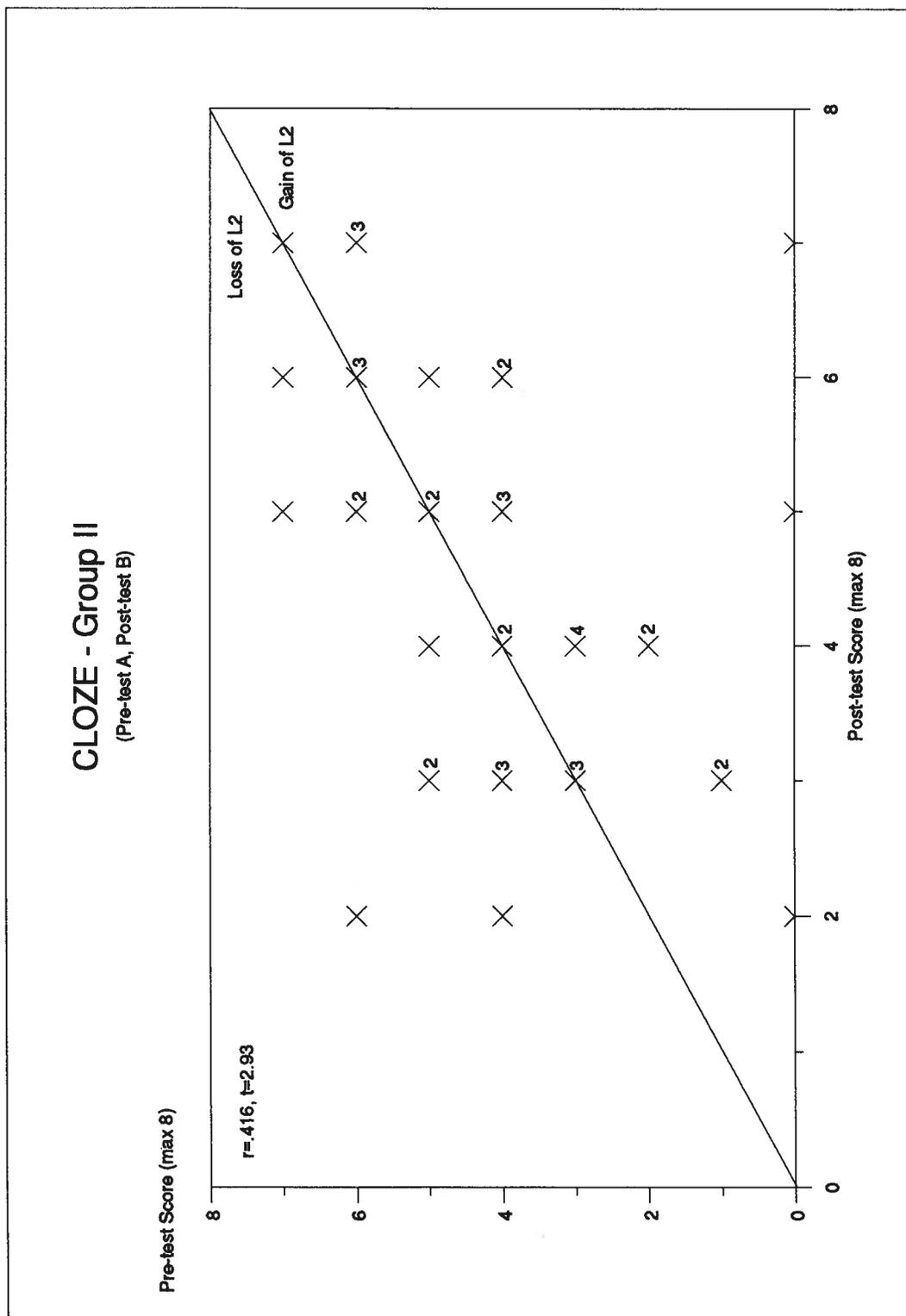


Figure 10: Cloze Retention, Group 2

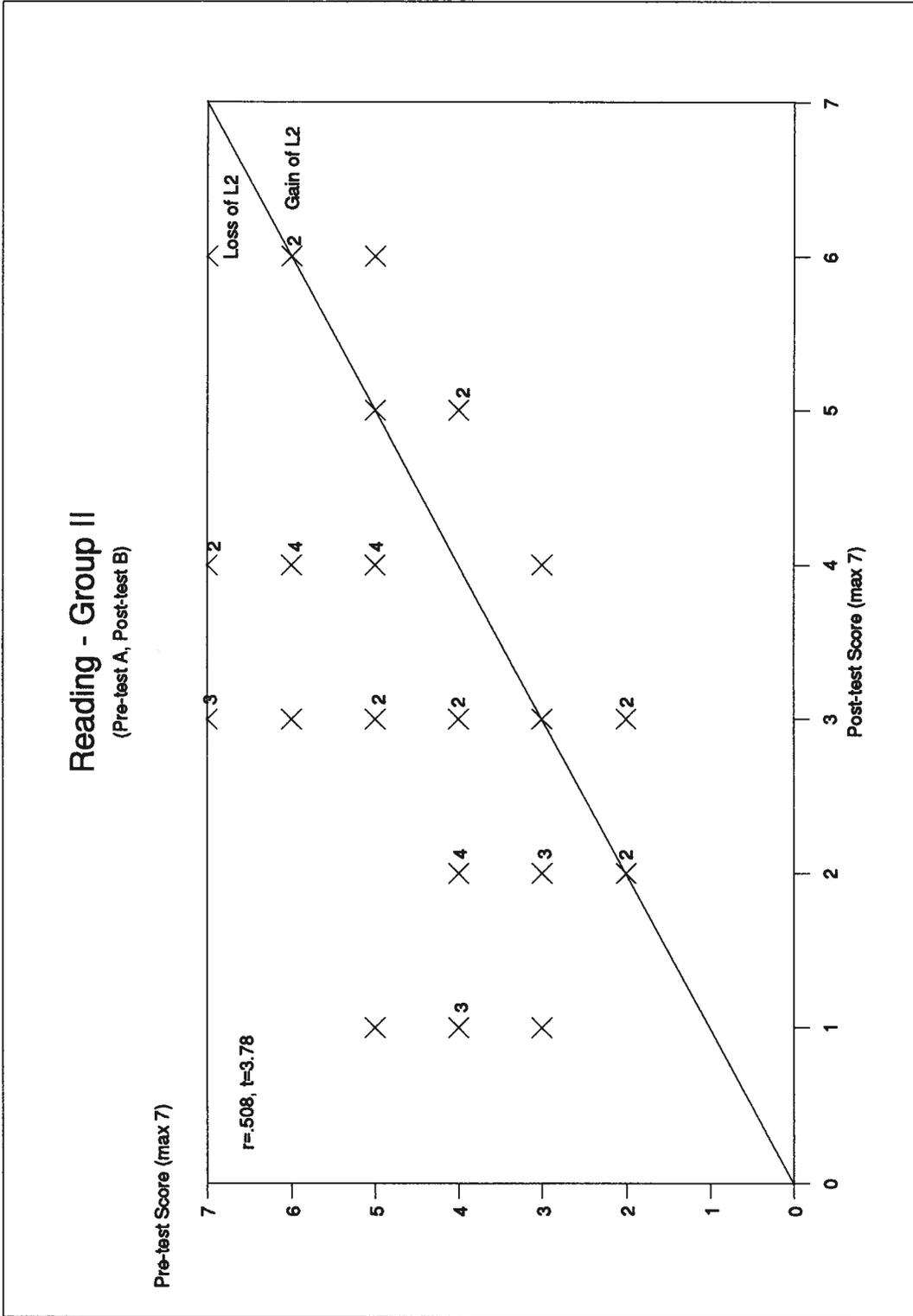


Figure 11: Reading Skills Retention, Group 2

CHAPTER FIVE

Discussion

Literature in the area of retention, of motivation, and of high ability learners of FSL has offered much in the former two topics, some in the latter, but little discussing all three simultaneously. Results from this research offer a spring-board for future study of this subject. This chapter presents limitations of this work, an interpretation of the results, as well as research and pedagogical implications in all three areas.

Limitations

There appeared to be three limitations to this study. As the questionnaire was administered in September, rather than in June, most of the questionnaire items could not be included in determining a relationship with motivation and retention of FSL, as attitude and motivation may have changed in the interim period. Therefore a between-group comparison was all that could be made. Secondly, due to the logistics of tracking, it was not possible to include FSL drop-out subjects in this study, which may have affected these results. Finally, due to political and teaching time constraints, it was not possible to identify subjects by external measures, such as final term percentage. Ability groupings were therefore determined by subjects' pre-test score, which may have been an incorrect assessment of each subject's ability, thereby misclassifying each student from the start.

Interpretation of Results

As was anticipated, a significant overall loss of 8% of the L2 did take place following the summer break however, due to inconsistent results between the tests' cloze and reading sections, these components may be considered unreliable. As well, and concurrent with the findings of Weltens, Van Els, and Schils (1989), loss of overall L2 linguistic skills did take place during the summer break. This is possibly because questions posed in an isolated format offer little to the L2 learner in terms of quantity of language. An L2 learner has difficulty enough in following a passage given in context. Without the benefit of the situation surrounding the statement, an L2 learner must grapple with the unfamiliar, as his/her vocabulary is so limited. S/he may recognize the odd word or verb form in isolation, but his/her knowledge often ends there.

From the research of Gardner, Lalonde, and MacPherson (1985), an increase in reading comprehension skills, following the summer break, was found. The authors felt that this gain reflected not only the difficulty in measuring change using objective measures, but also subjects' prior knowledge and experience of the assessment procedure.

Similar to the work of Smythe, Jutras, Bramwell, and Gardner (1973), from this research, one found that reading comprehension skills in the L2 suffered overall attrition, as a result of the period of disuse. Although Smythe, Jutras, Bramwell, and Gardner (1973) felt that a 5% loss was not worthy of considerable review, results from this study showed that a loss of 12% was significant. As SL students are not in the habit of reading casually in French (or in English, for that matter), it is highly unlikely that they would do so during their vacation time. Thus continued practice and encouragement in

this area appears to be a worthwhile endeavor. A second explanation may be due to the unequal level of difficulty between the two reading passages. The selection from Test A was substantially easier than that of Test B. Therefore students who wrote test A in June were more open to loss of the L2 skills than if they had written it in September. This component of the exams may thus be unreliable.

The odd result was that of the cloze component. Although an overall loss was noted, when analysed statistically a significant result was not found. The latter may be due to random fluctuation as scores fell within the standard error of measurement. Schils and Weltens (1992) found similar results in their research, and concluded that this may have been due to an increase in general language proficiency, not just FSL, but also an influence of the mother tongue.

With reference to the ability groupings' results, the high level attained significant losses on the overall test, as well as on all three components, the medium students lost significantly, while the low students gained significantly overall. The explanation may be due to having used the pre-test, rather than some independent measure, to classify students into ability groupings. Random fluctuation may have also contributed to the gain in knowledge.

A counter-balancing effect that may have occurred among the high ability subjects is that of overlearning. Certain items, ingrained with time, are not subject to loss. Therefore structures and vocabulary that these students had been exposed to repeatedly, would have experienced less attrition than linguistic items that had been more recently acquired.

Although the majority of the questionnaire findings was insignificant, it is interesting to note that one's perceptions of students, even those considered gifted, may often be incorrect. With regard to the Harter (1980) study, which aims at determining students' intrinsic vs. extrinsic orientations toward a subject-matter, results from this research suggest that most of these students, regardless of ability, prefer the easy route to success, that is, to please the teacher, rather than to challenge her/himself.

Unfortunately, at this grade level and within this age bracket, students are highly driven by marks. Students who are headed toward post-secondary institutions are particularly susceptible. As competition increases, so do universities' entrance requirements. Hence, it is not unusual to find FSL students' sole objective to be to attain an "A" in the course, as these students are, more often than not, those who choose to further their studies.

When comparing the means of the significant results from the FSL questionnaire, the high ability group had the most positive reactions for the majority of the eight findings. This factor may suggest that although these high ability students may not be exceptionally intrinsically motivated, according to the questionnaire results, they do appear to enjoy their French experience and feel confident in the subject. Questions 19 and 20, "I am taking French because it's an easy credit", and "I'm taking French because I'm good at it" proved significant for comparisons between both the high and low, and high and medium ability levels. These results may suggest that high ability students have a strong sense as to their capabilities in French and can thus justify their purpose for studying FSL.

The only grouping which showed a higher response than those mentioned above was the low ability group, on question 7, "I enjoy working with other students in French". The latter finding may suggest that a weaker student appreciates the support and assistance of his/her peers, as this cooperative effort and collegiality may render a task, which at first may appear onerous, quite palatable.

Although an individual analysis of the high ability grouping was not conducted due to insignificant questionnaire results, it is noteworthy that not all IB students were classified as high ability. Nor were all CF students rated in the medium or low ability categories. This finding may suggest that although these students may be scholastically inclined, they may not choose the most challenging course of study. Perhaps these subjects prefer to take courses which they find easier, and thus be judged as high ability. One must also not assume that because a student is enrolled in a gifted and talented programme that s/he is gifted and talented.

Results from the FSL questionnaire also highlighted varying attitudes toward FSL. One found students who were exceptionally keen on studying French, some who were indifferent, and others who were quite uninterested. This finding does not seem unusual, because although students may be clever academically, it does not necessarily imply that they love studying French. Nor can the reverse be said of the weaker subject. One cannot assume that a student dislikes French simply because s/he is not brilliant in the course.

Conclusions

This study may assist in ameliorating the style of future FSL classes. Through in-service workshops provided by the author, this research may increase teachers' abilities to review effectively the previous year's material, and to clarify which aspects of language may be more susceptible to attrition, allowing for better concentration in these areas. Having a clearer picture of students' attitudes toward and interests in French may better direct teachers in their educational planning. The results of such workshops may also inspire teachers to encourage continually a positive attitude among FSL students, and in particular to maintain a sparked interest among high achievers. Although one assumes that these children are relatively independent, and capable of autonomous learning, they too, have distinct needs, which unfortunately are often neglected, just as are gifted and talented programmes.

Research Implications

Although attitude and motivation and their relationship to learning an L2 has been studied for some time, retention of the subject-matter and its relationship to motivation has been little touched upon. As results from the literature have been variable, further research is needed, particularly over longer periods of time, in order to clarify these discrepancies.

In addition, it would be helpful to see the results of an implemented reading programme in FSL. At present, no formal policy exists; it is at the discretion of the teacher to include or not include reading in his/her programme. Not only might these

skills improve as a result of greater exposure, but also students' attitudes might improve toward reading in the target language and the study of the language itself.

A third factor which has received little or no attention is that of individual differences of L2 learners. One suspects that because research into the retention of French among L2 learners is a relatively new field, little thought has been given to studying varying levels of ability within the larger group. Future study incorporating an extremely gifted group of subjects, as classified by I.Q. and further questionnaires may allow insight into individual differences within that grouping. Continued research in this area may dispel any misbeliefs as to the homogeneity of the gifted. By accomplishing this task, one may see an improved regard for not only high achievers, but also for all levels of proficiency.

Since this research was conducted, the communicative methodology has been introduced into both the FSL and IB programmes at RSSS. As the philosophy behind the communicative approach (Jean, Anderson, Bandet-Prebushewski, Condon, Moscovich, & Park, 1993) is based on communication rather than on an objective study of the language (that is, the rules of use that govern the language), it would be interesting to see if retention after holiday breaks improves with this communicative style of learning. From a personal perspective, having now had a year's experience with the communicative approach to L2 learning, there appears to be an improvement in students' listening skills and vocabulary; however their formation of the language, particularly in written form, and general comprehension skills seem to have weakened. A follow-up study may shed light upon the advantages and pitfalls of both the structured and communicative

approaches. This subsequent research may lead to a combination of both methodologies which would enhance future FSL programmes.

As always in Education, changes occur. Therefore continued evaluation of these changes is needed. As was mentioned above, the IBO is currently changing its methodology of the L2 component. In addition, as of September 1995, the IB will adopt a new curriculum for FSL. A comparative study between the old and new programmes, similar to that needed for the structured and communicative approaches, may prove worthwhile. If an improvement in general communication L2 skills is the result, then the change is beneficial. However, from a personal perspective, the present programmes' subjects have achieved very good results to date both on the provincial and IB exams. One must thus ask oneself why the change is required. At the IBNO conference in Seattle, (October, 1993), it was suggested that many of the U.S. schools found the IB literary component of the L2 curriculum too difficult. Although it is at the discretion of the instructor to continue with the study of literature, it has been formally removed from the new programme, to be replaced by a series of themes to be studied and discussed (IBNO, 1993). This loss may or may not affect reading comprehension skills. Results from a comparative study of the two programmes would be helpful to teachers, as this information may validate their decision to study literature in the L2.

Pedagogical Recommendations

This research stresses the importance of studying further the interaction of ability levels, motivation, and retention in FSL. Through continued research and workshops on these three areas, FSL teachers may in future offer more effective review periods

following the holiday or semester break. Greater emphasis on aspects lost over time, such as the more recently learned linguistic skills, and continued reading practice, such as a form of USSR (Uninterrupted Sustained Silent Reading) in French, may prove to be a more worthwhile and productive assignment.

Teachers of high ability students must also seek continually to maintain their students' interest, particularly if they are adolescents, as keenness to study seems to diminish in this age bracket. Perhaps by undermining the value of marks, and emphasizing the advantages of experiencing a variety of methods of learning, students may better appreciate and understand the process of acquiring knowledge, rather than the end product of a letter grade. Encouragement toward a pupil's goal and purpose for studying French may also contribute to an increase in proficiency. As the literature has shown, improved proficiency leads to improved retention, which is hopefully the goal of any teacher.

A study, such as this, allows one to improve methodology by combining the best of the communicative approach, FSL, and research. FSL teachers have observed methodologies change over the course of time. Former CF programmes were considered inadequate because students could read and write in the language, but never speak. French Immersion was thus the response. There, one found students who could communicate verbally, but who had a weak knowledge of the structure of the language. Immersion students' written skills were thus plagued with fossilized errors, as emphasize had been placed on oral skills.

Today, we find a swing in CF programmes toward a more communicative approach. Teachers are to encourage students to speak, and to worry less about minor errors, both in verbal and in written form. In the opposite direction, Immersion programmes are stressing increasingly an emphasis on written and reading skills, and to pay greater attention to details of grammar.

As discussed in the introduction of this work, the IB has been offering the best of both programmes for some time. Not only does it encourage oral production of the L2, but also highlights in detail how the language is structured. At the end of the two year programme, students are functionally bilingual, both verbally and in written form.

Thus, through further research of these programmes' advantages and disadvantages, one may offer realistic techniques and approaches that FSL teachers may use in future which would enhance and improve upon methodologies that are currently in use.

References

- Alexander, P. (1985). Gifted and Nongifted Students' Perceptions of Intelligence, Gifted Child Quarterly, 29(3), 137-143.
- B.C. Ministry of Education. (1980). Secondary French Curriculum Guide. Victoria, B.C.: Queen's Printer.
- B.C. Ministry of Education and Ministry Responsible for Multiculturalism and Human Rights. (1992). Primary through Graduation Curriculum/Assessment Framework: Humanities Strand, French as a Second Language. Victoria, B.C.: Queen's Printer.
- Brounstein, P.J., Holahan, W., & Sawyer, R. (1988). The Expectations and Motivations of Gifted Students in a Residential Academic Program: A Study of Individual Differences. Journal for the Education of the Gifted, XI(3), 36-52.
- Calvet, P., Germain, C., LeBlanc, R., Rondeau, F. (1974). Le Français International 4 (10th ed.). Montréal, Qué: CEC.
- Calvet, P., Germain, C., LeBlanc, R., Rondeau, F. (1975). Le Français International 4 Cahier d'Exercices. Montréal, Qué: CEC.
- Carey, S.T. (1984). Reflections on a Decade of French Immersion, The Canadian Modern Language Review, 41(2), 246-259.
- Carey, S.T. (1991). Languages, Literacy and Education, The Canadian Modern Language Review, 47(5), 839-842.
- Carey, S.T. (In press). Academic Achievement and Reading Comprehension in Minority and Second Languages. In R. Short & L. Stewin (Eds.), Canadian Issues in Education. Toronto: Copp & Clark.
- Carlson, N.N. (1981). An Exploratory Study of Characteristics of Gifted and Talented Foreign Language Learners, Foreign Language Annals, 14(5), 385-391.
- Clark, B. (1988). Growing Up Gifted (2nd ed.). Columbus, OH: Charles Merrill Co.
- Forsyth, P. (1987). A Study of Self-Concept, Anxiety, and Security of Children in Gifted, French Immersion, and Regular Classes, Canadian Journal of Counselling, 21(2-3), 153-156.

- Gardner, R.C. (1991). Attitudes and Motivation in Second Language Learning. In A.G. Reynolds (Ed.), Bilingualism, Multiculturalism, and Second Language Learning. London: Lawrence Erlbaum Associates.
- Gardner, R.C. (1991). Second-Language Learning in Adults: Correlates of Proficiency, Applied Language Learning, 2(1), 1-28.
- Gardner, R.C., Lalonde, R.N., & MacPherson, J. (1985). Social Factors in Second Language Attrition, Language Learning, 35,(4) 519-540.
- Gardner, R.C., Lalonde, R.N., Moorcroft, R., & Evers, F.T. (1987). Second Language Attrition: The Role of Motivation and Use, Journal of Language and Social Psychology, 6(1), 29-47.
- Gardner, R.C., & Lambert, W.E. (1972). Attitudes and Motivation in Second-Language Learning. Rowley, MA: Newbury House.
- Garfinkel, A., & Prentice, M. (1985). Foreign Language for the Gifted: Extending Cognitive Dimensions, Meeting the Call for Excellence in the Foreign Language Classroom. Selected papers from the 1985 Central States Conference on the Teaching of Foreign Languages. U.S. Department of Education, National Institute of Education, Educational Resources Information Center (ERIC), 2-8.
- Harter, S. (1980). A Scale of Intrinsic Versus Extrinsic Orientation in the Classroom. Denver, CO: University of Denver.
- International Baccalaureate Office. (1987). Language B Teacher's Guide. New York, N.Y.: IBONA.
- International Baccalaureate Office. (1993). Language B Teacher's Guide. New York, N.Y.: IBONA.
- Jean, G., Anderson, B., Bandet-Prebushewski, M., Condon, Pl, Moscovich, B., Park, B. (1993). En Direct 1, Teacher Resource Book. Scarborough, Ont: Prentice Hall.
- Kaplan, S.N. (1982). Myth: There is a Single Curriculum for the Gifted!, Gifted Child Quarterly, 26(1), 32-33.
- Lambert, R.D., & Freed, B.F. (1982). The Loss of Language Skills. Rowley, MA: Newbury House.
- Matthews, D.J. (In Press). Beyond Identification: Toward Assessing Developmental Advancement by Domain. In F.D. Horowitz & R.C. Friedman (Eds.), The

- Gifted and Talented: Theories and Reviews, 2. Washington, DC: American Psychological Association.
- McMillan, J.H., & Schumacher, S. (1989). Research in Education A Conceptual Introduction. Harper Collins.
- McVey, M.D., & Snow, R.E. (1988). Aptitude Theory as a Framework for Research on Individual Differences in Gifted Performance. In G. Kanselaar, J. van der Linden, & A. Pennings (Eds.), Individual Differences in Giftedness: Identification and Education.
- Moorcroft, R., & Gardner, R.C. (1987). Linguistic Factors in Second-Language Loss, Language Learning, 37(3), 327-340.
- Pennsylvania Department of Education. (1982). Foreign Languages for the Gifted and Talented. Harrisburg, PA: Bureau of Curriculum Services.
- Peel, R. (1987). Remarks of the Director General. New York, N.Y.: IBONA.
- Renzulli, J. (1977). The Enrichment Triad Model: A Guide for Developing Defensible Programs for the Gifted and Talented. Mansfield Center, CT: Creative Learning Press.
- Richmond School Board. (1990). Policies and Regulations for School District Number 38, Richmond. Richmond, B.C.: Richmond School Board.
- Richmond Senior Secondary School. (1989). I.B. Booklet. Richmond, B.C.: RSSS Press.
- Smythe, P.C., Jutras, G.C., Bramwell, J.R., & Gardner, R.C. (1973). Second Language Retention Over Varying Intervals, The Modern Language Journal, LV11, (8), 400-405.
- Snow, M.A., Padilla, A.M., and Campbell, R.N., (1988). Patterns of Second Language Retention of Graduates of a Spanish Immersion Program, Applied Linguistics, 9(2), 82-197.
- Sternberg, R.J., & Davidson, J.E., (1988). Conceptions of Giftedness. New York, N.Y.: Cambridge University Press.
- Strength through Wisdom, A Report to the President from the President's Commission on Foreign Language and International Studies (November, 1979). (1982). Foreign Language Annals, 15(5).

- Swain, M., & Lapkin, S. (1982). Evaluating Bilingual Education: A Canadian Case Study. Clevedon: Multilingual Matters.
- Weltens, B., (1987). The Attrition of Foreign-Language Skills: A Literature Review, Applied Linguistics, 8(1), 22-37.
- Ullmann, R., Carter, B., Goodman, S.I. (1992). Tous Ensemble! Réflexions. Canada: Heath.
- Weltens, B., Van Els, T.J.M., & Schils, E., (1989). The Long-Term Retention of French by Dutch Students, SSLA, 11, 205-216.
- Yoshotomi, A. (1992). Towards a Model of Language Attrition: Neurobiological and Psychological Contributions, Applied Linguistics, 3(2), 293-318.

Appendix A

Exam Versions A and B

Reading passages for the exams used in this research were taken from Heath's reader, Tous Ensemble! Réflexions (1992). Selections for Tests A and B were: "Tout ce que pensent vraiment les enfants--sans jamais oser en parler" (pp. 36-17), and "Les enfants du divorce" (pp. 31-32), respectively. The linguistic and cloze sections of both exams follow.

TEST A

ANSWER QUESTIONS ON SCANTRON SHEET, NOT ON TEST COPY. SELECT THE BEST ANSWER FOR EACH. SECTION 1 (LINGUISTIC) IS NUMBERED 1-30; SECTION 2 (CLOZE) IS NUMBERED 51-58, AND GOES ON BACK OF SECTION 1 ANSWERS. SECTION 3 (READING COMPREHENSION) IS ALSO NUMBERED 1-7, BUT PUT ANSWERS ON SEPARATE SCANTRON SHEET.

SECTION 1: LINGUISTIC

1-30. Read each question and select the letter that BEST completes the statement.

1. Est-ce que tu m'as parlé? Oui, parlé.

- a) il t'a b) vous m'avez c) je t'ai d) nous t'avons

2. Veux-tu du pain? Oui,.....

- a) donne-m'en. b) m'en donne. c) donne-le moi. d) donne-lui-en.

3. Si nous avons le temps, nous au cinéma.

- a) irions b) allons c) irons d) sommes allés

4. Il faut qu'il

- a) part b) partira c) partait d) parte

5. Je ne sais pas il a dit.
a) qu' b) quoi c) ce qu' d) de quoi
6. Qui as-tu vu? Je n'ai vu
- a) rien b) personne c) quelque chose d) quelqu'un
7. Quand nous aurons 19 ans, nous à l'université.
a) serons b) serions c) soyons d) étions
8. Quelle chemise préfères-tu?-ci.
a) celle b) celles c) celui d) ceux
9. Marc n'est pas assez grand sortir le soir.
a) * (nothing is needed) b) à c) de d) pour
10. Les enfants sont que leurs parents.
a) pleurent plus souvent b) pleurent le plus souvent c) plus petits d) les plus petits
11. Les filles que vous étaient très belles.
a) avez rencontrées b) rencontrerez c) racontez d) avez rendues
12. Tu as une auto, Marie? Quel cadeau!
a) nouvel, beau b) nouvel, belle c) nouvelle, bel d) nouvelle, beau
13. Quelques étudiants ne réussissent pas en chimie. Pour, la chimie est difficile.
a) les b) leur c) eux d) ils
14. Cette étudiante parle bien le français. Elle parle de toute la classe.
a) mieux b) la meilleure c) le mieux d) meilleur
15. Nathalie a cheveux
- a) les, blonds b) des, blonds c) le, blonde d) de, blondes

16. La tarte aux pommes que Paul nous a était délicieuse.
- a) apporté b) apportée c) apportés d) apportées
17. Je viens de les gants noirs que tu as ici hier soir.
- a) trouver, laissé b) trouver, laissés c) trouvé, laissé d) trouvé, laissés
18. Est-ce que mon frère peut emprunter tes skis, Henri? Demain, peut-être, mais je aujourd'hui.
- a) ne les lui peux pas donner b) ne les peux pas lui donner c) ne peux les lui donner pas d) ne peux pas les lui donner
19. Ils ont hâte partir avion leurs amis.
- a) de, par, avec b) à, par, chez c) de, en, avec d) à, en, chez
20. Aimes-tu?
- a) si b) ci c) ceci d) celui

21.-30. Complete the paragraph by choosing the appropriate verb form.

Quand j(e) ...21... jeune, ma famille et moi, nous ...22... à la campagne, dans un petit village européen. D'habitude, nous ...23... au marché pour ...24... nos provisions. Il ...25... bien sûr, qu'on ...26... à la pâtisserie, parce qu'on ...27... toujours un petit gâteau du monsieur qui ...28... là. Un jour il nous ...29... une tartelette aux fraises! Quel délice! Nous ...30... très contents ce jour-là!

21. a) ai été b) serai c) serais d) étais
22. a) avons habité b) habiterons c) habitons d) habiterions
23. a) allons b) irons c) irions d) aller
24. a) achetions b) acheter c) achèterions d) avons acheté
25. a) faut b) falloir c) fallait d) faudrait
26. a) aller b) va c) aille d) irait
27. a) recevait b) recevoir c) a reçu d) reçoive
28. a) travaillera b) travaillait c) a travaillé d) travaillerait
29. a) a même donné b) aurait même donné c) a même donnés d) avons même donné
30. a) avons rentré b) sommes rentrés c) rentrions d) serions rentrés

NOW TURN OVER THE SCANTRON COPY. ANSWERS FOR THE CLOZE PASSAGE ARE NUMBERED 51-58. PLEASE PUT THEM ON THE BACK SIDE OF THE LINGUISTIC SECTION ANSWERS.

SECTION 2: CLOZE

51-58. Read the following news article, "Ils ont été les premiers Américains" and select the best word that fits into the passage.

Ils ont été les premiers Américains

MOSCOU (AFP) ---- Des archéologues soviétiques ont ...51... des preuves du passage des anciennes tribus de la Sibérie du nord-est ...52... Amérique du Nord, en étudiant les ruines des installations de l'homme de l'époque paléolithique au Kamtchatka, a annoncé l'agence Tass.

Le professeur Nikolai Dykov, ...53... a conduit une mission d'archéologues, a déclaré que celle-ci avait trouvé des objets identiques à ...54... utilisés par les anciens Indiens de L'Amérique du Nord dans ...55... vie de jour en jour. Il pense que les savants soviétiques ont déterminé l'origine asiatique du "wampoom" -- coutume indienne de porter des colliers, des ...56... et divers pendentifs de perles et de verre.

L'Académicien Alexei Okladnikov a qualifié de "stupéfiants" et d'"inattendus": les résultats ...57... fouilles* faites ...58... la mission d'archéologues au Kamtchatka.

Le professeur Nikolai Dykov considère qu'à l'époque glaciaire le détroit de Behring n'existait pas et que les hommes alors passaient à pied de Sibérie en Alaska.

*fouilles=excavations

Adapted from an article in, *Le Français International 4, Cahier D'Exercices*. 1975.
Montreal: CEC, p.59

51. a) découvert b) découverte c) découverts d) découvertes
52. a) à l' b) en c) dans d) pour
53. a) que b) qui c) ce que d) ce qui
54. a) celui b) celle c) ceux d) celles
55. a) sa b) notre c) votre d) leur
56. a) radios b) télévisions c) voitures d) ceintures
57. a) de b) des c) deux d) dé
58. a) sur b) derrière c) par d) pour

NOW TURN TO THE SECOND SCANTRON COPY. ANSWERS FOR THE READING COMPREHENSION PASSAGE ARE NUMBERED 1-7. PLEASE PUT THEM ON THE FIRST SIDE OF THE SECOND SCANTRON.

SECTION 3: COMPREHENSION

1-7. Read the passage, "Tout Ce Que Pensent Les Enfants.....", and choose the best answer for each question, according to the text.

1. Dans ce passage les jeunes.....

- a) offrent leurs opinions sur les parents, les amis, et la vie.
- b) critiquent sévèrement leurs parents.
- c) cherchent à se connaître.
- d) parlent de leurs relations passionnelles.

2. Les adolescents ont besoin.....

- a) de vivre seul et d'avoir le respect de leurs parents.
- b) d'argent et d'affection de leurs parents.
- c) de manquer les cours et d'être libres.
- d) d'être libres et d'avoir de l'affection de leurs parents.

3. A quoi les jeunes veulent-ils s'échapper?

- a) aux problèmes des copains et des parents
- b) aux problèmes de famille et d'école
- c) aux problèmes des copains et d'école
- d) aux problèmes de finances et de famille

4. A l'avenir, qu'est-ce que les jeunes aimeraient faire?

- a) se marier et être parents.
- b) travailler comme médecin dans la région où ils habitent.
- c) voyager loin.
- d) trouver d'autres amis.

5. Pourquoi les adolescents peuvent-ils parler à leurs copains et non pas à leurs parents?

- a) parce que les parents ne veulent pas les écouter.
- b) parce que les copains les comprennent mieux et peuvent tout expliquer aux parents.
- c) parce que les parents préfèrent parler avec leurs propres amis.
- d) parce que les copains leur ressemblent et respectent la confiance entre eux.

6. Qu'est-ce que c'est que "le jardin secret"?

- a) c'est un endroit où on peut méditer.
- b) c'est un petit jardin qu'on cultive quand on est jeune.
- c) ce sont les relations personnelles entre les copains
- d) c'est l'amitié entre les parents et leurs enfants.

7. Pourquoi les adolescents cherchent-ils de l'indépendance?

- a) parce qu'ils veulent être reconnus.
- b) parce qu'ils aiment mieux être avec leurs amis.
- c) parce qu'ils ne comprennent pas le temps de leurs parents.
- d) parce qu'ils veulent être parents un de ces jours.

TEST B

ANSWER QUESTIONS ON SCANTRON SHEET, NOT ON TEST COPY. SELECT THE BEST ANSWER FOR EACH. SECTION 1 (LINGUISTIC) IS NUMBERED 1-30; SECTION 2 (CLOZE) IS NUMBERED 51-58, AND GOES ON BACK OF SECTION 1 ANSWERS. SECTION 3 (READING COMPREHENSION) IS NUMBERED 1-7, BUT PUT ANSWERS ON SEPARATE SCANTRON SHEET.

SECTION 1: LINGUISTIC

1-30. Read each question and select the letter that BEST completes the statement.

1. Est-ce que vous m'avez téléphoné? Oui, téléphoné.
a) ils t'ont b) tu m'as c) nous lui avons d) je vous ai
2. Voulez-vous de la viande? Oui,
a) donnez-la-moi. b) donnez-m'en. c) donnez-lui-en. d) m'en donnez.
3. S'ils avaient le temps, ils au cinéma.
a) vont b) iraient c) iront d) sont allés
4. Il faut que nous
a) partons b) partirons c) partions d) partirions
5. Je ne sais pas elle va faire.
a) ce qu' b) qu' c) quoi d) de quoi
6. Qu'as-tu vu? Je n'ai vu.
a) quelqu'un b) quelque chose c) personne d) rien
7. Quand il aura 19 ans, il à l'université.
a) serait b) sera c) soit d) était
8. Quels souliers préfères-tu?-ci
a) celui b) ceux c) celle d) celles

9. Jeanne n'est pas assez vieille conduire.
- a) à b) de c) pour d) * (nothing is needed)
10. Les parents sont que leurs enfants.
- a) plus grands b) les plus grands c) pleurent moins souvent d) pleurent le moins souvent
11. Les garçons que vous étaient très gentils.
- a) avez rendus b) racontez c) rencontrerez d) avez rencontrés
12. Tu as une auto, Pierre? Quel achat!
- a) nouvel, bel b) nouvel, belle c) nouvelle, bel d) nouvelle, belle
13. Mes cousins patinent bien. Ah oui, pour c'est facile.
- a) les b) eux c) ils d) leur
14. Cette étudiante parle C'est pourquoi elle va recevoir le prix d'excellence.
- a) le meilleur b) la meilleure c) la mieux d) le mieux
15. Marie a yeux
- a) les, bleus b) des, bleus c) le, bleue d) de, bleues
16. La glace au chocolat que Jean nous a était délicieuse!
- a) donné b) donnée c) donnés d) données
17. Nous venons de les dossiers blancs que tu as ici hier soir.
- a) trouvé, oublié b) trouvé, oubliés c) trouver, oublié d) trouver, oubliés
18. Est-ce que Nicolas peut prendre les clefs de l'auto, Papa? Demain, peut-être, mais je ce soir.
- a) ne peux pas les lui donner b) ne peux les lui donner pas c) ne les peux pas lui donner d) ne les lui peux pas donner

19. J'ai réussiobtenir un billet train Calgary!

- a) d', en, à b) à, de, pour c) d', pour, à d) à, pour, en

20. Veux-tu?

- a) ciel b) celle c) sel d) celle-ci

21.-30. Complete the paragraph by choosing the appropriate verb form.

Quand j(e) ...21... petit, chaque été, ma famille et moi, nous ...22... au bord de la mer pour ...23...nos vacances. D'habitude, il ...24... très chaud, alors on ...25... tous les matins. Bien sûr, l'après-midi, il ...26... qu'on ...27... la sieste, parce qu'on ne ...28...pas travailler à cause du chaleur. Un jour, Maman nous ...29... de la limonade pour nous rafraîchir. Alors, ce soir-là, nous ...30...en ville, en très bonne forme!

21. a) suis b) serai c) étais d) ai été
22. a) irons b) irions c) sommes d) allions
23. a) passer b) sommes passés c) avons passé d) passions
24. a) ferait b) faisait c) faire d) a fait
25. a) nage b) nageait c) nagerait d) a nagé
26. a) fallait b) faudrait c) faudra d) faille
27. a) fait b) fasse c) a fait d) faisait
28. a) pourrait b) pourra c) pouvait d) a pu
29. a) a même donné b) avons même donné c) a même donnés d) aurait même donné
30. a) avons quitté b) sortirions c) sortirons d) sommes sortis

NOW TURN OVER THE SCANTRON COPY. ANSWERS FOR THE CLOZE PASSAGE ARE NUMBERED 51-58. PLEASE PUT THEM ON THE BACK SIDE OF THE LINGUISTIC SECTION.

SECTION 2: CLOZE

51-58. Read the news following article, "La 'Joueuse de guitare' retrouvée" and select the best word that fits into the passage.

La "Joueuse de guitare" retrouvée

LONDRES (AFP) ---- On a ...51... la joueuse de guitare, le chef-d'oeuvre de Jan Vermeer, maître hollandais du XVIIe siècle, ...52... Londres dans la nuit de lundi à mardi.

C'est dans le petit cimetière de Saint-Bartholomew, dans la cité de Londres ...53... un policier a découvert le chef-d'oeuvre dérobé il y a deux ...54... dans un musée du nord de Londres. C'est un coup de ...55... anonyme qui a mis Scotland Yard sur la piste.

Le tableau formellement identifié ...56... des experts, a ensuite été remis au Musée.

C'est le 23 février que la toile* avait été volée. Quelques jours plus tard, plusieurs journaux de Londres recevaient des demandes de rançon contre la restitution de la toile. ...57... des lettres promettait la restitution du chef-d'oeuvre contre le transfert de leur prison londonienne dans un établissement de l'Ulster, des soeurs Marion et Dolours Price, condamnées à la prison à vie pour ...58... participation aux attentats à la bombe de mars 1973 à Londres.

*toile=painting, canvas

Adapted from an article in *Le Français International 4, Cahier D'Exercices*.
1975. Montreal: CEC, p.59

51. a) retrouvé b) retrouvée c) retrouvés d) retrouvées
52. a) à b) dans c) en d) au
53. a) qui b) qu' c) ce qui d) ce qu'
54. a) moi b) moins c) mois d) mon
55. a) voiture b) téléphone c) boîte d) papier
56. a) sur b) derrière c) par d) pour

57. a) ceci b) chaque c) celle d) une

58. a) sa b) notre c) votre d) leur

NOW TURN TO THE SECOND SCANTRON COPY. ANSWERS FOR THE READING COMPREHENSION PASSAGE ARE NUMBERED 1-7. PLEASE PUT THEM ON THE FIRST SIDE OF THE SECOND SCANTRON.

SECTION 3: READING COMPREHENSION

1-7. Read the passage, "Les Enfants du Divorce.....", and choose the best answer for each question, according to the text.

1. Dans ce passage, on parle.....

- a) des enfants et de leur espoir d'un amour éternel
- b) des enfants des parents divorcés et les effets sur eux
- c) des enfants abusés physiquement par des parents divorcés
- d) des enfants d'une famille idéale

2. Est-ce que le mariage jusqu'à la mort est une réalité de nos jours?

- a) Oui, parce qu'il y a trop de risques de maladies.
- b) Non, parce que tout le monde se divorce maintenant.
- c) Oui, mais on accepte que ce n'est pas nécessairement pour tout le monde.
- d) Oui, mais d'après les statistiques, il y a plus de mariages qui se terminent en divorce..

3. Quand un parent décide de se remarier, quelle est la chose la plus difficile pour l'enfant?

- a) vivre avec un nouveau membre de la famille
- b) accepter la nouvelle personne comme père ou mère
- c) avoir moins de place pour ses choses
- d) partager l'amour de son propre parent

4. Quelles étaient les relations entre Gabrielle Coutu et son père?

- a) il vivait avec elle et puis il est parti
- b) il était souvent dans sa vie
- c) il était rarement dans sa vie
- d) il gardait contact de temps en temps, puis il a complètement disparu

5. Comment la famille de Gabrielle est-elle structurée maintenant?

- a) elle vit avec sa mère et son beau-père
- b) elle vit avec sa mère et son père
- c) elle vit avec sa mère
- d) elle vit seul

6. Qu'est-ce que les enfants du divorce pensent du mariage?

- a) ils le voient plus sérieusement que leurs parents
- b) ils le voient de la même façon que leurs parents
- c) ils sont moins sérieux que leurs parents
- d) ils ne veulent rien en savoir

7. Comment les enfants du divorce voient-ils l'amour?

- a) ils croient qu'un vrai amour n'existe pas
- b) ils croient qu'un changement d'attitude est nécessaire
- c) ils préfèrent la cohabitation
- d) ils refusent d'en parler

Appendix B
FSL Questionnaire

The questionnaire used for assessing intrinsic versus extrinsic orientation in the classroom and its scale were taken from Harter (1980). The FSL questionnaire follows.

Student No.: _____ Teacher: _____ Block: _____

Last year's teacher: _____

GRADE 12 FRENCH-AS-A-SECOND-LANGUAGE QUESTIONNAIRE

Please respond honestly to this survey. This does not count for marks. You will not be graded on this questionnaire. All information will be kept confidential.

Please rate all statements listed below from:

1 = Strongly Disagree;
2 = Somewhat Disagree;
3 = Neutral or No Opinion;
4 = Somewhat Agree;
5 = Strongly Agree.

- | | | | | | |
|--|---|---|---|---|---|
| 1. I enjoy studying French grammar and linguistics | 1 | 2 | 3 | 4 | 5 |
| 2. I enjoy speaking in French | 1 | 2 | 3 | 4 | 5 |

3.	I enjoy reading French literature	1	2	3	4	5
4.	I enjoy writing in French	1	2	3	4	5
5.	I enjoy listening to people speak French	1	2	3	4	5
6.	I enjoy learning about French culture	1	2	3	4	5
7.	I enjoy working with other students in French	1	2	3	4	5
8.	I have enjoyed working with my past French teachers	1	2	3	4	5
9.	I enjoy being able to speak another language	1	2	3	4	5
10.	I use my French outside of class with friends	1	2	3	4	5
11.	I use my French with family	1	2	3	4	5
12.	I watch French films	1	2	3	4	5
13.	I use my French when dining at French restaurants	1	2	3	4	5
14.	I watch French T.V.	1	2	3	4	5
15.	I listen to French music	1	2	3	4	5
16.	I am taking French 12 because my parents wanted me to	1	2	3	4	5
17.	I am taking French 12 because I wanted to	1	2	3	4	5
18.	I am taking French 12 because I need it for university	1	2	3	4	5
19.	I am taking French 12 because I enjoy it	1	2	3	4	5
20.	I am taking French 12 because I'm good at it	1	2	3	4	5
21.	I am taking French 12 because it's an easy credit	1	2	3	4	5
22.	I am taking French 12 because it will help my career	1	2	3	4	5

- | | | | | | | |
|-----|--|---|---|---|---|---|
| 23. | I am taking French 12 to be able to communicate with my family | 1 | 2 | 3 | 4 | 5 |
| 24. | I am taking French 12 to be able to communicate with friends | 1 | 2 | 3 | 4 | 5 |
| 25. | I am taking French 12 for travel purposes | 1 | 2 | 3 | 4 | 5 |
| 26. | I am taking French 12 to grasp an appreciation of French culture | 1 | 2 | 3 | 4 | 5 |
| 27. | I am taking French 12 to be able to study in a French-speaking university or city | 1 | 2 | 3 | 4 | 5 |
| 28. | I am taking French 12 to grasp a better understanding of what's involved in learning a second language | 1 | 2 | 3 | 4 | 5 |
| 29. | I am taking French 12 to help me understand other languages or their structure better | 1 | 2 | 3 | 4 | 5 |
| 30. | I am taking French 12 because Canada is a bilingual country | 1 | 2 | 3 | 4 | 5 |
| 31. | I used my French this past summer | 1 | 2 | 3 | 4 | 5 |
| 32. | I speak another language other than English at home | 1 | 2 | 3 | 4 | 5 |

Appendix C

Consent Letters

THE UNIVERSITY OF BRITISH COLUMBIA

Department of Language Education
2034 Lower Mall Ponderosa Annex E
Faculty of Education
Vancouver, B.C. Canada V6T 1Z2

Dear Parent:

I am doing a study of second language retention after a period of disuse, for a graduate thesis at UBC, and I would like to request your permission for your child to take part. This study will be useful in increasing our ability to foresee needs to be reviewed in the fall semester, and to include children's perceptions in educational planning.

This study involves testing of your child during regular classroom time. The testing content was part of the French 11 curriculum and will be part of the French 12 curriculum, therefore all students will write the exams. However, for those children who do not wish to participate, no data will be included in the research. Your child will also be asked to complete two questionnaires indicating his/her interests in, use of and attitudes toward his/her study of French-as-a-second-language. This will be done in class in consultation with your child's teacher. The total time required will be approximately one and one half hours.

All of the data will be coded by number to ensure confidentiality. Your child may withdraw from the study at any time if he/she wishes. Withdrawal or refusal to participate will not influence your child's class standing. If you should consent, but your child should not wish to participate, he/she will not be penalized in any way. While the other students are completing the questionnaire, your child may select some French materials to read.

I would greatly appreciate your assistance with this study. Please sign this letter in the space provided below indicating whether you do or do not agree to let your child participate and return it to your child's classroom teacher. Please also sign and retain the second copy for your own records. Should you have any questions, I would be pleased to discuss them with you, or you may speak with either of my faculty advisors at UBC. I can be contacted at 668-6400, Dr. Stephen Carey may be reached at 822-6954, or Dr. Marion Porath may be contacted at 822-6045. Thank you very much for your interest and cooperation.

Sincerely,

Kathleen MacDicken-Jones, RSSS French Teacher

I, _____, parent or guardian of
_____, _____ do _____ do not consent to the use of
my child's assessment data for research purposes. I acknowledge that I have received a
copy of this consent form.

Signature: _____ Date: _____

UNIVERSITY OF BRITISH COLUMBIA

DEPARTMENT OF LANGUAGE EDUCATION AND DEPARTMENT OF
EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATIONA Study of French-as-a-Second-Language Retention in Reading and Written Language
Skills of Average and High-Achieving Language Students from Core and International
Baccalaureate Programmes

As I am doing a graduate thesis at UBC pertaining to the study of French-as-a-Second-Language, the following questionnaires seek information which may lead to a better understanding of how you learn French and how and to what extent you use your French. Once having received a clearer picture of your study of the language, teachers may be better prepared to include your perceptions in their educational planning. You will not be graded on this information, nor does it have any bearing on your mark for this course.

The completion of these questionnaires will take approximately one half hour. Please note that you may decline to participate or you may withdraw at any time without jeopardizing your standing in class. All information will be kept confidential by coding the data by number. Should you complete these questionnaires, it is assumed that you consent to participate in this study. Should you not wish to participate, you may select some French materials for quiet reading.

Thank you for your cooperation in this project.

Sincerely,

K. MacDicken-Jones

I, _____, student number _____, of RSSS,
_____ do _____ not consent to the use of my assessment data for research
purposes.

Signature: _____ Date: _____

Appendix D
 Test Component Statistics by Ability Grouping

SINo	Group	Sex	Total		Language		Cloze		Reading	
			Sept	June	Sept	June	Sept	June	Sept	June
2108	b	f	37	44	27	30	6	7	4	7
2130	b	m	37	36	26	25	7	6	4	5
2329	a	f	33	36	22	28	4	3	7	5
2284	b	f	38	36	25	23	7	7	6	6
2169	a	f	24	35	15	25	4	7	5	3
2856	b	m	29	35	20	22	5	7	4	6
2569	a	f	31	34	21	26	6	4	4	4
2002	b	m	35	34	24	24	6	6	5	4
2251	a	f	25	33	20	23	3	6	2	4
2165	a	m	28	33	18	24	4	4	6	5
2712	b	m	30	33	18	20	6	6	6	7
2899	a	m	31	33	23	22	4	7	4	4
2845	b	m	35	33	24	21	7	6	4	6
2105	b	f	32	32	20	22	7	6	5	4
2024	a	f	25	32	16	24	5	5	4	3
2508	b	f	29	31	19	19	6	5	4	7
2552	a	f	26	29	16	19	4	6	6	4
2481	a	m	26	29	17	18	5	5	4	6
2026	b	m	22	29	15	19	3	5	4	5
2120	a	f	22	29	15	20	4	4	3	5
2474	b	f	21	29	13	18	5	6	3	5
2106	a	f	27	29	16	21	6	4	5	4
2174	b	f	17	29	12	20	4	5	1	4
2563	b	f	20	28	12	19	4	3	4	6
2495	b	f	25	28	17	15	5	6	3	7
2126	b	f	23	27	17	16	3	5	3	6
		Mean:	28	32.153846	18.769231	21.653846	5	5.4230769	4.2307692	5.0769231
		StdDev:	5.574668	3.6341575	4.1723236	3.463461	1.2709778	1.1823405	1.3099528	1.2064913
		StdErr	1.3308248							
		t	-3.121022							
		df:	50							

High Group

Middle Group

SNo	Group	Sex	Total		Language		Cloze		Reading	
			Sept	June	Sept	June	Sept	June	Sept	June
2561	a	f	26	27	19	20	4	5	3	2
2312	b	m	24	27	17	19	5	4	2	4
1131	b	m	30	27	20	20	6	4	4	3
2806	b	m	25	27	17	17	6	6	2	4
2255	b	m	18	27	12	18	3	3	3	6
2482	a	f	24	27	16	19	5	4	3	4
2125	a	m	19	26	11	20	4	3	4	3
2153	a	f	11	26	5	18	4	4	2	4
2208	a	m	27	26	18	18	5	5	4	3
2156	b	f	29	26	19	16	5	5	5	5
2613	b	f	24	26	19	18	4	4	4	4
2551	a	m	25	26	14	18	5	6	6	2
2223	a	m	19	25	14	18	3	4	2	3
2062	b	m	22	25	14	18	5	4	3	3
2238	b	f	20	25	16	18	3	4	1	3
2455	a	f	20	25	12	17	3	5	5	3
2210	b	f	24	25	16	18	5	5	3	2
2190	b	f	17	24	9	17	4	2	4	5
2468	b	f	22	24	14	16	5	4	3	4
2852	b	f	32	24	19	18	7	0	6	6
2183	b	f	21	24	12	16	3	3	6	5
2128	b	f	19	23	13	15	3	3	3	5
2523	a	m	20	23	12	16	4	4	4	3
2322	a	m	21	23	13	16	5	4	3	3
2186	a	f	13	23	7	13	3	6	3	4
2536	b	f	20	23	16	13	2	6	2	4
2363	b	m	19	22	13	15	3	1	3	6
		Mean:	21.888889	25.037037	14.333333	17.222222	4.222222	4	3.333333	3.8148148
		StdDev:	4.6534204	1.5270762	3.681787	1.8121674	1.1653432	1.4142136	1.3608276	1.1558879
		StdErr	0.9604943							
		t	-3.277633							
		dF:	52							

Low Group

StNo	Group	Sex	Total		Language		Cloze		Reading	
			Sept	June	Sept	June	Sept	June	Sept	June
2166	a	f	26	22	17	13	4	5	5	4
2605	b	m	20	22	17	14	2	4	1	4
2083	a	m	22	21	12	15	4	4	6	2
2219	a	f	16	20	10	15	1	2	5	3
2213	b	m	20	20	14	12	3	4	3	4
2028	b	f	17	20	12	13	3	4	2	3
2351	a	f	17	20	12	14	1	2	4	4
2241	a	f	17	19	11	13	2	5	4	1
2285	a	f	18	19	10	11	4	4	4	4
2162	b	f	24	19	17	15	4	2	3	2
2620	a	f	19	19	11	12	4	5	4	2
2564	b	f	19	19	13	13	4	3	2	3
2430	a	f	15	19	12	15	2	1	1	3
2085	b	f	21	18	12	12	5	0	4	6
2136	b	f	22	18	14	10	4	3	4	5
2144	a	m	18	18	12	9	3	5	3	4
2012	a	f	20	17	13	10	2	4	5	3
2516	a	f	30	16	20	7	5	5	5	4
2290	b	f	18	16	12	10	4	4	2	2
2235	a	f	17	15	10	8	5	3	2	4
2555	b	m	14	15	8	8	4	3	2	4
2446	a	f	12	15	7	10	2	4	3	1
2113	b	f	14	14	10	8	3	1	1	5
2076	b	f	21	14	13	7	6	4	2	3
2549	a	m	12	13	8	8	3	3	1	2
2056	b	f	18	11	14	9	2	0	2	2
		Mean:	18.730769	17.653846	12.346154	11.192308	3.3076923	3.2307692	3.0769231	3.2307692
		StdDev:	3.9957448	2.7865378	2.9475193	2.6314552	1.2639751	1.4756405	1.439099	1.2186907
		StdErr:	0.9742847							
		t	1.1053474							
		df:	50							

Appendix E

Questionnaire Results by Ability Grouping

Questionnaire Results: High Group

StNo	Group	Sex	Birthdate	Int/Ext Mot Challenge	Int/Ext Mot Curoosity	Int/Ext Mot Mastery	Int/Ext Mot Judgment	Int/Ext Mot Criteria	FSL Quest				
2284	b	f	29-Jun-76	2.67	2.5	2.5	2.83	3	1	2	3	4	
2508	b	f	09-Jan-76	2.33	2.67	2.5	3.83	2.83	3	5	5	3	
2474	b	f	19-Mar-76	2.67	3	2.33	3	3	1	4	4	4	
2552	a	f	25-Aug-76	3.67	3.17	3.17	2.67	3.17	2	5	4	4	
2002	b	m	14-May-76	3	3.33	3.5	2.5	3.17	5	5	3	5	
2165	a	m	03-May-76	3.33	3	3.17	3.17	3	5	3	1	4	
2712	b	m	20-Apr-76	2.33	2.5	2.5	2.83	3.17	4	5	4	3	
2569	a	f	24-Dec-76	3.5	3	3.17	3.5	3.67	5	5	5	5	
2108	b	f	29-Jan-76	2.83	3.17	2.83	2.17	3.33	4	4	3	3	
2106	a	f	04-Jul-76	2.83	2.83	3.17	3.67	3.67	4	3	4	4	
2899	a	m	22-Nov-76	2	3	2.33	2.33	2.83	1	4	1	1	
2845	b	m	01-Jan-76	2.33	2.33	3	2	3.83	2	4	2	2	
2563	b	f	18-Apr-76	2.5	3	3.17	3	3.5	4	2	5	5	
2024	a	f	27-Jul-76	2.33	3	3.33	3.17	3.5	5	4	1	3	
2026	b	m	10-Sep-76	1.83	2.17	2.33	3	2.67	1	1	1	1	
2481	a	m	19-May-76	2.5	3.17	1.5	2.5	1.5	5	5	4	5	
2174	b	f	09-Mar-76	2.83	3.17	2.5	3.17	3	4	4	4	5	
2495	b	f	31-Oct-76	3	3.33	3.5	3.83	3.5	3	4	2	2	
2856	b	m	10-Jul-76	2.17	1.83	2	2.17	3	1	2	1	1	
2130	b	m	05-Oct-76	2.83	2.83	3.67	2.17	3.83	5	4	2	4	
2251	a	f	06-Jun-75	2.83	2.67	3.17	2	3.5	3	4	3	3	
2105	b	f	27-Mar-76	3.17	2.33	2.67	2.67	2.83	3	4	4	1	
2126	b	f	04-Nov-76	2	2.33	2.5	3.17	3.33	3	5	3	4	
2169	a	f	07-Aug-76	2.83	2.33	2	2.5	3	4	3	3	3	
2329	a	f	24-Sep-76	3.17	3.17	2.83	3.5	4	5	5	5	5	
2120	a	f	19-Sep-76	3.17	3.17	3.5	3.5	4	4	3	4	4	
			sum(X)**2	4991.4225	5329	5305.6656	5602.5225	7027.4699	8281	10404	6724	7921	
			sum(X**2)	197.5391	209.0202	211.5346	223.3335	277.0057	369	430	306	353	
			N	26									
			Mean(X)	2.7173077	2.8076923	2.8015385	2.8788462	3.2242308	3.5	3.9230769	3.1538462	3.4230769	

Questionnaire Results: High Group

StNo	FSL Quest							
	27	28	29	30	31	32		
2284	5	3	2	2	1	5		
2508	1	1	1	4	5	1		
2474	4	4	4	4	4	1		
2552	5	4	4	5	3	1		
2002	2	3	3	2	4	2		
2165	3	5	5	1	3	3		
2712	1	1	1	5	1	5		
2569	3	4	4	4	3	1		
2108	1	2	4	3	2	5		
2106	1	3	4	3	1	4		
2899	1	1	1	1	5	5		
2845	2	2	4	4	4	5		
2563	1	1	2	4	1	1		
2024	2	4	5	2	1	5		
2026	1	1	1	1	1	4		
2481	1	3	3	4	1	2		
2174	1	4	4	5	4	5		
2495	3	3	2	2	2	5		
2856	1	3	2	2	1	5		
2130	1	1	1	1	1	1		
2251	1	1	3	3	1	5		
2105	1	4	4	3	3	4		
2126	2	2	2	4	3	5		
2169	3	4	4	4	1	5		
2329	1	5	5	4	5	1		
2120	4	4	5	5	2	3		
	2704	5329	6400	7056	3721	8281		
	148	251	296	316	195	393		
	2	2.8076923	3.0769231	3.2307692	2.3461538	3.5		

Questionnaire Results: Middle Group

StNo	Group	Sex	Birthdate	Int/Ext Mot Challenge	Int/Ext Mot Curoosity	Int/Ext Mot Mastery	Int/Ext Mot Judgment	Int/Ext Mot Criteria	FSL Quest					
2806	b	m	01-Apr-76	2.83	2.83	2.67	2.83	3.17	1	2	3	4	2	4
2482	a	f	18-Oct-76	2.33	2.5	2.33	2.83	3	2	3	3	1	3	2
2208	a	m	14-Mar-76	2.5	3	2.67	3.5	3.33	3	3	3	3	3	3
2183	b	f	13-Nov-76	2.67	2.5	2.67	2.67	2.5	3	4	3	3	4	5
2062	b	m	25-May-76	1.83	2.83	3.17	3.5	3.17	2	2	2	2	2	2
2613	b	f	03-Aug-77	2.83	2.83	2.67	2.5	2.67	3	4	3	3	4	3
2128	b	f	29-Apr-76	3.67	3.17	3.33	2.83	3.5	4	3	3	3	3	3
2186	a	f	05-Aug-76	2.5	2.67	3	2.67	3.67	2	4	4	4	4	3
2852	b	f	13-May-76	3.33	3.33	3.17	3.67	3.67	2	5	3	3	4	4
2322	a	m	27-Aug-76	3	2.5	3	3	3	3	4	2	2	3	3
2190	b	f	26-Jan-77	2.83	2.67	3	3.67	3.5	3	4	3	3	3	3
2312	b	m	28-Nov-76	2.67	3.17	3.33	2.83	3	3	2	2	3	3	3
2153	a	f	02-Jul-76	3	3	2.5	3	3.17	3	5	3	3	3	3
2536	b	f	20-Jun-76	4	3.5	4	4	4	2	4	4	4	4	3
2523	a	m	01-Jul-76	2	2.67	2.83	3.5	3.5	4	2	2	2	2	3
2125	a	m	09-May-76	2	2.17	2.67	3.83	3	1	2	2	1	2	2
2455	a	f	20-Dec-74	3	3	3	2.83	3	2	5	3	5	5	3
2561	a	f	12-Jun-76	2.83	2.83	3.17	2.17	3.17	5	1	3	3	4	4
2468	b	f	19-Jul-76	3.17	3.17	3.5	3.5	3.83	2	5	2	2	2	2
2255	b	m	09-Sep-76	3.33	3.33	3.17	2.67	3	3	3	3	3	3	3
2551	a	m	05-Aug-76	3.67	2.83	3.17	3	3.17	4	5	3	4	4	4
2363	b	m	28-Apr-76	3.67	2	1.5	2.33	2.33	3	4	3	3	3	3
1131	b	m	03-Nov-75	2.17	2.33	2.67	3.17	2.67	2	3	1	1	2	2
2223	a	m	09-Aug-76	2.17	2.67	2.83	2.17	3.67	2	2	2	1	3	3
2238	b	f	31-Dec-76	2.67	3.33	3.5	3.33	3.17	4	5	1	1	3	3
2210	b	f	23-Jun-76	1.83	3	1.5	2.17	2.67	4	4	1	1	2	2
2156	b	f	27-May-76	4	3.5	3.83	3.33	4	5	5	5	5	5	5
			sum(X)**2	5852.25	5979.9289	6217.3225	6642.25	7487.4409	6400	9216	5041	6724	6724	6724
			sum(X**2)	227.1002	225.3613	238.5613	253.0702	282.2735	284	378	221	268	268	268
			N	27										
			mean(X)	2.8333333	2.8640741	2.9203704	3.0185185	3.2048148	2.962963	3.5555556	2.6296296	3.037037	3.037037	3.037037

Questionnaire Results: Middle Group

StNo	FSL Quest																	
	5	6	7	8	9	10	11	12	13	14	15							
2806	3	1	3	4	5	2	1	1	1	1	1							
2482	3	3	4	4	3	2	1	1	1	1	1							
2208	3	4	4	4	4	3	2	3	3	4	2							
2183	3	5	5	5	4	4	1	2	3	3	3							
2062	4	1	4	3	4	1	4	4	1	3	2							
2613	5	5	5	5	5	1	1	1	1	4	1							
2128	4	4	4	5	5	3	2	1	1	1	1							
2186	4	3	4	4	4	4	2	4	3	1	1							
2852	4	5	5	3	5	5	5	5	5	5	5							
2322	2	4	3	4	4	1	1	2	1	4	1							
2190	5	3	4	4	4	4	1	2	3	1	3							
2312	2	3	3	3	4	1	1	4	1	2	1							
2153	4	4	4	4	4	2	1	1	1	2	2							
2536	4	4	4	4	5	4	1	2	3	3	2							
2523	3	3	4	5	5	2	2	2	1	3	1							
2125	3	3	3	2	5	1	1	1	1	1	1							
2455	5	5	3	4	5	4	3	5	3	5	4							
2561	1	5	3	4	5	1	1	1	2	1	2							
2468	5	5	5	4	5	5	5	1	4	1	3							
2255	3	3	3	5	4	3	3	3	3	3	3							
2551	3	5	4	5	5	2	1	1	1	1	1							
2363	5	5	5	2	5	1	1	2	1	2	2							
1131	3	2	2	2	4	3	1	1	2	3	1							
2223	2	4	4	4	5	1	1	1	1	1	1							
2238	4	1	2	4	5	2	4	4	1	1	1							
2210	1	5	3	3	5	1	1	1	1	3	1							
2156	5	5	5	5	5	4	4	4	4	4	1							
	8649	10000	10404	11025	15376	4489	2704	2916	3249	3721	2601							
	357	416	406	431	578	215	148	154	159	187	131							
	3.4444444	3.7037037	3.7777778	3.8888889	4.5925926	2.4814815	1.9259259	2	2.1111111	2.2592593	1.8888889							

Questionnaire Results: Middle Group

StNo	FSL Quest																	
	16	17	18	19	20	21	22	23	24	25	26							
2806	4	3	2	3	3	4	3	1	1	2	1							
2482	1	3	4	1	2	1	1	1	1	1	1							
2208	1	5	4	4	4	2	4	1	1	4	4							
2183	2	5	5	4	4	3	4	1	1	4	4							
2062	5	1	1	1	3	1	2	1	1	1	1							
2613	1	5	4	5	4	3	5	1	1	4	4							
2128	1	5	5	4	4	1	5	1	1	4	4							
2186	1	5	4	4	3	1	5	1	4	4	4							
2852	2	5	4	4	4	2	4	1	1	4	4							
2322	1	3	5	3	3	2	2	2	1	1	1							
2190	1	4	5	3	3	1	3	1	1	5	3							
2312	1	3	2	3	3	2	4	1	1	4	2							
2153	1	5	5	4	4	2	5	1	1	5	4							
2536	1	4	5	4	3	1	4	1	1	4	4							
2523	1	5	4	4	3	1	4	1	1	4	3							
2125	3	3	5	1	1	1	1	1	1	1	1							
2455	1	5	3	4	3	3	4	1	2	3	4							
2561	2	4	4	4	2	2	5	1	1	3	4							
2468	1	4	5	4	3	1	5	1	4	1	1							
2255	1	4	3	3	1	1	4	3	3	4	5							
2551	2	5	4	5	5	5	5	1	1	4	4							
2363	4	3	5	3	2	1	3	1	1	1	4							
1131	3	3	3	2	1	1	2	1	3	3	3							
2223	3	3	5	1	1	1	2	1	1	1	1							
2238	1	5	5	5	4	1	4	3	3	4	4							
2210	4	3	5	3	4	2	5	1	1	3	2							
2156	5	5	5	5	4	1	5	1	1	4	5							
2916	11664	12321	8281	6561	2209	10000	1024	1681	6400	6724								
156	462	489	347	275	111	414	46	87	292	304								
2	4	4.1111111	3.3703704	3	1.7407407	3.7037037	1.1851852	1.5185185	2.962963	3.037037								

Questionnaire Results: Middle Group

StNo	FSL Quest								
	27	28	29	30	31	32			
2806	1	1	1	1	2	1			
2482	1	1	1	2	2	2			
2208	4	4	4	3	3	3			
2183	4	3	3	4	4	4			
2062	2	4	2	2	2	1			
2613	3	4	5	5	1	5			
2128	3	4	4	4	3	5			
2186	3	4	3	4	2	5			
2852	3	3	4	4	5	5			
2322	1	1	3	1	1	1			
2190	3	3	3	3	2	1			
2312	2	3	3	2	1	4			
2153	1	1	3	5	4	5			
2536	4	4	4	4	3	1			
2523	2	4	3	3	4	5			
2125	1	1	1	1	1	1			
2455	3	3	3	4	4	5			
2561	4	4	4	5	1	5			
2468	1	1	1	1	4	1			
2255	2	3	4	3	1	5			
2551	4	3	2	5	1	5			
2363	1	4	5	4	1	5			
1131	2	4	4	4	4	5			
2223	1	1	4	1	1	1			
2238	3	4	4	3	2	2			
2210	1	1	1	1	1	5			
2156	4	4	5	4	5	1			
	4096	5929	7056	6889	3721	9025			
	188	263	304	307	189	429			
	2.3703704	2.8518519	3.1111111	3.0740741	2.2592593	3.5185185			

Questionnaire Results: Low Group

SNo	Group	Sex	Birthdate	Int/Ext Mot Challenge	Int/Ext Mot Curoosity	Int/Ext Mot Mastery	Int/Ext Mot Judgment	Int/Ext Mot Criteria	FSL Quest					
2213	b	m	23-Jul-76	2.83	2.83	2.67	3.5	3.17	1	2	3	4	4	4
2285	a	f	28-Feb-76	3	3	2.83	3.5	3.17	4	3	2	2	4	2
2235	a	f	22-May-76	2.5	2.83	2.33	2.83	2.83	3	4	4	1	3	3
2085	b	f	15-Jul-76	2.83	2.33	2.67	2.83	3.17	2	4	4	2	2	2
2446	a	f	18-Nov-76	1.67	2.5	1.5	1.33	3.17	4	2	1	2	2	2
2028	b	f	23-Apr-76	3.5	3.5	3.83	3.67	3.83	4	4	3	4	4	4
2012	a	f	10-Aug-76	3	3.17	2.67	2.83	3.17	4	4	3	4	3	4
2076	b	f	10-Dec-76	2	2.5	2.67	2.33	3.83	3	5	2	2	2	2
2219	a	f	10-May-76	3.17	3	3.17	3.83	3.67	3	4	3	3	3	3
2056	b	f	14-Oct-76	2.83	2.17	2.17	3.33	3.67	1	1	1	1	1	1
2516	a	f	20-Oct-77	2.67	2.33	2.67	2.33	3.33	3	5	4	4	4	4
2162	b	f	03-Feb-76	2.5	2.17	2.33	2.67	2.67	4	3	3	3	4	4
2166	a	f	22-Oct-76	2.5	2.33	2.67	2.67	2.5	2	2	2	2	2	2
2290	b	f	17-Sep-76	3.17	2.67	2.67	3	2.83	3	4	3	4	4	4
2605	b	m	04-May-76	2.5	2.17	2.17	2.5	3.67	4	4	4	3	4	4
2549	a	m	08-May-76	1.67	2.83	2	2.83	3.5	3	2	4	3	3	3
2144	a	m	08-Jan-76	3	2.83	3.33	3.83	3.5	4	3	3	4	4	4
2430	a	f	29-Aug-76	1.83	2.33	2.67	2.67	2.33	3	4	3	3	2	2
2555	b	m	06-Feb-76	1	2.5	2.5	3	2.17	3	1	1	1	2	2
2083	a	m	10-Apr-76	3	2.83	3.67	2.83	3.67	2	4	3	3	4	4
2136	b	f	23-Nov-76	2.67	2.67	3.33	3.33	3	4	5	3	3	2	2
2620	a	f	30-Aug-76	3	3.5	3.17	4	3.67	2	5	3	4	4	4
2351	a	f	23-Mar-76	2.17	2.5	2.67	3.67	3.33	4	4	1	2	2	2
2241	a	f	02-Jun-76	1.67	3.17	1.83	3	4	4	4	1	2	4	4
2564	b	f	15-Jun-76	2.17	1.83	1.5	2.33	3	4	3	2	4	4	4
2113	b	f	14-Mar-76	2.83	2.67	2.83	3.83	3.17	2	5	4	3	3	3
			sum(X)**2	4313.8624	4783.1056	4694.9904	6157.5409	7059.3604	6889	8649	4225	5929	5929	5929
			sum(X**2)	174.7746	188.2202	188.9658	246.3591	277.188	285	367	189	253	253	253
			mean(X)	2.5261538	2.66	2.6353846	3.0180769	3.2315385	3.1923077	3.5769231	2.5	2.9615385	2.9615385	2.9615385

Questionnaire Results: Low Group

SNNo	FSL Quest																
	5	6	7	8	9	10	11	12	13	14	15						
2213	3	4	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1
2285	2	4	4	4	5	5	2	2	2	2	2	2	2	2	2	2	2
2235	5	4	5	5	3	1	1	1	1	1	1	1	1	1	1	1	2
2085	4	4	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1
2446	4	5	3	1	5	4	1	1	1	1	1	1	1	1	1	1	1
2028	3	5	4	4	5	2	1	4	4	4	3	1	1	1	1	1	1
2012	2	5	5	5	5	1	1	1	1	1	1	1	1	1	1	1	1
2076	5	5	4	4	5	3	4	1	1	1	1	1	1	1	1	1	1
2219	4	4	5	4	4	4	1	1	1	1	1	1	1	1	1	1	1
2056	2	1	3	3	4	1	1	1	1	1	1	1	1	1	1	1	1
2516	5	4	3	4	5	3	4	4	4	4	4	4	4	4	4	4	4
2162	4	5	4	4	5	4	2	1	1	1	1	1	1	1	1	1	2
2166	4	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	4
2290	5	5	5	5	5	4	1	1	1	1	1	1	1	1	1	1	4
2605	4	4	5	2	4	3	3	4	4	4	4	4	4	4	4	4	3
2549	4	1	5	4	4	1	1	1	1	1	1	1	1	1	1	1	1
2144	4	4	5	4	4	3	3	3	3	3	3	3	3	3	3	3	3
2430	4	4	4	3	3	4	2	2	2	2	2	2	2	2	2	2	2
2555	4	5	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1
2083	3	3	2	2	5	1	1	4	3	3	3	3	3	3	3	3	2
2136	5	5	5	1	5	2	1	1	1	1	1	1	1	1	1	1	4
2620	5	5	5	3	5	2	1	2	2	2	2	2	2	2	2	2	2
2351	3	5	5	5	3	1	1	1	1	1	1	1	1	1	1	1	1
2241	5	3	5	5	5	3	4	2	1	1	1	1	1	1	1	1	1
2564	4	5	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1
2113	5	5	5	4	5	3	1	3	3	3	3	3	3	3	3	3	3
	10404	11664	12321	9216	12996	4096	1849	2209	3136	3136	2704						
	424	480	491	386	512	200	99	117	156	158	136						
	3.9230769	4.1538462	4.2692308	3.6923077	4.3846154	2.4615385	1.6538462	1.8076923	2.1538462	2.1538462	2.1538462						

Questionnaire Results: Low Group

SI No	FSL Quest																	
	16	17	18	19	20	21	22	23	24	25	26							
2213	1	4	4	4	3	3	4	1	1	2	4							
2285	1	5	4	4	4	4	4	1	2	2	4							
2235	1	4	5	3	3	1	5	1	1	2	2							
2085	1	5	5	3	3	2	2	1	1	2	2							
2446	2	5	5	3	2	1	5	2	1	1	4							
2028	1	5	4	5	4	1	5	1	1	4	4							
2012	1	5	5	4	4	2	4	1	1	1	4							
2076	1	5	4	4	4	1	4	1	1	2	3							
2219	1	4	5	3	3	1	5	1	1	3	3							
2056	4	4	5	3	1	1	4	1	1	2	3							
2516	1	5	3	4	4	2	2	2	3	4	4							
2162	1	4	5	4	2	1	5	1	4	3	4							
2166	2	4	2	2	2	2	4	1	1	2	3							
2290	3	4	5	4	3	1	3	1	1	4	4							
2605	2	4	3	4	4	4	4	1	4	4	4							
2549	3	4	4	4	3	2	4	1	1	1	1							
2144	1	5	5	1	1	3	5	3	3	3	2							
2430	1	4	4	2	1	2	4	1	2	2	4							
2555	5	1	5	2	1	1	4	1	4	4	4							
2083	1	5	5	4	3	1	4	1	1	4	4							
2136	1	5	5	4	1	1	5	1	1	1	3							
2620	1	4	2	3	3	3	4	1	1	1	4							
2351	1	5	5	2	2	1	4	1	1	1	5							
2241	1	5	4	5	3	1	5	1	1	1	1							
2564	1	2	5	3	3	1	1	1	1	1	1							
2113	1	4	4	4	2	1	4	1	1	4	4							
1600	12321		12544	7744	4761	1681	10816	841	1681	5929	5929							
90	497		504	322	211	83	442	37	93	265	263							
1.5384615	4.2692308	4.3076923	3.3846154	2.6538462	1.5769231	4	1.1153846	1.5769231	2.9615385	2.9615385	2.9615385							

Questionnaire Results: Low Group

SNNo	FSL Quest								
	27	28	29	30	31	32			
2213	3	4	4	3	1	5			
2285	1	1	2	2	4	2			
2235	1	1	1	1	2	1			
2085	1	3	2	4	1	5			
2446	1	1	1	4	4	1			
2028	3	3	3	1	2	1			
2012	2	4	4	3	2	5			
2076	3	3	3	4	1	1			
2219	2	3	3	3	3	5			
2056	1	3	3	3	1	1			
2516	2	4	4	4	2	4			
2162	3	2	4	2	4	5			
2166	3	2	2	4	1	4			
2290	1	3	3	3	1	4			
2605	3	4	3	4	4	2			
2549	4	4	2	3	1	5			
2144	1	4	4	4	2	1			
2430	2	2	3	2	4	4			
2555	1	2	1	5	4	5			
2083	4	3	2	5	4	2			
2136	4	5	2	4	1	4			
2620	2	3	1	5	5	1			
2351	1	3	2	1	1	3			
2241	1	5	5	1	1	5			
2564	1	1	1	1	1	1			
2113	4	4	3	3	2	4			
	3025	5929	4624	6241	3481	6561			
	149	263	210	283	181	325			
	2.1153846	2.9615385	2.6153846	3.0384615	2.2692308	3.1153846			

Questionnaire Results: Low Group

StNo	FSL Quest								
	27	28	29	30	31	32			
2213	3	4	4	3	1	5			
2285	1	1	2	2	4	2			
2235	1	1	1	1	2	1			
2085	1	3	2	4	1	5			
2446	1	1	1	4	4	1			
2028	3	3	3	1	2	1			
2012	2	4	4	3	2	5			
2076	3	3	3	4	1	1			
2219	2	3	3	3	3	5			
2056	1	3	3	3	1	1			
2516	2	4	4	4	2	4			
2162	3	2	4	2	4	5			
2166	3	2	2	4	1	4			
2290	1	3	3	3	1	4			
2605	3	4	3	4	4	2			
2549	4	4	2	3	1	5			
2144	1	4	4	4	2	1			
2430	2	2	3	2	4	4			
2555	1	2	1	5	4	5			
2083	4	3	2	5	4	2			
2136	4	5	2	4	1	4			
2620	2	3	1	5	5	1			
2351	1	3	2	1	1	3			
2241	1	5	5	1	1	5			
2564	1	1	1	1	1	1			
2113	4	4	3	3	2	4			
	3025	5929	4624	6241	3481	6561			
	149	263	210	283	181	325			
	2.1153846	2.9615385	2.6153846	3.0384615	2.2692308	3.1153846			

Between-groups Statistics for Questionnaires

Statistic	Int/Ext Mot Challenge	Int/Ext Mot Curiosity	Int/Ext Mot Mastery	Int/Ext Mot Judgment	Int/Ext Mot Criteria	FSL Quest 1	FSL Quest 2	FSL Quest 3	FSL Quest 4	FSL Quest 5	FSL Quest 6	FSL Quest 7	FSL Quest 8
s(h-l)	0.1489353	0.1130913	0.1562039	0.1635306	0.1380779	0.3294248	0.3142569	0.3371478	0.3358289	0.2825287	0.2865836	0.2251889	0.2721816
s(h-m)	0.1534758	0.1084239	0.1527465	0.1485812	0.13149	0.3386346	0.3137885	0.3477319	0.3156612	0.309495	0.3164119	0.2324914	0.2411467
s(m-l)	0.168622	0.1097534	0.1571953	0.1567212	0.1254739	0.2637787	0.3242296	0.3000011	0.2549986	0.2993009	0.3376524	0.2364978	0.2832725
t(h-l)	1.2834687	1.3059569	1.0636982	-0.851405	-0.052924	0.9340289	1.1014996	1.9393458	1.3743261	0.9529323	-0.536828	-0.853984	1.978317
t(h-m)	-0.755986	-0.520012	-0.777968	-0.94004	0.147661	1.5858994	1.1712393	1.5075306	1.2229563	2.4169985	0.9364259	1.2866998	1.4177275
t(m-l)	1.8217047	1.8593879	1.813633	0.0028177	-0.212982	-0.869459	-0.065902	0.4320972	0.2960745	-1.599168	-1.333153	-2.078045	0.6939649
d(h-l)	50												
d(h-m)	51												
d(m-l)	51												
t(h-l)-tmin	-0.726531	-0.704043	-0.946302	-1.158595	-1.957076	-1.075971	-0.9085	-0.070654	-0.635674	-1.057068	-1.473172	-1.156016	-0.031883
t(h-m)-tmin	-1.254014	-1.489988	-1.232032	-1.06996	-1.862339	-0.424111	-0.838761	-0.502469	-0.787044	0.4063985	-1.073574	-0.723306	-0.592273
t(m-l)-tmin	-0.188295	-0.150612	-0.196367	-2.007182	-1.797018	-1.140541	-1.944098	-1.577903	-1.713925	-0.410832	-0.676847	0.0680449	-1.316035

Between-groups Statistics for Questionnaires

Statistic	9	10	11	12	13	14	15	16	17	18	19	20	21
s(h-l)	0.1865285	0.3656881	0.3593222	0.3236259	0.3535952	0.3492172	0.3281651	0.2491405	0.2339524	0.3150092	0.2625546	0.2929144	0.294526
s(h-m)	0.1676228	0.3714476	0.3921677	0.3484922	0.3537891	0.3671736	0.3279834	0.2977432	0.2507161	0.3346002	0.3003804	0.2977432	0.3154607
s(m-l)	0.1749361	0.3674406	0.3348396	0.3398902	0.3310934	0.3579872	0.3141512	0.3364386	0.2804106	0.2832725	0.3088846	0.2977432	0.2652616
t(h-l)	0.8247861	0.2103516	1.498548	1.1884567	1.4140462	1.4317736	0	-0.771884	0.8219949	-1.098869	2.783304	3.4139673	2.0894068
t(h-m)	-0.322934	0.1534	0.6792547	0.5518278	1.534064	1.0746602	0.3387705	-2.196007	1.8408811	-0.447019	2.4802355	2.1960066	1.4314521
t(m-l)	1.1888765	0.0542755	0.8125675	0.5657936	-0.129072	0.2944605	-0.353687	1.3718357	-0.96013	-0.693965	-0.046118	1.1625918	0.6175703
df(h-l)													
df(h-m)													
df(m-l)													
t(h-l)-tmin	-1.185214	-1.799648	-0.511452	-0.821543	-0.595954	-0.578226	-2.01	-1.238116	-1.188005	-0.911131	0.778304	1.4039673	0.0794068
t(h-m)-tmin	-1.687066	-1.8566	-1.330745	-1.458172	-0.475936	-0.93534	-1.67123	0.1860066	-0.169119	-1.562981	0.4702355	0.1860066	-0.578548
t(m-l)-tmin	-0.821125	-1.955725	-1.197433	-1.444206	-1.890928	-1.715539	-1.656313	-0.638164	-1.04987	-1.316035	-1.963882	-0.847408	-1.39243

Between-groups Statistics for Questionnaires

Statistic	FSL Quest 22	FSL Quest 23	FSL Quest 24	FSL Quest 25	FSL Quest 26	FSL Quest 27	FSL Quest 28	FSL Quest 29	FSL Quest 30	FSL Quest 31	FSL Quest 32
s(h-)	0.2760671	0.1961161	0.2680193	0.3728191	0.3569264	0.3434079	0.353009	0.3551814	0.3670609	0.3902662	0.4758051
s(h-m)	0.3153304	0.2051153	0.2525555	0.400492	0.3901217	0.344772	0.3638852	0.3700712	0.3778977	0.390616	0.5005376
s(m-)	0.3210564	0.137266	0.2803354	0.3688926	0.3648575	0.319486	0.3406091	0.3328087	0.3746443	0.3814717	0.4978001
t(h-)	-1.114556	1.5689291	0	-0.309492	-0.107758	-0.335999	-0.435814	1.2994442	0.5239122	0.1971041	0.8083464
t(h-m)	-0.03614	1.1597952	0.2312543	-0.291664	-0.292114	-1.074247	-0.121356	-0.092382	0.4146497	0.2224553	-0.036997
t(m-)	-0.922879	0.5085059	-0.208338	0.0038616	0.2069262	0.7981124	-0.322031	1.489524	0.0950569	-0.02614	0.8098309
df(h-)											
df(h-m)											
df(m-)											
t(h-)-tmin	-0.895444	-0.441071	-2.01	-1.700508	-1.902242	-1.674001	-1.574186	-0.710556	-1.486088	-1.812896	-1.201654
t(h-m)-tmin	-1.97386	-0.850205	-1.778746	-1.718336	-1.717886	-0.935753	-1.888644	-1.917618	-1.59535	-1.787545	-1.973003
t(m-)-tmin	-1.087121	-1.501494	-1.801662	-2.006138	-1.803074	-1.211888	-1.687969	-0.520476	-1.914943	-1.98386	-1.200169