COMPUTERS IN THE GRADE 9 FSL CLASSROOM: HOW DO THEY INFLUENCE STUDENTS' ATTITUDES, MOTIVATION, SELF-CONCEPT AND PERFORMANCE?

by

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Abstract

This study compared the attitudes, motivation, self-concept and performance of two Grade 9 Core French (FSL) classes in Ontario. One class of 16 students used computer mediated communication (CMC) for approximately 1.5 hours per week. The other class of 24 students did not use computers. Analysis of covariance showed no statistically significant differences on any quantitative measures of attitude, motivation, self-concept or performance. The analysis of student interview responses and teacher observations revealed no significant between-group differences on these four variables either. The results suggest that computers are not better than traditional communicative methods of second language teaching in developing Grade 9 FSL students' attitudes, motivation, self-concept and performance. Since the teacher was the variable common to both classes, however, her influence may explain the undifferentiated between-group results. Regardless of the methods used to teach students, the teacher may always be the most influential variable in determining students' attitudes, motivation, self-concept and performance.
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1 Introduction

1.1 Identification of the Problem

In Ontario, as in other Canadian provinces, English-speaking high school students must study one year of French as a second language (FSL) to fulfill the requirements for their diploma. A considerable body of research indicates that students' success in acquiring French is largely determined by three closely-related variables: attitude\(^1\), motivation\(^2\) and self-concept\(^3\) (Clément & Kruidenier, 1985; Chambers, 1993; Crookes & Schmidt, 1991; Deci & Ryan, 1985; Dörnyei, 1990, 1994a, 1994b; Gardner, 1985a; Oxford & Shearin, 1994; Tremblay & Gardner, 1995). In Ontario schools, there is a high attrition rate between grade 9 French, an obligatory requirement, and grade 10, when it becomes an option. In the school where this study was conducted for example, only 25 of the 151 students who took French in grade 9 during 1999-2000 continued with grade 10 French in 2000-2001. This suggests that the majority of students at this school do not perceive the subject area as useful or essential enough to warrant continued study. Unfortunately, this scenario is not unique to this school and in fact, seems to be occurring in schools across the province. This trend seriously concerns FSL teachers, who wonder how they might encourage more grade 9 students to continue their French studies through high school.

The Ontario Ministry of Education and Training (2000) espouses the essential role of electronic literacy in students' future success. Teachers are encouraged to integrate technology into their courses and evaluate students' ability to access, interpret and use electronic media. For the language teacher, there is a substantial body of research in the field of Computer Assisted Language Learning (CALL) that suggests computers are a useful and beneficial tool for second language (L2) learners (Beauvois, 1992, 1998; Bump, 1990; Kern, 1995; Kitade, 2000; Ortega, 1997; Sengputa, 2001). In particular, network-based language teaching (NBLT), which includes the use of e-mail, bulletin board messaging,

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Terms used in the current research project are defined as follows:

1. **Attitude**: The learner's perception, either positive or negative, of French language and culture, the French course, the teacher, the learning environment, and the methods of instruction. (Adapted from Gardner, 1985a, p.9)

2. **Motivation**: The learner's desire (or choice) to learn French, the learner's attitudes about learning French, the effort the learner puts forth in learning French (intensity) and the persistence the learner demonstrates with the activity of learning French. (Adapted from Gardner, 1985a, p. 57; Dörnyei, 2001, p.8)

3. **Self-Concept**: The learner's view of self, determined by relative confidence/anxiety within the classroom, perception of ability to succeed (performance expectancy), and control over one's learning (autonomy). (Based on work by Crookes & Schmidt, 1991; Dörnyei, 1990, 1994; Oxford & Shearin, 1994; Tremblay & Gardner, 1995)
newsgroups, and Internet relay chat, is widely accepted as a strategy with limitless potential for communication (Kern & Warschauer, 2000). Teachers have embraced these technologies and have applied them creatively in diverse language-learning contexts (Beauvois, 1992, 1998; Chun & Plass, 2000; Davis & Thiede, 2000; Kern, 1995; Kern & Warschauer, 2000; Pelletieri, 2000; Shetzer & Warschauer, 2000; Trenchs, 1996; Zähner, Fauverge & Wong, 2000).

Without a doubt, technology holds revolutionary potential for practices of language teaching and language learning. As Ministries of Education legislate the integration of computers across the curriculum, the need grows for deeper understanding of computer applications in the language classroom.

As Kern & Warschauer (2000) suggest, the computer, like any other pedagogical tool, does not “bring about learning”. Rather, research must focus on “practices of use” in specific contexts in order to create a broader and more profound understanding of the computer’s influence on second language learners. Ethically, it is also incumbent upon every educator who uses computers in his or her classroom to critically assess the value of computer applications to students’ learning. A great deal of work has already been done, (Beauvois, 1992, 1998; Bump, 1990; Chun & Plass, 2000; Chapelle, 1997, 1998; Davis & Thiede, 2000; Kern, 1995; Kern & Warschauer, 2000; Kitade, 2000; Murray, 2000; Ortega, 1997; Pelletieri, 2000; Sengputa, 2001; Stepp-Greany, 2002; Trenchs, 1996; Zähner, Fauverge & Wong, 2000) but again, it is essential to understand computers within each specific context of use. The current study endeavours to broaden the base of knowledge; to investigate the impact of network-based language teaching (NBLT) on three key variables that largely determine students’ performance in language learning – attitude, motivation and self-concept.

It is understood that the most “motivational” language-teaching methods satisfy the social, cognitive and emotional needs of the learner (Dörnyei, 1994a; Tremblay and Gardner, 1995). If the curriculum is to motivate a language learner, it must be relevant to his/her interests, needs and goals. It must offer enough challenge to maintain interest but be within the learner’s level of ability. It must give the learner choices, so that he/she feels some control over his/her learning. It must also contribute to a learner’s sense of confidence and promote an enduring expectation that the learner will be successful in the language course (Dörnyei, 1994a). Recognizing this, questions emerge from the junction of L2
motivation and CALL theories. Will a curriculum that integrates computer-mediated communication (CMC) meet these needs as effectively as a traditional “communicative” curriculum? Will learners be more motivated by a course with a multi-media component than by a “low-tech” equivalent? Will learners feel more confident about themselves and their abilities in a course that allows for communication by computers? Herein lies the problem. Although researchers have suggested certain motivational advantages when students communicate via on-line chat (Beauvois, 1992, 1998; Kern, 1995), we don’t know whether a computer-rich L2 classroom is more motivational than a traditional communicative classroom, whether it inspires more positive attitudes about French, promotes higher levels of self confidence or more language learning.

1.2 Purpose of the Study

This study responds to the need for comparative research across diverse language-learning contexts in the field of Computer Assisted Language Learning (CALL). Its core questions and methodology fit within the sociocognitive paradigm of CALL research (Warschauer & Kern, 2000) since it presents computer mediated conversation (CMC) as a tool that creates a socially relevant context for learning and communication in the participants’ second language. Like other sociocognitive studies, it does not analyse the nature of students’ on-line interactions (Kern, 1995; Murray, 2000; Pelletieri, 2000; Trenchs, 1996). Rather, this study compares the influence of two language-learning conditions – a curriculum that integrates computer-mediated communication (CMC) versus a traditional communicative L2 curriculum - on the attitudes, motivation, self-concept and performance of two groups of Grade 9 FSL students. One group of 17 students used CMC for approximately 1.5 hours per week, while another group of 24 students followed a strictly “computer-free” communicative curriculum.

1.3 Significance of the Study

This study is significant for four reasons.

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4Sociocognitive: According to Kern and Warschauer (2000) sociocognitive approaches to computer assisted language learning (CALL) “shift the dynamic from learners’ interaction with computers to interaction with other humans via the computer.” (p.11). They state that the principal role of the sociocognitive framework of CALL is to “provide alternative contexts for social interaction; to facilitate access to existing discourse communities and the creation of new ones.” Since students in the treatment group of this research study interacted with one another via the computers, and created their own “discourse community” they were engaged in a sociocognitive activity. In this study, the term sociocognitive is used to describe the interactions between students via the computers.
First, no study (to the best of my understanding) has specifically investigated the influence of computer-mediated communication (CMC) on the attitudes, motivation, self-concept and performance of second language students. No study has conclusively demonstrated the relative influences of a computer-rich curriculum versus a traditional communicative curriculum on these four variables.

Second, it uses a quasi-experimental design and employs both quantitative and qualitative methods of data collection as a means of fortifying the validity of the results. Many researchers have called for more extensive comparative research in the field of computer assisted language learning (Conacher & Royall, 1998; Kern, 1995; Ortega, 1997; Stepp-Greany, 2002), using a broader range of data collection techniques. This study responds to this call.

Third, the participants of this study differ from those who have participated in most previously conducted CALL research. The majority of the investigations in the field have been conducted with the participation of university students (Beauvois, 1992, 1998; Bump, 2000; Davis & Lyman-Hager, 1997; Davis & Thiede, 2000; Green & Earnest Youngs, 2001; Kern, 1995; Pelletieri, 2000; Sengputa, 2001; Warschauer, 2000) In Ontario, where this study was conducted, Grade 9 French as a Second Language (FSL) is the most widely taught second-language course. Every high school student attending a publicly funded secondary school must pass Grade 9 FSL as the minimum second-language requirement for the Ontario Secondary School Diploma (OSSD). The influence of computers on Grade 9 FSL students is therefore of considerable interest, since the curriculum is taught in every school to every student. Conclusions based on research conducted with university students do not necessarily apply to the Grade 9 classroom. University students, usually in their late teens or early twenties, and fourteen-year-old Grade 9 students are at different stages of social and intellectual development, have different interests and different goals. By virtue of their enrolment both in university and in a second-language class, the academic history and motivational levels of those university students who have participated in second-language research can be assumed to differ somewhat from those of Grade 9 students who must take FSL if they are to graduate from high school. The two populations are different enough that research findings in one context cannot be extrapolated to furnish an understanding of the other. This study therefore aims to contribute some insight into the unique language-learning needs of Grade 9 students.
Finally, the literature suggests that a lack of motivation in mandatory second language (L2) classes occurs in schools around the world (Chambers, 1993; Goldberg-Muchnick & Wolfe, 1982; Ho, 1998). Having taught FSL in four different schools in both Ontario and British Columbia during my own career, I have observed lack-lustre attitudes from Canadian students taking their one obligatory second-language credit. Goldberg-Muchnick & Wolfe (1982) in the United States, Chambers (1993) in the United Kingdom and Ho (1998) in Taiwan have also reported low levels of motivation in mandatory L2 classes in their countries. To inform future technological initiatives in second language education, and support second language teachers around the world who work daily to motivate their students, it is important to understand the influence of computer mediated conversation (CMC) on learners’ attitudes, motivation, self-concept and ultimately, their performance.

1.4 Questions Guiding the Research

The following comprise the four central questions to this research project:

1. Does the use of computer-mediated communication (CMC) motivate grade 9 Core French students at the Academic Level to learn French more than “traditional” communicative activities?

2. When compared to students following a “traditional” communicative course of study, does the use of computers for language learning have a significantly different influence on students’ attitudes about French as a language and a subject of study?

3. How confident do students feel about themselves and their language learning when the L2 environment involves computers, compared to students following a “traditional” communicative syllabus?

4. How does computer-mediated communication (CMC) impact students’ academic performance in comparison to students who are instructed through communicative activities only?

1.5 Organization of the Thesis

Subsequent to the Introduction, this thesis includes four chapters - Literature Review, Research Design, Results and Conclusions.

Section 2.1 of the Literature Review summarizes theoretical perspectives on motivation in second language learning. It outlines Gardner’s socio-educational model (1985a), a theory so influential in its scope that it met with little contention for approximately thirty years. Still a major force in the field, the
model has been expanded after a critical debate in the field called for the integration of theory from motivational psychology to the collective understanding of motivation in second language learning (Crookes & Schmidt, 1991; Dörnyei, 1990,1994a,b; Oxford & Shearin, 1994). A summary of the major theoretical perspectives in motivational psychology is followed by a discussion of new frameworks in L2 motivation and their practical applications to the L2 classroom.

Section 2.2 of the Literature Review summarizes theories from the fields of Computer Assisted Language Learning (CALL) and Second Language Acquisition (SLA). The connections between second language acquisition theory and computer-mediated communication (CMC), the type of technology most widely used in this study, are analyzed. It examines how CMC accommodates those factors essential for SLA and outlines Chappelle’s (1998) list of suggestions for the development of relevant SLA multi-media. On the basis of the literature, CMC is evaluated on its potential motivational value to second language students, and to the potential outcomes of this research.

Section 2.3 offers a brief overview of the communicative approach to language teaching and finally, section 2.4 discusses the essential characteristics of a useful second language test. Since the Grade 8 Core French Test (Harley, Argue, Hart, Lapkin & Scane, 1990) is used to evaluate students’ second language performance in this study, section 2.4 also includes a discussion of the test’s validity, reliability, authenticity and interactivity.

The third chapter, Research Design, lays out the framework of the current study. It provides background detail about the participants and their learning environments. It explains the rationale for the quasi-experimental design of the project. It summarizes general and specific expectations of the Ontario Provincial Curriculum for Grade 9 Core French and details the differences between the curricula administered in the comparison and treatment groups. Section 3.5 reviews the quantitative and qualitative measures used in the study. Two summary charts provide a quick visual of the design of the project. The first (Figure 6) outlines the timing of the project in both groups. The second (Figure 7) lays out each research question, its corresponding measures and the methods of analysis used to synthesize the data.

Chapter 4 presents the Results from the study. Section 4.1 includes Tables 2-5, which outline descriptive statistics for both groups of participants at pre-test and post-test on all quantitative measures
used in this study (the Attitude Motivation Test Battery, Grade 8 Core French Test, the Schira Questionnaire and final report card marks). This chapter is organized by research question. For each successive research question, quantitative and qualitative data are stated, then discussed. An overall discussion of the results concludes the chapter.

Chapter 5, Conclusions, entertains possible explanations for the results based on current theory in Second Language Acquisition (SLA), Computer Assisted Language Learning (CALL) and Second Language Motivation. The results from this study are placed within the context of these theoretical perspectives. Limitations of the research are outlined, as are potential directions for future research.
2 Literature Review

2.1 Motivation – Theoretical Foundations

As a subject of study, motivation is deceptively complex. It may seem simple on the surface – everyone generally understands what the word motivation means. We have all felt motivated (winter vacation to Tahiti...sure!) and we have all felt unmotivated (do I have to take the garbage out again?). Inherently, motivation plays a considerable role in the routine of our daily lives. Why do people go to work? Why are people kind to others? Why do people return telephone calls? Why do people eat at restaurants? Why do people play sports? Why do people learn languages? In spite of evidence that we inherently comprehend motivation and its influence on our behaviour, a precise definition and understanding of the relationships between the psychological, social, affective/emotional, cognitive and neurological components of motivation has proven quite a challenge for researchers. In his recent book on the subject, Zoltán Dörnyei (2001) citing Walker and Symons (1997) recounts that the American Psychological Association once considered replacing the word “motivation” as a search term in its central database, Psychological Abstracts, because it was laden with too much meaning and was therefore of little use (p.7).

In the language classroom, motivation and the lack thereof manifest a range of behaviours in students. Language teachers are just as familiar with the student who slouches in the back row, refuses to complete homework, responds with indifference to praise, utters frequent derogatory expletives about the study of language (did I hear “French sucks” from you again?!) as they are with the student whose hand is always waving, with smiles a-blazing, who lives for praising, in the very front row. To understand the foundations of student motivations, a review of the literature is in order.

In the introductory chapter, I outlined a working definition of motivation for the purposes of this research project. In this study, motivation is defined as the learner’s desire to learn French, the learner’s attitudes about learning French, the effort the learner puts forth in learning French and the persistence the learner demonstrates toward the activity of learning French (adapted from Crookes & Schmidt, 1991; Dörnyei, 1994,2001; Gardner, 1985a; Keller, 1983; Maehr & Archer, 1987; Oxford & Shearin, 1991). This definition suggests that the learner is an active participant in his/her language learning experience. The
learner can choose to invest effort, can choose to persist in learning and can choose to like or dislike the activity of language learning. It also suggests that attitudes about the language as a subject of study, about the culture and the cultural group play a role in determining motivation. This is a definition that incorporates the two major theoretical perspectives in L2 motivation theory – the cognitive and social psychological.\(^5\)

The scope of research in motivational theory extends beyond that possible for review in this thesis, and the omission of important contributions to the field is not meant to editorialize or otherwise judge such theoretical insights. Rather, I have chosen to focus on those theories that apply most directly to the questions of this research study and apply most directly to the learner’s experience in the context of the second language classroom.\(^6\)

A review of essential theory from the field of psychology is a good place to start. Two influential studies in the second language literature introduced components of psychological theory to the debate on motivation. First, Crookes & Schmidt (1991) and later, Oxford and Shearin (1994) called for the consideration, by second language researchers, of concepts prevalent in the psychological dialogue. Goal setting, expectancy, valence, causal attribution, autonomy, self-efficacy, and relevance are among those concepts proposed by these two studies as worthy additions to the framework of motivation in second language.

An understanding of the social psychological perspectives of Robert C. Gardner, arguably the most influential researcher in the field of motivation in second language learning, is also essential. Gardner’s research and theories on motivation in the second language classroom, particularly within the context of French as a Second Language (FSL) in Canada, are fundamental to the questions, methodology and conclusions of this research project.

Finally, it is important to understand where the theoretical debate on motivation in second language acquisition (SLA) currently stands and how these perspectives relate to the reality of the L2

\(^5\) Social Psychological: Within the context of R.C. Gardner’s work, this term suggests that a student’s attitudes, motivation and success in learning a second language are determined by his/her perceptions of the L2 culture and his/her willingness to identify with the L2 group and adopt certain characteristic behaviours of the L2 group as his/her own. As the term suggests, social psychology is (in part) the study of “society” and its influence on thought and behaviour. (Gardner, 1985; Gardner & Lambert, 1972)

classroom. Section 2.1 concludes with a list of effective strategies for motivating L2 learners and introduces the connections between computer-mediated communication and its inherent motivational potential.

2.1.1 Theory from Motivational and Social Psychology

As summarized by Dörnyei (2001), the corpus of research in motivational and social psychology generally concludes that human motivation is greatest when people a) are competent b) have sufficient autonomy c) set worthwhile goals d) get feedback and e) are affirmed by others (p.18). The five categories of psychological theories discussed below explain the foundations of these five general principles of human motivation.

1. Expectancy-value Theories

According to the main tenets of expectancy-value theories, an individual is motivated to perform a given task by two key factors: 1) his/her expectancy of success at that given task and 2) the value he/she places on success at that task. (Dörnyei, 2001, p.20). For example, consider Stephen, a student enrolled in Grade 9 French. His motivation to learn French will be influenced by how well he expects to do in the class and also by the value he places on learning French in the first place.

The perceived value of an activity, often called valence (Vroom, 1964), is usually based on an individual's responses to the following three questions. First, is the outcome of my performance on this task (i.e. getting a good grade on a test, learning to speak a second language) of inherent value to me? Second, will the outcome of my actions yield extrinsic (instrumental) results such as a useful skill, a job, acceptance to my preferred university? Third, what is the cost of my actions? (Will learning French mean that I can't pursue other interests? Will I fail and therefore feel poorly about myself? How much time will it take before I'm good at it?) To inspire motivation, the cost of the activity must not outweigh the value attributed to the activity. The greater the value attributed to the activity, the more intense the motivation to perform the activity will be. (Dörnyei, 2001, pp.24-25; Oxford & Shearin, 1994, p.19)

Expectancy of success for any individual is determined by three factors: 1) perception of one's past experiences, 2) perception of one's inherent ability and 3) self-esteem (Dörnyei, 2001, p.21).

Weiner (1992) proposes that motivation is based, in part, on an individual's understanding of
Weiner's theory of Causal Attribution is based on the fact that individuals need to understand why they have been successful at a given task. This is where past experience and perception of ability come into play. His theory contends that satisfaction is far greater when the individual attributes his/her success to intrinsic abilities, rather than to extrinsic variables. Whether the attribution is internal or external also influences the individual's future behaviour (Dörnyei, 2001, p. 22). Consider Stephen, the French student again, who earned 92% on his major unit test. For any student, this would be considered a good result. However, Stephen's satisfaction with his performance depends on how he attributes his success. If he listened attentively in class, completed his homework for the unit every night, studied hard for the test, felt confident about his knowledge and got a good night's sleep before writing the test, he would attribute his performance to his own abilities and preparedness for the test's challenge. This would be an intrinsic attribution. On the other hand, if he perceived that the teacher had purposely made an easy test, or that he only got 92% because the teacher didn't tally the marks properly, his performance would be attributed to extrinsic factors. Satisfaction, in this case would be lower than in the case of intrinsic attribution.

2. Self-efficacy

Bandura's theory of self-efficacy also relates to an individual's expectancy of success (1981, 1989, 1991, 1993). It is influenced by four factors: 1) previous experience 2) vicarious learning (i.e. from watching others do the same thing) 3) verbal encouragement by others and 4) one's physiological responses to the activity (i.e. anxiety) (Bandura, 1993). "People make causal contributions to their own functioning through mechanisms of personal agency. Among the mechanisms of agency, none is more central or pervasive than people's beliefs about their capabilities to exercise control over their own level of functioning and over events that affect their lives. Efficacy beliefs influence how people feel, think, motivate themselves and behave." (Bandura, 1993, p. 118; also cited in Dörnyei, 2001, p.23).

Back to Stephen for a moment. As he sat down to write that major unit test, imagine that his thoughts were not on how to answer each question as effectively and accurately as possible, but rather on the many reasons why he would not be successful. Rather than focusing on how to construct the past participle of a regular -er verb, he was thinking about how he had answered a question wrong in class,
how he didn't understand every word in the sentence, how the student next to him was so much smarter, how he would never be able to speak French because it was too difficult for him. He didn't even finish the test. Instead of 92%, Stephen earned 44%.

In challenging situations, people with low self-efficacy, as in the example with Stephen, often focus on their own deficiencies, rather than on the best strategy for overcoming the obstacle (Dörnyei, 2001, p. 23). As a result, they easily lose faith in their abilities and are likely to give up. As Dörnyei notes, "self-efficacy beliefs are only indirectly related to actual competence and abilities because they are the product of a complex process of self-persuasion that is based on cognitive processing of diverse sources (e.g. other people's opinions, feedback, evaluation, encouragement or reinforcement, past experiences and training, observing peers, information about appropriate task strategies)." (p. 23).

Closely linked to self-efficacy is self-esteem. The term is often used interchangeably with "self-concept" and for the purposes of this research project, self-efficacy and self-concept are considered parallel constructs. Maslow (1970), in his famous Hierarchy of Needs, identified esteem as an essential component of the self-actualized individual. Covington's self-worth theory (1992) suggests, "...the search for self-acceptance is the highest human priority." (p. 74). In order to preserve one's sense of self-worth, individuals are motivated to avoid situations in which they anticipate failure. As a consequence, individuals may develop "face-saving" behaviours to avoid appearing "stupid" or "incompetent". Avoidance behaviours are most common in school, where great value and emphasis are placed on performance and competition with one's peers. The student who refuses to do homework in French class, who shows up late, who persistently voices negative opinions about the course (did I hear you say "French sucks" AGAIN?!?) probably does so because of the need to preserve his/her self-worth. To this student, it is better to fail because of a lack of effort rather than face the possibility of failing due to a lack of inherent ability (Dörnyei, 2001, p. 23).

3. Goal Theories

Goal setting theory proposed by Locke, Shaw, Saari & Latham (1981) and Locke & Latham (1990a, 1990b) is closely connected to expectancy-value theory. Goals are determined, in part, by performance and performance itself is partially determined by expectancy of success and the value
placed on that activity. Locke and his colleagues (1981) concluded that goals affect performance by
"focusing attention and action, mobilizing energy, prolonging persistence, and motivating the development
of relevant strategies for goal attainment." (Oxford & Shearin, 1991, p. 19). Goals must also be made by
choice, suggesting that autonomy (control) is an essential part of goal setting too. Locke (1996)
summarizes the main points of his theory:

1. The more difficult the goal, the greater the achievement.
2. The more specific and explicit the goal, the more precisely performance is regulated.
3. Goals that are both specific and difficult lead to the highest performance.
4. Commitment to goals is most critical when goals are specific and difficult (i.e. it's easy to
be committed when the goal is easy, but when it's difficult, a greater level of commitment
is required.)
5. High commitment to goals is attained when a) the individual is convinced the goal is
important; and b) the individual is convinced the goal is attainable.

(Also summarized by Dörnyei, 2001, p. 26)

In addition, Oxford & Shearin (1991) suggest that individual differences in learning style influence
the goals set by an individual, and indeed whether the individual will set goals at all. They also emphasize
the importance of feedback as a necessary component of performance and of commitment to a goal. If
we consider the case of Stephen, the French student, a large part of his success is determined by his
ability to set clear, attainable, yet challenging goals for himself in both the short term and in the long term.
The guidance and feedback he receives from his teacher will also influence the commitment he feels to
his goals.

Self-efficacy is also an intrinsic part of goal setting. A high sense of self-efficacy leads to the
setting of higher goals because one expects that he/she can achieve them. Further, an individual who has
a strong sense of self-efficacy is apt to set higher standards for him/herself, and thus perform at a higher
level than someone with lower standards (Oxford & Shearin, 1991). As stated earlier, self-efficacy is
determined, in part, by an individual's ability to focus on effective strategies in the face of challenge. In the
language classroom, students with low self-efficacy may not be equipped with effective strategies for
coping with the challenges presented by the environment, nor feel that they are able to attain challenging
goals. The vicious cycle of demotivation thus begins: → few effective strategies for solving problems →
vague goals → little focus or commitment to achieving goals → low expectancy of success → low self-
efficacy → low effort to save face → low performance → low value placed on learning → little motivation
to develop more effective strategies.

4. **Self-determination Theory**

*Self-determination theory* (Deci & Ryan, 1985) proposes that individuals are motivated by both
intrinsic (self-determined) and extrinsic (controlled) variables. The more intrinsic the motivator, the
stronger its influence will be on the individual’s behaviour. Learning French because you need to
communicate with your father’s family would be considered an intrinsic or self-determined motivator. It
originates from an internal, emotional or affiliative need. For a student, the teacher’s praise is an entirely
extrinsic motivator. Someone else in this case determines the motivator. It may encourage Stephen to
work a little harder for a day or two, but it may not have a long-term influence on his persistence in
learning French. In self-determination theory, extrinsic motivators that incorporate an individual’s system
of values are considered to motivate much like intrinsic motivators. For example, if an individual learns
French because it jibes with his/her beliefs that a true Canadian should speak both official languages,
he/she is extrinsically motivated by a certain social influence. If this value is deeply internalized by the
individual, it can be considered an intrinsic motivator.

Deci and Ryan (1985) argue that self-determination is an essential human need. It is developed
when people have the opportunity for autonomy (feeling that one’s own decisions and actions are the
cause of one’s success), to feel competent and to feel a sense of belonging (relatedness) with other
individuals. (Dörnyei, 2001).

5. **Social Influences on Motivation**

Without a doubt, part of what motivates individuals to pursue certain goals or to behave in a
certain manner is dictated by the influence of the society in which he/she functions. Within the context of
a school, a unique set of social forces carves out the learning environment for students. Teachers,
administration, parents, the community at large and of course, the students themselves, interact in unique
ways to create the school culture. The value placed on learning, on competition, on performance, on success, on collaboration, on caring, on celebrating achievement, on developing relationships, on leadership and the pursuit of personal recognition within a school community and at home plays a definitive role in the cognitive and emotional development of young people (Dörnyei, 1994; 2001). In the language classroom, Dörnyei (1994a) suggests that the teacher is a major determinant of students' motivation.

Dörnyei (1994a), citing Ausubel, Novak & Hanesian (1978) suggests that students' affiliative drive, or desire to please their teacher because they like him/her, is the most important teacher-related motive (p.278). The way a teacher manages his/her classroom and the way he/she handles authority also determines students' motivation to learn. If the teacher shares authority with students, allows them input into decisions and offers them choices about the way the class is run, students feel more autonomy and greater motivation to participate than in a classroom where the teacher holds all control (Deci & Ryan, 1985). Teachers who model appropriate attitudes for their students and "embody the group conscience" (Dörnyei, 1994a, p. 278) also inspire greater motivation than those who adopt a "do as I say, not as I do" attitude. Students appreciate the sincere commitment of a teacher who enjoys his/her work, and who demonstrates the same work ethic he/she expects of his/her students. In Chapter 7 of his book (2001) Dörnyei (p.178) cites the work of Csikzentmihalyi (1997). I too borrow this quote because it articulates the levity of the relationship between students and their teachers.

"Young people are more intelligent than adults generally give them credit for. They can usually discern, for instance, whether an adult they know likes or dislikes what he or she is doing. If a teacher does not believe in his job, does not enjoy the learning he is trying to transmit, the student will sense this and derive the entirely rational conclusion that the particular subject matter is not worth mastering for its own sake. If all the teachers they are exposed to are extrinsically motivated, students might well conclude that learning in general is worthless in and of itself.

Such a reaction on the part of young people is eminently adaptive. Why should they want to spend their lives being bored? Why should they emulate a model who is already alienated from his or her life activity? The young are in general less resigned than adults to the prospect of a meaningless life. They look around them for adults who seem to enjoy their jobs, who believe in what they are doing, and take them as models." (Csikzentmihalyi, 1997, p. 77)

It is the example a teacher sets that either motivates or demotivates his or her students.

Effective teachers must also provide feedback for students. Feedback guides students' progress,
highlights areas of weakness, proposes more effective strategies for approaching the same problem next time, and therefore develops students' self-efficacy. Praise should attribute success to ability and effort. It should help to develop internal causal attribution and students' motivation to try to achieve the same success in the future (Dörnyei, 1994a).

2.1.2 The Socio-Educational Model of Robert C. Gardner

In the field of second language learning research, the work of Robert C. Gardner dominated the debate on motivation for approximately three decades. In 1959, Gardner and his colleague Wallace Lambert published a study in which they identified variables that influence a student's motivation to learn a second language. In 1972, they published a book, which summarized the findings of their research, and postulated that a learner's motivation for language study was most probably determined by one of two types of reasons, or orientations: 1) an integrative orientation, defined as the desire to learn language because of a "sincere and personal interest in the people and culture" represented by the language (Gardner & Lambert, 1972, p. 132) or 2) an instrumental orientation, understood as a pragmatic, utilitarian motive (i.e. learning a language to get a job or to pass a test). The integrative/instrumental dichotomy has been an extremely influential paradigm in the field and until Crookes and Schmidt (1991) published their paper calling for reconsideration of the motivational construct, Gardner's work stood as the embodiment of the collective understanding of motivation in second language learning.

In 1985, Gardner published his definitive book on the subject, summarizing over twenty years of research in middle school, secondary school and university second language classrooms. He developed a model of motivation in second language learning entitled the Socio-Educational Model, which as originally conceived, "is concerned with the process of second language acquisition among students registered in formal language courses" (Gardner, 1985a, p. 15).

Gardner's theory of motivation (1985a) in second language (L2) learning includes five main components:

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7 Socio-Educational: For the purposes of this research project, and in relation to the work of R.C. Gardner, the term "socio-educational" is interchangeable with "social psychological". This is the title given to Gardner's model of the motivational construct in second language learning, which is based on social psychological theory. It is called "socio-educational" because the model is designed to address issues related to students learning a second language within the context of an "educational system".
1. It is based on social psychological theory and espouses that attitudes influence behaviour (pp. 2-4).

2. It states that language learners are motivated by two kinds of "orientations" or reasons for learning the language – integrative and instrumental (p.11). Integrative orientation concerns the desire, on the part of the second language learner, to befriend members of the L2 group, and/or to adopt aspects of the L2 culture as his/her own. The instrumental orientation is based on a utilitarian perspective. It is the desire to learn a second language to attain a pragmatic benefit, like a job, a promotion, or to pass a test. (p. 11).

3. Motivation to learn a language is the product of four sub-components: 1) a goal to learn a second language 2) the desire to fulfill that goal 3) expended effort in the achievement of the goal and 4) a positive attitude about the task of learning the language. (p.10, p.54)

4. Motivation is influenced by two classes of variables – Attitudes toward the Learning Situation and Integrativeness, each of which is determined by sub-components.
   - Attitudes toward the learning situation is composed of a) attitudes about the L2 teacher and b) attitudes about the L2 course.
   - Integrativeness is composed of a) attitudes toward the target language group, b) interest in foreign languages and c) integrative orientation. (Tremblay & Gardner, 1995, p. 506)

5. The Attitude/Motivation Test Battery, developed by Gardner and his colleagues (Gardner & Lambert, 1972; Gardner & Smythe, 1981), measures the factors that influence motivation. It includes 19 subscales and 4 composite scales. (For a complete description of the Attitude/Motivation Test Battery, refer to Appendix E and to section 3.5.) It is the most widely used standardized test for measuring motivation and attitudes in second language learners. It is particularly useful in the Canadian FSL context, where it was developed.

2.1.3 Current Theoretical Positions in Second Language Motivation


In response to criticisms of the socio-educational model (Au, 1988; Crookes & Schmidt, 1991;
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Dörnyei, 1994a, 1994b; Oxford & Shearin, 1994) and on the basis of continued empirical research in the field (Clément & Kruidenier, 1985; Clément, Dörnyei & Noels, 1994; Gardner & McIntyre, 1993) Tremblay and Gardner (1995) revised the socio-educational model to incorporate psychological factors that influence the learner’s perception of self and environment. In their empirical study of “new motivational variables”, conducted with a group of 75 Ontario high school students, Tremblay and Gardner test 10 hypotheses based on theories of self-efficacy (Bandura, 1989, 1993; Clément & Kruidenier, 1985), goal setting (Locke & Latham, 1990a), expectancy (Bandura, 1991), valence (Lee, Locke & Latham, 1989; Oxford & Shearin, 1994) and causal attribution (Bandura, 1991; Weiner, 1992). They conclude that a number of “new” variables mediate the relationship between two “old” variables - language attitudes and motivational behaviour (p. 515). Consistent with psychological theory, Tremblay and Gardner conclude that Goal Salience (setting clear goals), Valence (the perceived value and relevance of language learning) and Self-Efficacy (self-confidence) arbitrate the influence of language attitudes on motivational behaviour and ultimately influence language-learning achievement. Figure 1 is a simplified version of Tremblay and Gardner’s model. The original version includes LISREL loadings for each variable in relation to the others. It also includes two other variables – Language Dominance and Adaptive Attributions. Language Dominance is not relevant to the participants of the current research project and is therefore excluded from this simplified model. Adaptive attributions influence self-efficacy, but do not mediate the relationship between language attitudes and achievement, so it has also been excluded. Note that solid arrows indicate influence/relationships whereas dashed arrows indicate sub-components of each variable.

2. Dörnyei’s framework of L2 motivation (1994a)

In response to the call for an expanded framework of L2 motivation (Crookes & Schmidt, 1991; Oxford & Shearin, 1994), Dörnyei proposed that a learner’s motivation for second language learning is influenced by three levels of variables – the learner level, the language level and the learning situation level. Into his framework (see Figure 2), he incorporates predominant theory from psychology, as summarized above. Since the development of this framework, he has also developed a “process model of L2 motivation” (Dörnyei & Otto, 1998; Dörnyei, 2001), which incorporates the element of time and its
relationship to the ebb and flow of motivational levels in language learners. It is Dörnyei's framework, however, that is of particular relevance to the questions of this research project because it focuses on the experience of the language learner in a classroom.

Figure 1
A simplified representation of Tremblay & Gardner’s (1995) proposed model of the motivational construct in SLA

At the Language Level, the framework begins with Gardner’s socio-educational model (1985a). It acknowledges the interplay of the integrative and instrumental motivational subsystems as the initial factors influencing a student’s motivation to learn a language. Gardner’s early work (1985a) suggests that
the integrative motivational subsystem is more influential, spurring stronger desire and more persistent dedication to language learning than the instrumental subsystem. Subsequent work by Clément & Kruidenier (1986) and Belmechri & Hummel (1998) suggests, however that the instrumental motive may also inspire a very strong and enduring desire to persist in language learning.

Figure 2

Components of Foreign Language Learning Motivations (Dörnyei, 1994a)

<table>
<thead>
<tr>
<th>Language Level</th>
<th>Integrative Motivational Subsystem</th>
<th>Instrumental Motivational Subsystem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner Level</td>
<td>Need for achievement</td>
<td>Self Confidence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Language Use Anxiety</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Perceived L2 Competence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Causal Attributions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Self-Efficacy</td>
</tr>
<tr>
<td>Learning Situation Level</td>
<td>Interest</td>
<td>Relevance</td>
</tr>
<tr>
<td>Course-Specific Motivational Components</td>
<td>Expectancy</td>
<td>Satisfaction</td>
</tr>
<tr>
<td>Teacher-specific Motivational Components</td>
<td>Affiliative Drive</td>
<td>Authority Type</td>
</tr>
<tr>
<td></td>
<td>Direct Socialization of Motivation</td>
<td>*Modelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Task Presentation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Feedback</td>
</tr>
<tr>
<td>Group-Specific Motivational Components</td>
<td>Goal-orientedness</td>
<td>Norm &amp; Reward System</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Group Cohesion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Classroom Goal Structure</td>
</tr>
</tbody>
</table>

At the Learner Level, Dörnyei (1994a) suggests that self-confidence and the need for achievement are essential motives. He states that “need for achievement is a relatively stable personality trait that is considered to affect a person’s behaviour in every facet of life, including language learning.” (p.277). In his 1990 study (pp.57-58), he cites Atkinson & Raynor (1974) who state that need for achievement is “an affective trait activated in areas where the individual is intrinsically involved”. Further,
he identifies self-confidence as the product of the learner's language use anxiety (which negatively impacts confidence), perceived L2 competence, causal attributions and self-efficacy.

His *Learning Situation Level* incorporates motives specific to the course, the teacher and the group. He contends that motivation is determined by the learner's perceptions of how relevant the course is to his/her needs and how interesting the course is. To motivate, the course must also allow the learner to expect success and find satisfaction, through self-determined goals.

As discussed in section 2.1.1, Dörnyei also contends that the teacher is a main determinant of a student's motivation. In addition to those factors already discussed (affiliative drive, authority type, modeling, feedback) he adds "task presentation" as a variable that influences students' motivation. He states that "efficient teachers call students' attention to the purpose of the activity they are going to do, its potential interest and practical value, and even the strategies that might be useful in achieving the task, thus raising students' interest and metacognitive awareness." (1994a, p.278).

Finally, Dörnyei (1994a) asserts that group dynamics influence a learner's motivation to acquire a second language. In the second language classroom, he suggests that four variables are particularly relevant: 1) goal orientedness, 2) norm and reward system, 3) group cohesion and 4) classroom goal structure (p. 278). Briefly, *goal orientedness* refers to the degree to which the class is focused on the goal of language learning. Individual behaviour is influenced by the focus of the group, the peers with whom they are learning. If the goal of the class is to have fun, rather than to learn, the individual learner will also be influenced by the orientation of this goal (to have fun and learn relatively little!) The *norm and reward system* is usually the marking system in a classroom. Students will be motivated by this system to the degree that the group believes marks are relevant. (p.278). If the class were to believe poor marks meant nothing, individual learners would feel less impetus to achieve higher grades. *Group cohesion* concerns the collective desire of the group to maintain a strong, cohesive relationship with one another to ensure the success of the group (p.279). The more cohesive the class, the better the class performs. Dörnyei suggests that this may be "due to the fact that in a cohesive group, members want to contribute to the group success and the group's goal-oriented norms have a strong influence on the individual." (p. 279). Dörnyei also contends that the goal structure of the class, which can be competitive, cooperative or
individualistic, determines the motivation of the individual learner. He suggests that a cooperative learning environment offers the greatest potential for success, since learners typically feel less anxious and feel more positive in this kind of setting (p. 279).

2.1.4 Synthesis

These two models of motivation in second language learning differ in detail, scope and organization but Tremblay and Gardner (1995) and Dörnyei (1994a) arrive at many of the same conclusions.

First, they agree that motivation is the result of interactions between three essential factors: the second language itself, the language learner and the language-learning environment.

Second, they agree that L2 learning begins with an orientation, either instrumental or integrative or a combination of both, and attitudes.

Third, they agree that the teacher and the course influence students' motivation to learn a second language.

Finally, they agree that psychological factors such as self-efficacy, causal attribution, goal setting, and valence contribute to the learner's motivational behaviour and to his/her ultimate level of achievement.

It is from these conclusions that teachers can develop effective strategies for enhancing motivation in their second language classrooms. Together, these models provide a solid foundation for further inquiry into the motivational construct, the development of language-learning curriculum and pedagogical methodology. Within the context of the second-language classroom, Dörnyei, and Tremblay and Gardner also acknowledge the need to create learning environments and learning tasks that maximize possibilities for student motivation. If any program of second language learning is to be effective, it must, as the theories suggest, be of interest, relevance and value to the student. It must promote learner autonomy, self-efficacy and confidence, encourage the consistent setting of realistic, yet challenging goals and offer opportunities for meaningful success that students can attribute to their own efforts.
Dörnyei (1994a) provides a list of 30 strategies teachers can use to promote motivation. The following selections from the list are relevant to the current study because they confirm the motivational value of the methods used in the Grade 9 Core French course.

- Make the syllabus of the course relevant by basing it on needs analysis
- Increase the attractiveness of the course content by using authentic materials and exotic supplementary materials
- Increase students' interest and involvement in the tasks by designing or selecting varied and challenging activities, adapting tasks to the students' interests
- Develop students' self-confidence by trusting them and projecting the belief that they will achieve their goal, and making sure they regularly experience success and a sense of achievement
- Promote learner autonomy by allowing real choices about alternative ways to goal attainment
- Introduce tasks in a way that stimulates intrinsic motivation and helps internalize extrinsic motivation by presenting tasks as learning opportunities to be valued rather than imposed demands to be resisted
- Promote the development of group cohesion and enhance inter-member relations by creating classroom situations in which students can get to know one another (pp.281-282).

Tremblay and Gardner call for the investigation of characteristics of the environment that lead to changes in "motivational antecedents". They suggest that future research focus on "the extent (to which) one can alter goal setting, valence, self-efficacy, causal attributions, language attitudes and motivational behaviour"(p. 516). They also propose that such investigations may provide insight into how motivation can be improved (p. 516).

The current study responds to this call. On the basis of research in the field of Computer Assisted Language Learning (CALL), (Beauvois, 1998; Bump, 1990; Kern, 1995; Ortega, 1997; Trenchs, 1996;) it proposes that computer-mediated communication (CMC) is a strategy that promotes learner autonomy, self-efficacy, and confidence in a relevant and interesting context for students, and therefore has the potential to improve teenage students' attitudes and motivation to learn French.

2.2 Language Learning and Computer-mediated Communication (CMC)

2.2.1 Computers, Modern Values and Essential Questions

Computers have undeniably shaped modern life and yet, our collective understanding of their impact past, present and future, particularly in the context of language, is still in its infancy. Within the "education system", there has been an awesome investment of resources into technology programs,

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8 Motivational antecedents are defined by Tremblay and Gardner (1995) as "factors that cannot be readily perceived by an external observer but still influence motivational behaviour through their cognitive and affective influence." (p.507)
motivated (in part) by public perception that a computer-rich environment is also one that affords greater opportunity. In 2000-2001, within the school district where the current research took place, another secondary school was allotted over $25 000.00 in surplus budgetary funding to implement a specialty program in media and computer technology. This school district also reserves an annual "Technology Change Fund" to support initiatives that integrate technology into the curriculum. In the secondary school where this research was conducted, the computer/student ratio is 1:6. This is a major selling point promoted by the school's administrative team in the recruitment of Grade 9 students, who can choose to attend one of four high schools in the area. Sengputa (2001) working from Hong Kong Polytechnic University presents similar observations within the context of the university, "A massive outlay of resources is being channelled into electronic modes such as Web-based delivery in universities world wide." (p. 103). Computers are popular, but again, our understanding of their impact on the educational foundations of literacy, numeracy and critical thinking is still developing. Sengputa agrees, "If practitioners are to determine how to drive rather than be driven by technology, we need to understand the effects of Web-based technology from the perspective of the learners..." (p. 103).

Murray (2000) argues that electronic media, like the Phoenician alphabet and Gutenberg's printing press, do not replace other forms of communication, rather, "societies adapt new literacy technologies to fit their value systems and practices so that any new medium becomes another part of the web of communication." (p. 54). E-mail and asynchronous computer-mediated communication (CMC), the technological applications used in this study, are therefore a product of contemporary attitudes as much as they are language-learning tools.

The Ontario Curriculum Program Planning and Assessment document (2000) articulates reasons for integrating technology into the learning environment,

"Increasing reliance on computers, telecommunication networks, and information technologies in society and the workplace makes it essential for students to become computer literate and to develop "information literacy" skills. Information literacy is the ability to access, select, gather, critically evaluate, create, and communicate information, and to use the information obtained to solve problems and make decisions. In preparation for further education, employment, citizenship, and lifelong learning, students must be capable of deriving meaning from information by using a wide variety of information literacy skills" (p.9.)
Although this statement is convincing, and grounded in perceptions of "workplace reality" no reference is given to the origins of these conclusions in the Curriculum Document itself. Again, the critical practitioner must ask questions. Is this understanding of information literacy and its importance to students' futures based on research? Or is this a value statement?

Technology is certainly a reality of our world, but in the classroom, educators' main concern must be on the appropriate use of computers to support student learning.

2.2.2 Computer-mediated communication (CMC) and its Influence on Language Learners

In the field of Computer Assisted Language Learning (CALL) research, learning is the focus. Researchers have drawn on perspectives found in cognitive psychology, anthropology, psycholinguistics, human-computer interaction theory, communication theory and second language acquisition (SLA) theory (Chapelle, 1997, 1998) to make sense of their findings and develop paradigms specific to their discipline. The following section reviews essential theoretical views in the field. It summarizes SLA theory and its connections to computer-mediated communication. It reviews those elements essential for language learning and discusses how CALL multi-media applications must respond if they are to be effective tools for learning.

Vygotsky (1978) maintained that socialization is crucial to the internalization of knowledge. Without opportunities to use language in a social context, language knowledge cannot be internalized. This view has received considerable attention in SLA theory. In particular, the importance of peer interaction is considered an essential opportunity for language learning (Ellis, Tanaka & Yamazaki, 1994; Omaggio Hadley, 1993). As an inherently social activity, computer-mediated conversation therefore meets this first essential criterion – it allows for internalization of language knowledge through socialization.

A considerable corpus of recent study has concluded that Web-based conversation is beneficial for learners and for SLA (Bump, 1990; Ewing, 2000; Kern, 1995; Kern and Warschauer 2000; Kitade, 2000; Ortega, 1997; Trenchs, 1996) Specifically, Keiko Kitade (2000) determined "the extent to which CMC is actually a useful device for L2 learning." (p.143). She reported that CMC facilitates comprehensible and contextualized interaction, learners' self-correction and a collaborative learning
environment. Earlier investigations by Richard Kern (1995) and Margaret Healy Beauvois (1998) into the influence of Local Area Network (LAN) discussion on language learners concluded that the environment is rich, supportive, offers more opportunities for student expression and decreases learner anxiety.

In order to understand why CMC accesses the "language learning process", it is important, at this point, to visit a few core tenets of SLA theory. Krashen's Monitor Theory (1982) is the best place to begin. Two component hypotheses from the Monitor Theory are relevant to the current research. The first is Krashen's *input hypothesis* (i + 1), which states that we acquire more language when we are exposed to "comprehensible input" that is just a little above our current level of linguistic functioning. The second is the *affective filter hypothesis*, which contends that language acquisition only happens when the learner is motivated, has a strong self-image and feels little anxiety in the learning environment. (pp. 9-32).

Comprehensible input, however, is not sufficient if fluency is the objective. Swain (1985) proposed that students must also be encouraged to produce "output". She contends that the greatest linguistic gains are made when students encounter "communication breakdown" and must therefore negotiate meaning to be understood.

Somewhere in between input and output, there must also be comprehension. Carol Chapelle (1998) summarizes the widely held view of "interactionist" SLA researchers in a simplified model of second language acquisition adapted from Gass (1997). The model is reproduced in Figure 3. It begins with input. The processes of apperception, comprehension, intake, and integration, lead to "output".

Figure 3
*Simplified "Interactionist" model of SLA, adapted from Chapelle (1997)*
The theory of *apperception* states that students must notice syntactic aspects of the language in order to produce accurate output. Comprehension of semantic meaning does not depend on an understanding of the syntactic structure of the language, but syntactic awareness alone is not enough to permit intake and integration of the message into the learner's linguistic system. Chapelle (p.3) explains that integration is "the processes for using or holding the intake in short term memory to influence the development of the linguistic system, which in turn affects the L2 Output that the learner produces."

Consistent with Swain's (1985) theory, Chapelle (1998) also states that Output contributes to linguistic development in two ways. First, producing linguistic output forces learners to synthesize and apply their knowledge. Using their "syntactic system" also develops it. Second, output elicits a response from interlocutors whose feedback often allows the L2 learner to notice problems with their initial output and correct it in order to be understood. (p.3). This give-and-take process, usually called "negotiation of meaning" (Long, 1996; Omaggio Hadley, 1993; Savignon, 1983) refines the learner's linguistic system and facilitates L2 learning.

Based on this summary of essential SLA theory, Chapelle (1998) makes seven recommendations for the relevant development of multimedia CALL (p.3). The following list summarizes the most important points of her hypotheses:

1. *The linguistic characteristics of the target language need to be made salient.* CALL activities must provide learners with opportunities to notice the language, its structure and meaning. The language must also be at a level that pushes learners to expand their linguistic system (i+ 1).

2. *Learners should receive help in comprehending semantic and syntactic aspects of linguistic input.* CALL activities must therefore support L2 learning with effective strategies like simplification of language, reinforcement of language in diverse contexts, and providing visual cues that highlight key meanings.

3. *Learners need to have opportunities to produce target language output.* Output, as stated above, requires learners to synthesize and apply their knowledge of the linguistic system. CALL environments should endeavour to provide an audience for L2 learners so that negotiation of meaning is relevant within a communicative context.
4. **Learners need to notice errors in their own output.** In doing so, they engage their grammatical system and in the future are apt to use language more accurately. A well designed CALL environment would facilitate reflection and monitoring of errors or allow for others to provide triggers.

5. **Learners need to correct their linguistic output.** Noticing is not enough. Learners must also correct their mistakes. Focus on form is beneficial, particularly when negotiating meaning. CALL multimedia must therefore allow for error correction.

6. **Learners need to engage in target language interaction whose structure can be modified for negotiation of meaning.** The suggestion here is that communication between interlocutors is necessary. The structure of the communicative device must also allow for revision of output.

7. **Learners should engage in L2 tasks designed to maximize opportunities for good interaction.** The best types of interaction are defined as two-way communication activities that require collective participation to achieve a set goal. Such activities force the cycle of input, apperception, comprehension, intake, integration and output. Achievement of the goal, particularly if it is relevant to the learner, adds value to the task as well.

2.2.3 **Synthesis: CMC at the Intersection of Motivation, Second Language Acquisition and Computer Assisted Language Learning Theories**

Combining Chapelle’s suggestions (1998) for relevant multi-media tools and Dörnyei’s suggestions for motivating second language learners creates a framework for the effective integration of technology into the FSL classroom. Based on theoretical connections, the research hypothesis of the current study proposes that CMC has the potential to be an effective and motivational tool for second language learning.

WebCT (1999), a well-known, web-based, communication interface was used to teach Grade 9 FSL students. Considering Chapelle’s (1998) seven hypotheses for relevant CALL activities, the WebCT bulletin board and e-mail functions rest on solid theoretical foundations. When students in the same class converse with one another in their second language on issues of social importance to them, the activity becomes a vessel for comprehensible input and output. Students converse with those working below, at
and beyond their level. In addition, messages from the teacher model accurate language usage, force interaction with advanced linguistic structures and may heighten focus on form when students compose a reply. Within the program, awesome potential exists for collaborative learning, for negotiation of meaning, for noticing linguistic features of the language as students decipher the messages of their peers and for correcting their own mistakes as they compose and re-iterate their own messages to clarify meaning. With the teacher, and a good dictionary present for "consultation", students' reading comprehension and writing is supported.

Further support of the study's hypothesis comes from the CALL literature. Ortega (1997) in her summary of "what we know so far" about computer mediated conversation (CMC) attests that "electronic synchronous communication increases learner productivity in terms of overall amount of language and/or ideas produced." (p.84). With specific reference to the theories of "noticing" and "negotiation of meaning", Matas and Birch (2000), in their study of web-based grammar development, reiterate Swain's Output Hypothesis (1998). They assert student production of output raises consciousness and requires students to notice the gap between what they can say and what they cannot say. This helps them to become aware of their degree of knowledge of the target language. (p.2.) Because CMC only works if students produce language, it provides L2 learners with a context for "noticing the gaps". In addition, Kitade (2000) concludes that CMC furnishes potential benefits for learning, facilitating comprehensible and contextualized interaction, learners' self-correction and a collaborative learning environment.

The model of CMC presented in this study was also designed to promote student motivation based on the theoretical models put forth by Dörnyei (1994a) and Tremblay and Gardner (1995). Previous work by Trenchs (1996) with learners of Spanish suggested that e-mail exchange between teachers and students gave insecure, novice L2 learners the freedom to apply personal writing styles and explore language in different ways, thus building their self-confidence (p.487.). She further states that CMC in the school brings learners closer to actual communicative contexts and is a useful tool in creating an autonomous environment where students have control over their writing. Given our understanding of motivational theory, we know that any language learning activity must promote learner autonomy (Deci & Ryan, 1985). Allowing students to determine what to write, how to write it and when to write it gives them
a feeling of control over their communication during CMC sessions. It empowers them to make choices. A sense of independence and self-direction is a key to getting teenage students "on side", regardless of the activity's goal. In CMC, students are less reliant on the teacher for their own language learning because they initiate their own conversations. In turn, their independence develops a cycle of internal attribution of success. Also, since CMC provides extensive opportunity for output (Kern, 1995), it builds confidence through practice.

Students in Grade 9 Core French often feel "less than enthusiastic" and it is common for teachers to meet with considerable resistance from students when they are required to write. As stated by Krashen (1982), Dörnyei (1994a), Tremblay and Gardner (1995) students must feel confident and comfortable in order to learn language. In addition to providing extensive, self-directed opportunity to write, CMC offers immediate feedback for the learner. Responses from other interlocutors in a CMC environment is validating because, at the very least, students know their message was understood. Being understood, even if the grammar is incorrect, builds confidence and approximates an "acquisition" environment for learners where communication is the goal.

CMC has also been found to promote positive attitudes in L2 learners (Beauvois, 1992, 1998; Bump, 1990; Kern, 1995; Warschauer & Kern, 2000). This may be due to its novelty as a mode of communication, but within the current context, the participants, at age 14, have never known a world without computers. For these students, part of the Net Generation (Tapscott, 1998), ICQ and MSN Messenger are relatively commonplace; part of their cultural fabric, so to speak. Web-based communication is not a new idea to these students. It is however, a mode of communication with which their generation identifies.

Finally, it is essential that the content and structure of the course respond to students' needs and interests, both academic and social, for it to motivate them. First, computer skills are an essential foundation of the Ontario Curriculum, and are therefore perceived as "relevant" by many students. Second, it is hypothesized that if students discuss topics of interest to them during their WebCT sessions, they will find it motivating because they learn the language they need in order to express their own ideas and respond to those of their peers.
2.3 The Communicative Approach to Language Teaching – A brief overview

Since the 1970s, the predominant perspective in language teaching and learning has been one that emphasizes the importance of communication in a relevant context. Unlike structuralist approaches to language teaching that emphasize focus on the syntactic form of the language, and manipulation of the language system, the communicative approach focuses on meaning, and how to teach learners to communicate in situations of relevance to them (Ellis, 1988; Johnson, 1982; Littlewood, 1981; Nunan, 1999). Omaggio Hadley (2001) summarizes the five major characteristics of the communicative language approach:

1. Meaning is of primary importance to communicative language teaching (CLT), and contextualization is a basic principle.

2. Attempts by learners to communicate with the language are encouraged from the beginning of instruction. The new language system will be learned best by struggling to communicate one's own meaning and by negotiation of meaning through interaction with others.

3. Sequencing of materials is determined by the content, function and/or meaning that will maintain students' interest.

4. Judicious use of the native language is acceptable where feasible, and translation may be used when students find it beneficial or necessary.

5. Activities and strategies for learning are varied according to learner preferences and needs.

6. Communicative competence, with an emphasis on fluency and acceptable language use, is the goal of instruction. Accuracy is judged not in the abstract, but in context. (pp.116-118).

As an approach, CLT is flexible enough in its mandate to respond to learners needs, and to develop language competence so that learners can communicate in a broad range of authentic situations in the target language.

2.4 Second Language Assessment

Just as language teaching methods have evolved to focus on communication in context, so too have the instruments best used to measure communicative competence. To assess the language performance of the participants in this study, the Grade 8 Core French Test, developed at the Modern
Language Centre of the Ontario Institute for Studies in Education (OISE) (Harley, Argue, Hart, Lapkin & Scane, 1990) was employed. The choice to use this test over other tests of language achievement was based both on the strength of its design (discussed below) and its applicability to the context of the study (discussed in section 3.5.2).

Current theory in language test design emphasizes the importance of authenticity and interactiveness as essential characteristics of useful language tests (Bachman & Palmer, 1996). Authenticity concerns the degree to which the language test evaluates language use in specific domains other than the test itself (Bachman & Palmer, p.23) The composition section of the Grade 8 Core French test, for example, asks students to write a paragraph expressing an opinion on school uniforms. This is an "authentic" activity because it engages a skill (formulating an opinion and expressing it in paragraph form) relevant in many contexts beyond the test itself. Further, the question is of authentic relevance to the target audience. Grade 8 students are interested in the idea of school uniforms and have definite opinions on the subject. Bachman & Palmer state, "One way in which test takers and test users tend to react to a language test is in terms of the perceived relevance of the test's topical content and the types of tasks required. It is this relevance, as perceived by the test taker, that we believe helps promote a positive affective response to the test task and can thus help test takers perform at their best." (p.24)

Interactiveness is also an important component of any useful language test. Bachman and Palmer (1996) define interactiveness as "the extent and type of involvement of the test taker's individual characteristics in accomplishing a test task." (p.25). Individual characteristics include the test taker's language ability and language knowledge, his/her knowledge about the topic, and his/her affective schemata, or emotional pre-conceptions. According to Bachman and Palmer, affective schemata form the basis for all assessment, conscious or unconscious. Because affective schemata determine the emotional response of a test-taker to a given language use activity, they are a major determinant of the test-taker's success with the activity (p.65).
One aspect of the speaking component of the Grade 8 Core French Test is a restaurant scenario. The test taker must order from a menu, using the appropriate register and etiquette. This activity is interactive, according to Bachman & Palmer's definition, because it engages the test-taker in a situation that requires knowledge of the language and of the topic (how to order from a menu in a restaurant). It is also a situation that engages the affective schemata of the test taker, since the student has surely eaten in a restaurant and developed a certain emotional understanding of what that feels like.

Test reliability and construct validity are two other essential considerations when selecting a language test.

Test reliability refers to the consistency of a test across a diverse range of testing situations. For the OISE test used in this study, its reliability is determined by the consistency of results for students learning French in grade 8 classrooms across Canada. If grade 8 students in Nova Scotia, Ontario and British Columbia were to score in vastly different ranges on the test, the difference in results could be due many things, including the design of the test. On a reliable test, poor performance should consistently equate with a poor score, irrespective of the context. Likewise, a strong performance should equate with a strong score.

The authors of the Grade 8 French test make an important point about the difficulties of creating an authentic, interactive language test that is statistically measurable. Communicative language activities are not necessarily independent, "discreet-point" activities that allow a "one right answer – one mark" evaluation scheme. The authors therefore decided to use statistics to determine reliability where possible, and used "inter-rater" reliability for many parts of the test to maintain the essential testing criteria of authenticity and interactiveness (Harley, Lapkin, Scane, Hart & Trépanier, 1988). Data in support of test reliability are given in section 3.5.2.

Construct validity refers to whether the test actually measures the variables it is intended to measure. In developing the Grade 8 Core French Test, the authors decided to create questions based on...
real-life situations involving students living in Quebec. The questions were designed to show what students “can do” at the Grade 8 Core French level. Consistent with “real-life” situations that often require interlocutors to use more than one language skill concurrently (reading, writing, listening, speaking) the various language tasks on the Grade 8 Core French test also integrate language strands. The authors state, “In real life language tasks, comprehension and production skills are often involved together. The four tests developed […] in this project are therefore not rigidly segregated into the four language skill areas […] although each test emphasizes one of these skills.” (Harley, Lapkin et al., 1988, p.3) The test’s validity is therefore based on questions designed to determine how well students can perform in language activities that emulate “real-life” scenarios.

much time and money is required to administer this test?). For this study, Practicality and Impact were not considered.
3 Research Design

3.1 Research Environment

This research was conducted from September 1999 to February 2000 at a medium-sized, semestered, secondary school in south-western Ontario. Approximately 650 students attend the school, which offers a comprehensive curriculum of mandatory and optional courses at both the Applied\textsuperscript{10} and Academic\textsuperscript{11} levels from Grade 9 to OAC\textsuperscript{12}. The school is located in a small town (population 8,000), although many students live in the outlying countryside on farms. Agriculture is so integral to life in the community that school starts one week late in the fall to accommodate the considerable number of students who, throughout August and September, work in the annual tobacco harvest.

In the fall of 1999-2000, the incoming class of grade nines totalled 151. Seven students with special needs were permitted to select an alternate course (based on recommendations in their Individual Education Plans), but the remaining 144 grade nine students enrolled in FSL at either the Applied or Academic level. The classroom where most instruction took place was on the third floor of the school at the top of a central staircase. It was large with desks arranged in four horizontal rows so that students sat adjacent to one another. This arrangement facilitated pair-share activities and dialogue between students. The room was brightly decorated with posters of francophone regions of the world, grammar rules, commonly-used expressions, vocabulary, reminders of appropriate behaviour and motivational sayings. French magazines and level-appropriate books were clearly displayed at the front of the room. Students

\textsuperscript{10} Applied Level – A stream of academic study in the Ontario Curriculum for Grades 9 and 10. Applied-level courses emphasize practical knowledge and lead to the "College" stream in Grades 11 and 12. In French, the Applied Level is considered a "core" stream, rather than an "immersion" stream. The "core" curriculum develops students' language skills through the investigation of themes, whereas the immersion stream further develops skills through the study of literature.

\textsuperscript{11} Academic Level – A stream of academic study in the Ontario Curriculum for Grades 9 and 10. Academic-level courses emphasize theoretical understanding of concepts and lead to the "University" stream in Grades 11 and 12. In French, the Academic Level is considered a "core" stream, rather than an "immersion" stream. The "core" curriculum develops students' language skills through the investigation of themes, whereas the immersion stream further develops skills through the study of literature.

\textsuperscript{12} OAC is the acronym for Ontario Academic Credit. Ontario students wishing to proceed to university must, in their fifth year of high school, complete six OACs to be considered for university admission. The key component of an OAC course is a summative "Independent Study Unit" that requires students to conduct independent research. The OAC requirement has been phased out by the new Ontario Secondary School Curriculum first introduced by the Ministry of Education and Training in 1999. The graduating class of 2002 will be the last class to complete the OAC requirement for university entrance.
had free access to any French resource materials in the room and during any spare moments were encouraged to read them or to sign them out to read overnight.

3.2 Description of Participants

All 41 participants were grade 9, academic-level students attending the aforementioned high school. Twenty-four girls and 17 boys participated in the study with the willing permission of their parents or guardians. All students were born in 1985. Throughout the study, the students ranged in age from 13 to 15 years since some students were born early in 1985, turned 15 soon after the New Year while others were born late, and started the semester aged 13. The average age of the students at the end of the study was 14.5 years. Culturally, the group was homogeneous. All students were of European heritage and spoke English as their first language. Most of the students had attended school in the community all their lives. This was the first year, and in fact the first semester, of secondary school for all participants. With the exception of one student, who attended a private academy where French was not offered as part of the curriculum in Grades 6, 7 and 8, all participants had previously engaged in at least 680 hours of second language instruction at the elementary level, the minimum pre-requisite for entrance into Grade 9 FSL.

Successful completion of Grade 9 FSL is a mandatory requirement for the Ontario Secondary School Diploma and as such, all students were enrolled in the course as a matter of obligation. All the participants in this study were in the Academic stream. They chose the Academic stream in accordance with their future goals, inherent ability, and based on recommendations by parents, their grade 8 teachers, guidance counsellors and special-education advisors.

3.3 Treatment and Comparison Groups

3.3.1 Summary of the Groups

Two simultaneous sections of Grade 9 FSL (Core French) were offered in the fall of 1999-2000 at the school. One section was designated the “comparison” group while the second section was designated the “treatment” group. Twenty-four students were enrolled in the comparison group and 18 students were enrolled in the treatment group. One boy enrolled in the treatment group chose not to participate in the study. The treatment group therefore had 17 participants.
Students in the comparison group communicated using traditional FSL classroom activities such as role-play, dialogue, verbal questioning, group projects, peer editing and peer evaluation. Participants in the treatment condition engaged in these learning activities as well. Three times per week for approximately 30 minutes each session however, this group also used WebCT, a commercial on-line course-shell and communication system, used widely by universities in the administration of on-line/correspondence courses, to chat with one another about course material and/or matters of social interest (see section 3.4.2 for an in-depth description of students' activity during WebCT time). Students in both classes completed the same projects, sat the same tests and exam, and were evaluated against identical standardized, ministry-mandated criteria. I taught both classes and made every effort to ensure equal interest and enthusiasm with both groups of students.

3.3.2 Timetabling

Assignment to treatment group and comparison group was constrained by variables in the school's timetable. Participants' timetables were routinely generated by the school's central computer, which uses Maplewood (2000) timetabling software to evenly distribute enrolment in each course section. Grade 9 students enrol in six mandatory core subjects and select two choices from five optional courses to complete their timetable of eight subjects. Optional courses include: Food and Nutrition, Instrumental Music, Visual Art, Design Technology and Business Studies. Gender distribution in core subjects is influenced by the nature of students' optional course selections in addition to the timetabling of both boys' and girls' physical education. Influenced by these parameters, the comparison class was comprised of 19 girls and 5 boys while 13 boys and 5 girls were enrolled in the treatment class. There was no feasible way to equalize the gender distribution of the two classes without disrupting the timetable of the entire school and/or the course selections of the participants. Neither of these options was suitable, so the study proceeded with the two groups as originally composed. The design therefore is considered quasi-experimental since subjects were not randomly assigned to the treatment or comparison group.

3.3.3 Designation of Comparison and Treatment Groups

Comparison and treatment conditions were designated on the basis of computer lab availability during the scheduled times of both classes. Since a computer lab was always available during period 4,
but not during period 3, the section scheduled during period 4, became the class that used the computers. The decision was purely logistical and students were informed as such. This announcement was made approximately five weeks into the semester, well after the "add/drop/change" deadline for courses at the school. No student was permitted to switch groups once the classes were designated "treatment" and "comparison".

Careful measure was taken to assure students that neither condition was considered "better" than the other. It was emphasized that the course focus and material would be identical in both groups and that the level of study, the projects, tests and expectations would be the same. Parents were also informed of the research objectives in a letter of consent (See Appendix A). While one class did use computers as an additional tool in their second language learning, it was stressed to all participants that the study aimed to determine if technology had an influence on students' motivation in French class. No claim was staked to suggest a definitive understanding of the technology or of its influence on grade 9 FSL students' attitudes, motivation, self-concept or performance.

3.4 The Course, Curriculum Expectations and Pedagogical Approaches

3.4.1 Background Perspectives

In the fall of 1999, educators across Ontario were readying themselves for the incipience of the new Ontario Secondary School Curriculum for Grade 9 (Ontario Ministry of Education, 1999). The integration of the new curriculum had started three years earlier in the elementary panel and will continue phasing out old courses until 2002-2003 at the secondary level. In comparison to the former Ontario Schools, Intermediate-Secondary (OSIS) curriculum (Ontario Ministry of Education, 1989) and the Common Curriculum (Ontario Ministry of Education, 1993), the new Ontario Secondary School Curriculum espouses higher standards and performance expectations, new approaches to assessment and reporting and common course objectives province-wide. Further, the new curriculum eliminates the fifth year of high school, formerly called the Ontario Academic Credit (OAC) year (see footnote 12 for a description of OAC). The new Ontario Curriculum for Grade 9 Core French (FSL) at the Academic Level does accelerate students' learning in comparison with the former document and expects students to apply
more advanced grammatical structures in more varied contexts. Figure 4, below, outlines the grammatical structures included in the new Grade 9 Core French course.

In 1999, only the grades 9 and 10 curricula were completed and available to teachers. No textbooks or other resource materials had been approved by the Ministry of Education to support the curriculum, but a Ministry-issued "Course Profile" was made available by October of 1999. Planning for the course therefore posed a great many more challenges than one might usually encounter. Initially, the department developed its own units of study based on the expectations stated in the curriculum document, but then incorporated units suggested by the Course Profile. Appendix B is the course outline for the two sections of grade 9 FSL. Assessment policies and evaluation criteria are articulated in addition to examination policies, late policies, rules of conduct and required materials. The Units of Study are listed at the top of the syllabus. Unit 1, "Moi et mon école" included activities that allowed students to get to know their new secondary school, its floor plan, its traditions, its staff and personnel. It introduced new vocabulary and reviewed the present tense of regular and irregular verbs. Unit 2 was "Je m'entends bien avec les autres", a study of relationships with parents, teachers and peers. Unit 3 entitled "Une vedette est née - créer un téléspectacle" focused on the media and its messages. The final unit was "Des sports et des loisirs: on en parle", which focused on sports and leisure activities. (Course Profile is available at http://www.edu.gov.on.ca/eng/document/curricul/secondary/exemplars/grade9/fsl/fsl.html).

Since the curriculum itself was new, I had to compensate for an extremely limited bank of current resource materials within the department. I taped at home, for example, television advertisements for use in the media unit and developed comprehension activities to maximize learning. I developed theme-related worksheets to reinforce grammar concepts within a context, devised evaluation rubrics, self and peer evaluation checklists and composed the final exam. (See Appendix C – Grammar Activity Sheet and Appendix D – FSF 1D Final Exam).
Figure 4

*Language Structures – Core French, Grade 9 Academic and Applied (Ontario Ministry of Education and Training, 1999)*

<table>
<thead>
<tr>
<th>Language Structure</th>
<th>Specific Expectations</th>
</tr>
</thead>
</table>
| Nouns and Pronouns | - substitute personal pronouns to replace nouns (e.g. Philippe marche. Il marche vite.)  
|                    | - direct and indirect object pronouns (le, la, les, lui, leur, y, en)  
|                    | - disjunctive pronouns (moi, toi, lui, elle, nous, vous, eux, elles)  
|                    | - relative pronouns (qui, que)  
|                    | - position of single object pronoun with simple or compound verbs in affirmative sentences (e.g. Je le vois. Je vais lui parler. Elle leur a téléphoné.)  
| Verbs              | - passé composé of irregular verbs  
|                    | - passé composé of verbs conjugated with être (e.g. rester, arriver, aller, venir) including agreement of the past participle (e.g. Elle est restée tard à l'école.)  
|                    | - present tense of reflexive verbs related to daily routines (e.g. se lever, s'habiller)  
|                    | - futur simple of -er, -ir, and -re verbs and irregular verbs  
|                    | - verbs followed by the prepositions à and de (e.g. essayer de, avoir besoin de, assister à, répondre à)  
| Adjectives         | - singular and plural, masculine and feminine forms of irregular adjectives (e.g. frais, gentil, gros, créatif, cher, sérieux)  
| Adverbs            | - comparative and superlative forms of bien  
| Conjunctions       | - et, mais, ou, donc  
| Interrogative Constructions | - questions words (e.g. qui, quand, où, comment, pourquoi, de qui, à qui) used with est-ce que (e.g. Quand est-ce que tu viens chez moi?) and with subject-verb inversion (e.g. Quand viens-tu chez moi?)  
| Negation           | - use of ne...pas with compound verbs (e.g. Je n'ai pas vu le film)  
|                    | - use of ne...pas with simple sentences that include an object pronoun (e.g. Je ne le vois pas.)

Each unit of study for both the comparison and treatment groups involved diverse sets of activities that required students to learn new vocabulary and grammatical structures and apply their knowledge in a final project that incorporated reading, writing and oral communication skills. As required by the Ontario Curriculum, students completed diagnostic and formative tasks that prepared them for the summative project in each unit. Some formative and all summative tasks assessed students' performance along the four categories of the Curriculum Achievement Chart for Grade 9 FSL: Knowledge and Understanding, Thinking and Inquiry, Communication, and Application. The complete Achievement Chart Rubric for Grade 9 French is provided in Figure 5.
Figure 5

Achievement Chart – Grades 9 and 10 French as a Second Language (Ontario Ministry of Education and Training, 1999)

<table>
<thead>
<tr>
<th>Category</th>
<th>50-59% Level 1</th>
<th>60-69% Level 2</th>
<th>70-79% Level 3</th>
<th>80-100% Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge &amp; Understanding</strong></td>
<td>- demonstrates limited knowledge of language forms and conventions</td>
<td>- demonstrates some knowledge of language forms and conventions</td>
<td>- demonstrates considerable knowledge of language forms and conventions</td>
<td>- demonstrates thorough knowledge of language forms and conventions</td>
</tr>
<tr>
<td>- knowledge of language forms and conventions</td>
<td>- demonstrates limited understanding of content</td>
<td>- demonstrates some understanding of content</td>
<td>- demonstrates considerable understanding of content</td>
<td>- demonstrates thorough understanding of content</td>
</tr>
<tr>
<td>- understanding of content</td>
<td>- uses critical and creative thinking skills with limited effectiveness</td>
<td>- uses critical and creative thinking skills with some effectiveness</td>
<td>- uses critical and creative thinking skills with considerable effectiveness</td>
<td>- uses critical and creative thinking skills with a high degree of effectiveness</td>
</tr>
<tr>
<td><strong>Thinking &amp; Inquiry</strong></td>
<td>- uses critical and creative thinking skills with limited effectiveness</td>
<td>- uses critical and creative thinking skills with some effectiveness</td>
<td>- uses critical and creative thinking skills with considerable effectiveness</td>
<td>- uses critical and creative thinking skills with a high degree of effectiveness</td>
</tr>
<tr>
<td>- critical and creative thinking skills</td>
<td>- applies few of the skills involved in the inquiry process</td>
<td>- applies some of the skills involved in the inquiry process</td>
<td>- applies most of the skills involved in the inquiry process</td>
<td>- applies all or almost all of the skills involved in the inquiry process</td>
</tr>
<tr>
<td>- inquiry skills (e.g. formulating questions, planning, selecting strategies and resources, analyzing, interpreting and assessing information, forming conclusions)</td>
<td><strong>Communication</strong></td>
<td><strong>Application</strong></td>
<td><strong>Application</strong></td>
<td><strong>Application</strong></td>
</tr>
<tr>
<td>- communication of information and ideas</td>
<td>- communicates information and ideas with limited clarity</td>
<td>- applies knowledge and skills in familiar contexts with limited effectiveness</td>
<td>- applies knowledge and skills in familiar contexts with considerable effectiveness</td>
<td>- applies knowledge and skills in familiar contexts with a high degree of effectiveness</td>
</tr>
<tr>
<td>- use of language</td>
<td>- uses language with limited accuracy and effectiveness</td>
<td>- demonstrates limited ability in using the language in new contexts</td>
<td>- demonstrates some ability in using the language in new contexts</td>
<td>- demonstrates a high degree of ability in using the language in new contexts</td>
</tr>
<tr>
<td>- communication for different audiences and purposes using various forms</td>
<td>- communicates with a limited sense of audience and purpose, using few appropriate forms</td>
<td>- makes connections with limited effectiveness</td>
<td>- makes connections with some effectiveness</td>
<td>- makes connections with considerable effectiveness</td>
</tr>
<tr>
<td><strong>Application</strong></td>
<td>- applies knowledge and skills in familiar contexts with limited effectiveness</td>
<td>- applies knowledge and skills in familiar contexts with some effectiveness</td>
<td>- applies knowledge and skills in familiar contexts with considerable effectiveness</td>
<td>- applies knowledge and skills in familiar contexts with a high degree of effectiveness</td>
</tr>
<tr>
<td>- application of knowledge and skills in familiar contexts</td>
<td>- demonstrates limited ability in using the language in new contexts</td>
<td>- demonstrates some ability in using the language in new contexts</td>
<td>- demonstrates considerable ability in using the language in new contexts</td>
<td>- demonstrates a high degree of ability in using the language in new contexts</td>
</tr>
<tr>
<td>- making connections between FSL and the world, personal experiences, other subjects</td>
<td>- makes connections with limited effectiveness</td>
<td>- makes connections with some effectiveness</td>
<td>- makes connections with considerable effectiveness</td>
<td>- makes connections with a high degree of effectiveness</td>
</tr>
</tbody>
</table>

In accordance with the Ministry expectations across the three language strands: oral communication, reading and writing, students in both the comparison and treatment groups performed the following specific tasks:
Oral Communication:

- responded to spoken texts and media works by recounting key information and explaining some supporting details
- listened to the ideas and opinions of others and agreed or disagreed with basic justification for their points of view
- responded to classmates' presentations by asking questions for clarification and by providing feedback
- presented data collected from a questionnaire to the class
- used complete sentences in short, sustained conversations
- interpreted meaning through dramatization
- presented short dialogues on a variety of subjects
- used newly acquired vocabulary in conversation
- used appropriate verbs to express thoughts and feelings
- inferred the meaning of unfamiliar words (usually spoken by the teacher during instructions) from verbal and non-verbal cues

Reading:

- read and demonstrated an understanding of a variety of simple texts including brochures, newspaper articles, magazine articles, short stories and websites
- responded to simple texts by answering comprehension question, creating comprehension questions for friends, summarizing the text in a paragraph and illustrating the main ideas of the text
- used reading strategies (e.g., knowledge of cognates, word families, root words and English vocabulary) to devise the meaning of unfamiliar vocabulary and expressions
- demonstrated basic French-English dictionary skills
- read aloud with expression, changing intonation to reflect declarative, interrogative and exclamatory sentences
- observed the rules of pronunciation (e.g., liaisons, silent letters, correct accents) as they read aloud

Writing:

- wrote a descriptive paragraph including an introductory sentence, development of main ideas and a conclusion.
- exchanged information by writing a letter, and/or an e-mail.
- recorded personal thoughts and observations in a journal.
- wrote their own dialogues based on a theme.
- wrote a questionnaire and compiled the results for reporting.
- wrote stories responding to ideas presented in visual stimuli - including photographs and videos.
- wrote short, dictated passages using correct spelling and punctuation.
- revised, edited and proofread their written work focusing on grammar, spelling, punctuation and some conventions of style.
- incorporated newly acquired vocabulary into their written work.

3.4.2 Differences in curriculum and pedagogy between the Comparison and Treatment Groups

Both classes completed the first unit of study entitled "Moi et mon école". The approach taken in both classes was identical for this first unit of study. The lesson taught in period three was simply
repeated in period four. During the first unit, neither class was aware that there would be a research project conducted during the semester.

Once decided that the period 4 class would use the computers, the specifics of the lessons often deviated between the two classes, though the main objectives and evaluation criteria for each unit remained the same. In order to use the computers effectively, the treatment group was given a mini-unit on computer vocabulary *en français* and appropriate use of the computer systems. Initially, students were given two full class periods to explore and play with WebCT with limited teacher interference. They were keen to explore on their own and so the teacher simply responded to their questions and allowed them to teach one another what they discovered. Students had to learn words like *afficher, répondre, composer, courrier électronique, babillard électronique* to navigate through the French interface. In addition, it was expected that students would use words like *cliquer, souris, monter, descendre, explore, chercher, retourner en arrière, and taper* to discuss their experiences, understand instructions and give directions to others. Through a series of trial and error, every student in the class eventually mastered the basic functions of the program.

For the remainder of the semester (October until February) the students in the treatment group used WebCT every Monday, Wednesday and Friday for approximately one half hour each session. Certainly, some sessions were slightly longer or slightly shorter than thirty minutes, but the aim was to provide 1.5 hours per week of computer time out of 6.5 hours of class time each week.

Students were expected to use French as their main language of conversation during WebCT time. All messages on the bulletin board were to be in French. It was also expected that private mail messages be composed in French.

During students' computer time, they engaged in the following types of activities:

- discussion of issues of social importance to them (i.e. weekend plans, dating, friendship concerns, sports, attitudes and opinions)
- journal entries on a topic designated by the teacher
- responding to questions asked by the teacher and related to the unit theme
- responding to questions asked by the teacher of a more relaxed and personal nature
- asking questions of their classmates about issues related to the unit theme
- applying new grammar learned in class to their writing on-line
- exploring and analyzing the credibility and usefulness of web sites related to the unit theme
- posting up personal reflections and opinions on the course
• completing activities on-line that students in the comparison class completed on paper or through direct discourse

Students in the treatment group also used the website that I created for the course. It served as a resource centre for the exploration of educational and cultural websites. Students were encouraged to read site links freely when they needed a diversion from the on-line discussions. Sometimes, students were asked to log onto a specific site, read it, answer questions about it and evaluate it on its readability for students at their level, its graphic appeal and the appeal of its content to Grade 9 students. One student evaluated http://www.tps.fr/007/. He posted the following message: "Mon URL favori c'est www.tps.fr/007/. C'est très interessant. La site pour James Bond. [Evaluation] Informations interessantes pour les jeunes: 4/4 ; Langue – facile à comprendre: 3 /4 ; Composition Graphique: 4/4."

In an attempt to improve the course website, I asked students in the treatment group to find and evaluate websites that focused on media, on sports and on celebrities. In response to the challenge, students found dozens of French-language sites to add to our school website. One student composed the following message:

"mon site pour un vedette c'est www.canadiens.com/francais/joueurs/, après vous arrivez dans la site, cliquer dans la titre JOUEURS, après cliquer a un joueur Saku Koivu. Saku est la capitaine pour les Canadiens de Montreal. Il est 5'10" et 183 lbs. Il naissance a Turku, Finalnde a 23/11/74. C'est il a 4e saison dans la LNH et pour les Canadiens. Il participe a les olympiques a Nagano dans 1998. Il joue a Finalnde, ils gangents un medal de bronze." (precise transcription of original message). [Translation: My site for a celebrity is www... after you arrive in the site, click on PLAYERS, after click on one player, Saku Koivu. Saku is the captain for the Montreal Canadians. II is 5'10" and weighs 183 pounds. He was born in Turku, Finland on 23/11/74. This is his 4th season in the NHL and for the Canadians. He participated in the Olympics in Nagano in 1998. He played for Finland. They won a bronze medal.]

The comparison class tended to be ahead of the treatment group in terms of program delivery. Because of the 1.5 hours spent in the computer lab, the treatment class would often complete assignments two days after the comparison group. While the treatment group communicated online, the comparison group brainstormed ideas in class, participated in group work, developed their own evaluation rubrics and participated in face-to-face dialogues, always however, focused on the same content as the treatment group. The treatment group also participated in such activities, but not on the same time scale as the comparison group. Criteria of evaluation remained identical for the two groups. Many activities
were developed to work both in the classroom setting and using the computers. The following excerpts were taken directly from my journal:

**Comparison Group - November 2, 1999**

I introduced an oral activity where students had to ask one another questions (that I first generated using est-ce que) using inversion. Once they finished asking one another the questions, they were to write down three facts about their partner onto the bottom portion of the page and submit it into an envelope. Once all of the info was placed into the envelope, students drew out the slips of paper and read them aloud. The group then had to guess the identity of the person being described. The students really seemed to like this activity - it was socially relevant to them - a lot of students seemed to know who would have spoken with whom on the phone, or who would have played a certain sport. This made it easy for them and also fun to guess.

**Treatment Group - November 2, 1999**

Instead of doing the question activity in class with this group, we did it on-line. Each student had to ask at least five questions in the passé composé, using inversion, and respond to at least five.

**December 3, 1999**

I adapted a reading assignment for on-line interaction as well. The students in the CG (Comparison group) read a story on Céline Dion and composed three comprehension questions. They then asked a friend to answer their questions orally. I quizzed them by having them perform one question/answer for me...reading comprehension/oral evaluation.

The TG (Treatment group) read the same story today and composed three questions to post on-line. They then had to answer the questions posed by another student on-line too. I'll evaluate their questions and answers and give them a reading comprehension mark. The TG kids also completed the site analysis activity - they found French sites related to this unit and gave them ratings on a list of criteria - language level, graphics, content of interest. They stated the best thing about the site and rated it out of 4.

The activities described above allowed students to interact with the same material but in different ways. The students in the comparison group used their oral communication skills more frequently than those in the treatment group, but conversations did occur in the lab - they were typed and then read.

### 3.5 Measures

**3.5.1 Attitude-Motivation Test Battery (Gardner & Smythe, 1974)**

The Attitude-Motivation Test Battery was developed to quantify the qualitative variables that influence students' learning of a second language i.e. attitudes about learning a second language, interest in foreign languages, attitudes about the French course and French teacher, reasons for learning French, and parental encouragement. The test was developed on the foundations of twenty years of research in Canadian schools with English-speaking high-school students learning French as a second
language. In total, 914 grade 7 students participated in his research, along with 1014 Grade 8 students, 1153 Grade 9 students, 1098 Grade 10 students and 1010 Grade 11 students. The AMTB is a good fit for this study since the demographic of its participants is very close to the demographic of the participants in Gardner's foundational work. It was reasonably certain that the items assessed on Gardner's test were appropriate in this context.

Using a Likert (1932) seven-alternative response format, the first part of the Attitude Motivation Test Battery measures students' feelings on eight subscales: *Attitudes toward French Canadians (ATFC), Interest in Foreign Languages (IFL), Attitudes toward European French People (ATEF), Attitudes toward Learning French (ATLF), Integrative Orientation (INTEG), Instrumental Orientation (INST), French Class Anxiety (FCANX) and Parental Encouragement (PARENC).*

The second part of the Attitude-Motivation Test Battery measures *Motivational Intensity (MOTINT), Desire to Learn French (DLF) and Orientation Index (OI)* using multiple-choice questions. Students circle the answer that best describes their own feelings.

The third section of the Attitude-Motivation Test Battery includes another eight subtests that determine students' feelings on two broad concepts, *My French Teacher* and *My French Course.* The questions use a semantic differentiation (Osgood, Suci & Tannenbaum, 1957) format whereby students put an "X" on a scale relative to how closely they feel their teacher or their course epitomizes a given quality (e.g. sincere/insincere, useless/useful).

The final four measures are composite indices. *Integrativeness (I), Motivation (M), Attitudes toward the Learning Situation (ATLS) and French Course Interest (FCI)* are measures which combine results from other subscales of the Test Battery to formulate a more global understanding of the underlying motivators of each participant.

Appendix E, adapted from the Attitude/Motivation Test Battery Technical Report (Gardner, 1985b), outlines the subscales of the test, how they are scored, what each score represents, and the scoring code used in this study. In addition, this appendix lists the Cronbach coefficient alpha for each scale of the AMTB. The Cronbach coefficient alpha measures the reliability of each scale.

3.5.2 Grade 8 Core French Test Package (B. Harley, V. Argue, D. Hart, S. Lapkin and J. Scane, 1990)
This study used the *Grade 8 Core French Test Package* to evaluate students' language performance both at the beginning and at the end of the course. The package was designed as an instrument to test students' linguistic knowledge and skills after approximately 600 to 800 hours of FSL instruction. Since the pre-requisite for entrance into Grade 9 FSL in Ontario is 680 hours of instruction, the test was still appropriate for the participants in this study, even though it was conceptualized as a test for Grade 8 students. Table 1 shows the range of percentiles for each of the components of the test. Table 4 (section 4.1), which shows the mean scores for the participants in this study, confirms that the achievement of the participants on both the pre-test and post test was not beyond the scope of this assessment measure.

Developed by the OISE Modern Language Centre for Core French program evaluation at grade 8, the tests in the package measure listening, speaking, reading and writing skills in communicative situations. All tests, except the speaking test, are group administered. A scoring manual provides detailed scoring information. Baseline data for the listening, reading and writing tests were obtained from approximately 480 students in 19 grade 8 classes across six Canadian provinces; the speaking test was administered to 112 students selected from 14 of these classes.

As discussed in section 2.4, the Grade 8 Core French Test is "useful" (Bachman & Palmer, 1996) because it effectively integrates the criteria of authenticity, integrativeness, reliability and validity. Evidence of reliability is discussed after the description of each sub-test.
Table 1

OISE Grade 8 Core French Test Average Scores and Percentile Correlates

<table>
<thead>
<tr>
<th>Test</th>
<th>Max Score</th>
<th>Class Average Score</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test de comprehension auditive</td>
<td>15</td>
<td>6.3</td>
<td>10</td>
</tr>
<tr>
<td>(Listening Comprehension Test)</td>
<td></td>
<td>7.7</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8.2</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8.9</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11.0</td>
<td>90</td>
</tr>
<tr>
<td>Test de lecture</td>
<td>20</td>
<td>8.5</td>
<td>10</td>
</tr>
<tr>
<td>(Reading Comprehension Test)</td>
<td></td>
<td>9.3</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11.1</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11.9</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.3</td>
<td>90</td>
</tr>
<tr>
<td>Dictée et composition</td>
<td>10</td>
<td>5.5</td>
<td>10</td>
</tr>
<tr>
<td>(Writing Test)</td>
<td></td>
<td>7.0</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.3</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.5</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8.2</td>
<td>90</td>
</tr>
<tr>
<td>Test Oral - Image</td>
<td>30</td>
<td>14.6</td>
<td>10</td>
</tr>
<tr>
<td>(Speaking Test – Image activity)</td>
<td></td>
<td>19.0</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19.7</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20.6</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26.7</td>
<td>90</td>
</tr>
<tr>
<td>Test Oral – La carte</td>
<td>9</td>
<td>3.6</td>
<td>10</td>
</tr>
<tr>
<td>(Speaking Test – Menu activity)</td>
<td></td>
<td>4.5</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.8</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.0</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.0</td>
<td>90</td>
</tr>
</tbody>
</table>

3.5.2.1 Test de compréhension auditive

The listening comprehension test requires students to answer multiple-choice questions. The questions are based on an authentic tape-recorded interview with two Montreal students who talk about their interests, their schools and their daily routines.

The authors state that the level of reliability for this test is acceptable for program analysis purposes, as determined by Cronbach’s alpha (0.62) and the Guttman split-half (0.62). (Harley, Lapkin et al., 1988, p.12). Student reactions to the test were mixed. Half the students who participated in the developmental research for this test found the test too hard, but 45.4% found the test to be “just about right”. The researchers also note that there may have been some confusion on the students' part in differentiating the test de lecture with the test de compréhension auditive. Nineteen teachers commented on the listening test. Several commented that the accent and some of the vocabulary were unfamiliar to
their students. Others indicated that their students were able to determine the essential information and respond to the questions. From the test scores, the researchers concluded that most students were able to answer the questions quite well. (Harley, Lapkin, Scane, Hart & Trépanier, 1988, p.13)

3.5.2.2 Test de lecture

The reading comprehension test is based on three reading selections. Section A requires students to match written commands with pictorial signs. Section B requires students to read post cards written by students on a bicycle trip and answer multiple-choice questions. Section C is a sports interview between a grade 8 girl and a 13-year old boy. Students also answer multiple-choice items after having read this passage.

Students generally perceived this test to be at the right level. Approximately 68% of the students found the test de lecture to be of an appropriate length and 58.2% felt the test was of an appropriate level of difficulty. One third of students found it too difficult and 8.4% found it too easy. Eighteen teachers commented on the test. Generally, they agreed that the test was appropriate in length. Most also agreed that students were able to get the "gist" of the texts. (Harley, Lapkin et al, 1988, p.14)

3.5.2.3 Dictée et composition

The first part of the writing test is a cloze dictation exercise, scored on general comprehension as well as spelling of each word. Students listen to a tape-recorded description about cycling in Montreal, then fill in the blanks of their test booklets as portions of the passage are repeated. The second part of the test requires students to write two compositions - an advertisement for a magazine and an opinion piece based on the pros and cons of wearing school uniforms. Assessment is based on the ability to carry out the requirements of the task with a majority of words in comprehensible French.

About half the students who helped in the research for this test found the test to be at an appropriate level of difficulty. Forty percent found it too difficult and approximately 8.6% found it too easy. Teachers found that there was plenty of time for the test and that the difficulty level was appropriate. (Harley, Lapkin et al, 1988, p.15).
3.5.2.4 Test oral

The first part of the test oral requires students to describe two pictures in comprehensible French to a friend who then must draw what has been described. Scoring is based on the participant's ability to convey key information necessary for a native French speaker to complete the exercise. What the friend actually draws has no bearing on the participant's performance. The second part involves a restaurant role-play task, which is scored for sociolinguistic elements as well as pronunciation of selected phonemes.

As recommended by the administration manual, a French teacher at the high school who did not teach any of the participants administered the pre-test of the test oral. I administered the post-test of the test oral after the participants completed their interviews and before their oral examination for the course. Logistically, this was the only way the post-tests could be administered.

Eight students from each group were randomly selected to participate in the test oral, as recommended by the administration manual. Students were tested individually on the test oral. Participants were accompanied by a friend who helped them to complete the test.

About 60% of the students who participated in the test found it to be of an appropriate level, 26.3% found it too difficult and 13.8% considered it too easy. (Harley, Lapkin et al, 1988, p.16)

3.5.3 Attitude, Motivation, Self-Concept and Computer Technology: Study-specific Questionnaire (Schira, 1999)

I designed this questionnaire to fill in the gaps left by the Attitude-Motivation Test Battery with respect to self-concept and students' perceptions of their abilities in French. It determines students' language-learning histories and asks students to express how they feel about using computer technology both in general and in French class as a language-learning tool.

The test has three parts. Part I includes 15 fill-in-the-blank and point-form-answer questions that focus on students' travel experiences, students' intentions to study French in the future, students' exposure to native French speakers and students' reasons for studying French. Part II is a self-
assessment of students' ability in French and of students' feelings about French class. Part III focuses on students' attitudes about computers and students' past experiences with computers.

Part II is the most relevant to the questions of this research. It asks students to predict their level of achievement in French class, to describe how they feel in French class and to complete thirty Likert-type questions (Likert, 1932) that assess students' feelings on the following five variables:

- Self-concept/Attitude
- Self-concept/Performance
- Attitude
- Motivation
- Causal Attribution.

The first variable, Self-Concept/Attitude, comprises two positively worded and three negatively worded items that evaluate how confident students feel in French class overall. The maximum score on this variable is 35. Negatively worded questions were coded and tallied with inverse values. A high score indicates a strong self-concept and positive sense of self when in French class. Negatively worded questions are indicated by the (−) symbol and positively worded questions are indicated with the (+) symbol.

Questions include:

- I feel confident about my ability to do well in French class. (+)
- I feel good about myself when I'm in French class. (+)
- I feel anxious and stressed out when I am in French class. (−)
- I feel shy in French class. (−)
- I feel nervous when I have to speak in French class. (−)

The second variable, Self-Concept/Performance (Performance Expectancy) includes seventeen statements that assess students' perceptions of their overall ability to do well, and their own predictions of success in French class. The maximum score on this variable is 119. A high score indicates that the participant feels he/she is a strong French student, capable of doing well and achieving his/her language-learning goals. With the exception of one question, all questions related to this variable were positively worded. The negatively worded item was tallied with an inverse value.

Questions that measure Self-Concept/Performance include:
• I usually know the answers to questions in French class. (+)
• I think I have a good French accent. (+)
• I am good at speaking French. (+)
• I am good at writing French. (+)
• I am good at understanding spoken French. (+)
• I am good at understanding what I read in French. (+)
• I am good at editing and revising my own work in French. (+)
• I am good at editing and revising other peoples' French work. (+)
• I have a strong French vocabulary. (+)
• I am good at sounding out words that I don't know in French. (+)
• I am good at figuring out the meaning of words that I don't know in French using clues from the rest of the paragraph and sentence. (+)
• I am good at using the correct verb tense and verb endings when I write in French. (+)
• I can express my thoughts and ideas easily in French. (+)
• I think I will succeed in French this year. (+)
• I think the work in this class is at my ability level. (+)
• I think the work in this class is below my ability level. (+)
• I think the work in this class is above my ability level. (-)

The third variable is Attitude. It comprises two positively worded questions as a measure of how students feel about French class in general. The maximum score for this factor is 14. A high score indicates a positive attitude about French class.

Questions include:
• I enjoy French class. (+)
• French class is my favourite class. (+)

The fourth variable measured by this questionnaire is Motivation. One negatively-worded (-) and three positively-worded (+) questions measure students' desire to learn French as a second language. The maximum score on this item is 28. A high score indicates a high level of desire to learn French and succeed in French class. Again, the negatively worded item is tallied with an inverse value.

Questions include:
• I need encouragement and reminders to speak French in the classroom. (-)
• I often volunteer answers in French class. (+)
• I wish the teacher would ask me more questions. (+)
• I want to do well in French class. (+)

The fifth and final variable, Causal Attribution, measures students' sense of control over their success. If students attribute their success to their own efforts and feel they can control how well they do,
they will have a high score on this item. This variable is comprised of two positively worded questions. The maximum score is 14.

Questions include:

- I expect that if I apply myself and work to my own potential, I will be able to achieve my goal in French class. (+)
- I feel like I have control over my own success in French class. (+)

3.5.4 Student Interviews

At the end of the term, all students involved in the project agreed to participate in an interview with me that focused on three issues: their feelings and opinions about the French class, how motivated they felt during the course and what they learned during the course. Students came to the interview with a partner and the interviews were taped and later transcribed for analysis. Students in both the comparison and treatment groups were asked the following set of questions:

i. Do you feel like your French improved after having taken this class? If yes, in what way? Which skills improved most? Speaking, listening, reading comprehension, writing?

ii. What did you like most about your French class?

iii. What did you like least about your French class?

iv. Did your attitudes about French as a subject, French as a language, French culture change as a result of having taken this course? If not, why? If so, why?

v. Think back on the year. How motivated did you feel to do your best in French class overall? What motivated you? If you weren't motivated, please explain why.

vi. Compare your level of confidence in speaking and using French between the start of the year and now. Do you see any differences?

vii. Are you planning on taking French class in Grade 10? If so, why? If not, why not? Would you have responded the same way in September?

Only students in the treatment group were asked the following list of questions:

i. How did using computers in French class influence you?

ii. (after they've explained their feelings, and if they don't touch on these issues, I'll ask the following specific questions)

iii. Did using computers motivate you?

iv. Did using computers help you learn?

v. Did using computers boost your confidence?

vi. Did using computers change your attitude about French?
3.5.5  Teacher Researcher – Journal

Throughout the course of the study, I kept a journal to document the daily classroom routine, to record perceptions and reflections on the project, and to report on specific differences and similarities between the comparison and treatment groups. The journal is a key source of qualitative data. I have used my journal to analyse my bias, and to analyse the four main variables of the study - attitudes, motivation, self-concept and performance.

3.5.6  Student Report Cards

The final mark for each student who participated in this study in Grade 9 French was recorded from their report cards. These final averages were used as an additional measure of performance for comparison between the two groups.

3.6  Summary of Research Design

Figure 6, below, summarizes the quasi-experimental design, the instruments of data collection and the timing of the research.

Figure 6

Summary of research design and instruments of data collection

<table>
<thead>
<tr>
<th>Group</th>
<th>Instruments of Data Collection</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Group</td>
<td>-Gardner's Attitude Motivation Test battery -OISE Grade 8 Core French Test (4 parts) -Schira Hagerman's Attitude, Motivation, Self-Concept Questionnaire -Final Student Report Cards -Interviews</td>
<td>October 12-18, 1999 (pre-tests): -AMTB -Core French Test (all 4 parts), -Questionnaire</td>
</tr>
<tr>
<td>(1.5 hours of computer-mediated communication per week, Internet searching and computer-based activities)</td>
<td></td>
<td>February 2000 (post-tests): -AMTB -Core French Test -Questionnaire -Interviews -Final Report Cards</td>
</tr>
<tr>
<td>Comparison Group</td>
<td>(Traditional curriculum)</td>
<td></td>
</tr>
</tbody>
</table>
3.7 Summary of Measures and Research Questions

Figure 7 outlines all quantitative and qualitative measures as they relate to the four research questions of this study. The type of data analysis performed for each measure is also stated.

3.7.1 ANCOVA

Quantitative results were analysed using Analysis of Covariance (ANCOVA). Since the groups were different at the start, a covariate was used in the analysis to equate the two groups statistically, to reduce the initial difference between the groups. However, it is important to note that this study is a quasi-experiment. This means that the subjects have not been randomly assigned to treatment but were taken as they occurred "naturally". The ANCOVA analysis does not give the results the same degree of credibility that would be provided by a randomized experiment, but it reduces bias by equating the groups on general academic level (Glass & Hopkins, 1984, p. 492). For comparing each variable, the pre-test value was selected as covariate, although no covariate could completely equate two groups in a quasi-experimental study.

This statistical analysis compares the means of the two groups on each measure and tests the equality between the means of each group at post-test after the groups have been adjusted for differences at pre-test. The value of alpha is set at 0.05. A \( p \) value < 0.05 therefore indicates a statistically significant difference between the two means.
<table>
<thead>
<tr>
<th>Research Question</th>
<th>Question 1: Does the use of computer-mediated communication (CMC) motivate grade 9 core French students at the Academic level to learn French more than traditional communicative activities?</th>
</tr>
</thead>
</table>
| Quantitative Measures & Method of Data Analysis | Attitude Motivation Test Battery (AMTB)  
Specific Scales:  
- Motivational Intensity (MOTINT)  
- Desire to Learn French (DLF)  
- Motivation (M)  
- Attitude-Motivation Index (AMI)  
Schira Questionnaire  
Specific Scale:  
- Motivation | ANCOVA  
ANCOVA  
ANCOVA  
ANCOVA |
| Qualitative Measure & Analysis | Student Interviews  
Teacher-Researcher Journal | Transcription of interview responses, compilation of responses for both treatment and comparison groups, analysis of themes for each group  
Search for observations or comments that pertain to the question, compile them and evaluate relevance and validity |
| Research Question | Question 2: When compared to students following a traditional communicative course of study, does the use of computers for language learning have a significantly different influence on students' attitudes about French as a language and subject of study? |
| Quantitative Measures & Method of Data Analysis | Attitude Motivation Test Battery  
Specific Scales:  
- Attitude Motivation Index (AMI)  
- Integrativeness (I)  
- Attitude Toward the Learning Situation (TLS)  
- French Teacher Inspiration (FTINS)  
Schira Questionnaire  
Specific Scale:  
- Attitude | ANCOVA  
ANCOVA  
ANCOVA  
ANCOVA  
ANCOVA |
| Qualitative Measure & Analysis | Student Interviews | Transcription of interview responses, compilation of responses for both treatment and comparison groups, analysis of themes for each group |
Figure 7 (continued)

Summary of Research Questions, Quantitative and Qualitative Measures and Data Analysis

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Question 3: Relative to students following a traditional communicative syllabus, how confident do students feel about themselves and their ability to succeed when the learning environment includes computer-mediated communication?</th>
</tr>
</thead>
</table>
| Quantitative      | **Attitude/Motivation Test Battery**  
| Measures &        | - Specific Scale:  
| Method of Data    | - French Class Anxiety (FCANX)  
| Analysis          | **Schira Questionnaire**  
|                   | - Specific Scales:  
|                   |   - Self-Concept/Attitude (SCA)  
|                   |   - Self-Concept/Performance (SCP)  
|                   |   - Causal Attribution (CA)  
|                   | ANCOVA  
|                   | ANCOVA  
|                   | ANCOVA  
|                   | ANCOVA  
| Qualitative       | **Student Interviews**  
| Measure &         | - Transcription of interview responses; compilation of responses for both treatment and comparison groups, analysis of themes for each group  
| Analysis          | - Search for observations or comments that pertain to the question, compile them and evaluate relevance and validity  
|                   | **Teacher-Researcher Journal**  
|                   | |
| Research Question | Question 4: How does computer-mediated communication impact students' academic performance in comparison to students following a traditional communicative course of study? |
| Quantitative      | **Grade 8 Core French Test**  
| Measures &        | - Specific Parts:  
| Method of Data    |   - Test de comprehension auditive (ECOUTE)  
| Analysis          |   - Test de lecture (LECT)  
|                   |   - Dictée et composition (DICTEE & COMP)  
|                   |   - Test oral (ORAL)  
|                   | ANCOVA  
|                   | ANCOVA  
|                   | ANCOVA  
|                   | ANCOVA  
|                   | Independent samples t-test  
| Qualitative       | **Student Interviews**  
| Measure &         | - Transcription of interview responses, compilation of responses for both treatment and comparison groups, analysis of themes for each group  
| Analysis          | |


4 Results

For each of the four research questions considered in this study, relevant quantitative and qualitative data are reviewed.

4.1 Descriptive Statistics

Descriptive statistics for each quantitative measure used in this study are outlined in the following three tables. Table 2 presents the means (M) and standard deviations (SD) for eight scales of the Attitude Motivation Test Battery. The scales presented in this table are those that specifically respond to the four research questions of this study. Table 3 presents the means (M) and standard deviations (SD) for five variables from the Schira Questionnaire. Again, these variables respond to specific research questions. Table 4 presents the means (M) and standard deviations (SD) for the performance scores collected on the OISE Grade 8 Core French Test. Table 5 presents the mean, median, maximum, minimum and standard deviation of the final report card grades for the two groups.
Table 2

*Pre-test and Post-test descriptive statistics for eight variables of Gardner's Attitude Motivation Test Battery (AMTB)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pretest</th>
<th></th>
<th></th>
<th>Posttest</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pretest Group</td>
<td>Pretest Group</td>
<td>Posttest Group</td>
<td>Posttest Group</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>MOTINT</td>
<td>21.26</td>
<td>4.66</td>
<td>21.31</td>
<td>4.00</td>
<td>21.79</td>
</tr>
<tr>
<td>DLF</td>
<td>20.04</td>
<td>4.07</td>
<td>19.13</td>
<td>4.96</td>
<td>19.50</td>
</tr>
<tr>
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<td>21.63</td>
<td>84.06</td>
<td>27.38</td>
<td>92.04</td>
</tr>
<tr>
<td>AMI</td>
<td>316.35</td>
<td>55.43</td>
<td>304.81</td>
<td>66.30</td>
<td>364.46</td>
</tr>
<tr>
<td>INTEG</td>
<td>159.17</td>
<td>27.33</td>
<td>151.38</td>
<td>31.32</td>
<td>160.50</td>
</tr>
<tr>
<td>ATLS</td>
<td>65.91</td>
<td>8.54</td>
<td>67.50</td>
<td>8.19</td>
<td>110.79</td>
</tr>
<tr>
<td>FTINS</td>
<td>28.39</td>
<td>3.89</td>
<td>28.81</td>
<td>4.79</td>
<td>27.67</td>
</tr>
<tr>
<td>FCANX</td>
<td>17.87</td>
<td>7.26</td>
<td>15.00</td>
<td>6.93</td>
<td>18.00</td>
</tr>
</tbody>
</table>

Comparison Group: n=23 (pre-test) n=24 (post-test)
Treatment Group: n=16

Codes: Motivational Intensity (MOTINT) Desire to Learn French (DLF) Motivation (M), Attitude-Motivation Index (AMI), Integrativeness (I), Attitude toward the learning situation (ATLS), French Teacher Inspiration (FTINS), French class anxiety (FCANX)

Note: Max Scores for scales from the Attitude Motivation Test Battery are presented in Appendix E.

Table 3

*Pre-test and post-test descriptive statistics for relevant measures from the Schira Questionnaire*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pretest</th>
<th></th>
<th></th>
<th>Posttest</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pretest Group</td>
<td>Pretest Group</td>
<td>Posttest Group</td>
<td>Posttest Group</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>M</td>
<td>18.77</td>
<td>3.80</td>
<td>18.94</td>
<td>5.60</td>
<td>19.31</td>
</tr>
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<td>A</td>
<td>9.22</td>
<td>2.97</td>
<td>9.69</td>
<td>3.19</td>
<td>8.95</td>
</tr>
<tr>
<td>SCA</td>
<td>23.31</td>
<td>6.44</td>
<td>25.88</td>
<td>7.89</td>
<td>25.31</td>
</tr>
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<td>SCP</td>
<td>75.77</td>
<td>20.05</td>
<td>66.94</td>
<td>27.04</td>
<td>75.27</td>
</tr>
<tr>
<td>CA</td>
<td>11.40</td>
<td>2.48</td>
<td>11.13</td>
<td>3.40</td>
<td>11.54</td>
</tr>
</tbody>
</table>

Comparison Group: n=22
Treatment Group: n=16

Codes: Motivation (M), Attitude (A), Self-Concept/Attitude (SCA), Self-Concept/Performance (SCP), Causal Attribution (CA)

Note: Max scores for the Schira Questionnaire are outlined in section 3.5.3.
Table 4

Pre-test and post-test descriptive statistics for the OISE Grade 8 Core French Test

<table>
<thead>
<tr>
<th>Variables</th>
<th>Comparison Group</th>
<th>Treatment Group</th>
<th>Comparison Group</th>
<th>Treatment Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECOOUTE</td>
<td>6.50 2.04</td>
<td>6.53 2.32</td>
<td>7.95 2.98</td>
<td>7.00 3.21</td>
</tr>
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<td>LECTURE</td>
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<td>9.07 3.26</td>
<td>11.00 3.33</td>
<td>11.80 2.80</td>
</tr>
<tr>
<td>DICTEE</td>
<td>47.17 10.84</td>
<td>49.80 9.21</td>
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<td>55.57 7.08</td>
</tr>
<tr>
<td>COMP</td>
<td>6.22 2.49</td>
<td>6.50 2.28</td>
<td>7.34 2.33</td>
<td>7.43 2.14</td>
</tr>
<tr>
<td>ORAL</td>
<td>22.75 4.89</td>
<td>22.80 4.87</td>
<td>27.63 3.25</td>
<td>26.83 1.72</td>
</tr>
</tbody>
</table>

Comparison Group: n = 24
Treatment Group: n = 16

Note: Max scores for the OISE Grade 8 Core French Test are presented in Table 1, section 3.5.2.

Table 5

Descriptive statistics for final report card marks (%) in comparison and treatment groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean Grade</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison</td>
<td>24</td>
<td>76.25</td>
<td>77</td>
<td>54</td>
<td>91</td>
<td>9.56</td>
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<tr>
<td>Treatment</td>
<td>18</td>
<td>78</td>
<td>80</td>
<td>62</td>
<td>94</td>
<td>9.33</td>
</tr>
</tbody>
</table>

4.2 Research Question 1

Does the use of computer-mediated communication (CMC) motivate grade 9 core French students at the Academic level to learn French more than traditional communicative activities?

4.2.1 Results

Measure: Attitude Motivation Test Battery (AMTB) (Gardner & Smythe, 1974)

Of the twenty-three variables measured on the Attitude Motivation Test Battery (see Appendix E for a description of all 23 variables), eight scales were selected as the most relevant to the four questions of this study. These variables include:

- Motivational Intensity (MOTINT)
- Desire to Learn French (DLF)
- Motivation (M)
- Attitude-Motivation Index (AMI)
- Integrativeness (I)
• Attitude toward the Learning situation (ATLS)
• French Teacher inspiration (FTINS)
• French Class Anxiety (FCANX)

[Note : I, ATLS, M and AMI are composite measures.]

As outlined in Figure 7, the measures most pertinent to the first research question are Motivational Intensity (MOTINT), Desire to Learn French (DLF), Motivation (M), and Attitude-Motivation Index (AMI). These scales quantify key elements of the motivational construct that, according to Dörnyei (1994a) and Tremblay & Gardner (1995), determine overall motivation. The Attitude Motivation Index (AMI), in particular, represents the total of all attitudinal/motivational factors (Motivational Intensity + Desire to Learn French + Motivation) and as Gardner suggests in his Technical Report for the Attitude Motivation Test Battery (1985b), it is the most stable and comprehensive predictor of motivation and attitudes.

Covariate Measure

Since this study is a quasi-experiment, participants were not randomly assigned to treatment but were included as they “naturally” occurred in their school. The pre-test score was used as a covariate in the analysis comparing the two groups on the post-test measures. This reduces bias by equating the two groups statistically (Glass & Hopkins, 1984, p.492). For each table, the GROUP is the fixed factor.

A statistically significant difference on one or all four of these scales between the comparison and treatment groups on the Analysis of Covariance (ANCOVA) would suggest a relationship between computer-mediated communication in French class and students' motivation to learn French.

Descriptive statistics for these scales are presented in Table 2. Results from the Analysis of Covariance for each of these measures can be found in Appendix F – ANCOVA Tables.

According to Analysis of Covariance, there was no statistically significant difference between the two groups on Motivational Intensity at post-test (MOTINT2) ($f_{(1,36)} = 0.089, p = .77$) when potential differences at pre-test are taken into account (see Table F1). The same is true for Desire to Learn French (DLF2) ($f_{(1,36)} = 0.003, p = .960$) (see Table F2), Motivation (M2) ($f_{(1,36)} = 0.179, p = 0.675$) (see Table F3) and for the Attitude Motivation Index (AMI2) ($f_{(1,36)} = 0.001, p = 0.973$) (see Table F4).
Measure: Schira Questionnaire

Motivation (M) is the only scale from the Schira Questionnaire that directly responds to the first research question. The complete ANCOVA for this variable is presented in Table F9. When potential differences at pre-test are taken into account, there is no statistically significant difference between the two groups on this variable ($f(1,35) = 0.80, p = 0.779$).

Measure: Teacher-researcher’s journal

Note: In my journal entries, CG means Comparison Group and TG means Treatment Group. Also, students’ names have been changed to protect their anonymity.

Early in the study, I logged the following observations:

“I have [also] made a number of qualitative assessments of the two classes. Generally, I have found them to be equally pleasant to teach, equally motivated and equally positive. I have heard negative comments in both classes from individual students, but the overall tone of the classes is positive. Since this is one of my strictly enforced rules, students know to check their negativity at the door. Academically, I would say they are approximately equal as well. There are strong students and weaker students in both classes, although the period 4 [Treatment Group] class has 2 members identified as gifted and none learning disabled, whereas period 3 [Comparison Group] has one student identified as learning disabled and none gifted. The students’ voluntary use of French is approximately equal...essentially very little since the beginning of the year, although I am noticing an improvement in both classes.”

In the middle of the study, the questions continued. I still did not have an overall sense that my classes differed in motivational intensity or desire to learn French.

“I’ve been asking myself the same questions over and over.... are the kids motivated, how do I know this? Certainly, in both classes, the same kids who have always demonstrated motivated behaviour are still motivated. They hand in their work, they try to use French whenever possible, they work to their best potential and they almost always wear a smile. The kids who aren’t so motivated still come to class wearing a smile.”

Toward the end of the study, when I was hoping to have come to some clear conclusions on the questions of motivation, I was still no further ahead.

“And what of the big question? Are kids in the comparison group less motivated [to learn French] than those in the treatment group? I don’t know. I certainly feel as though the kids in the computer class enjoyed the experience overall. But I think that the kids in my other class also enjoyed their experiences. How much? How little? I’m really hoping my [quantitative] results tell me some things and quantify answers to my questions.”
Right up until the end of my data collection, I could not definitively say from my professional observations of the two groups that one group was more motivated than the other to learn French.

When a contest was introduced in both groups that awarded points to students who voluntarily used French in class, the teacher researcher recorded the following observations:

"When I introduced the contest, the kids in the TG seemed more excited than the kids in the CG. They eagerly said...I spoke French today!!! I said.... and they'd repeat the phrase they had spoken in French. The other class seemed pleased at the prospect of prizes but one student asked if he could get negative points for not speaking...I said no...and he said that he'd never be able to win the prize, then. This is the kind of sentiment I'm trying to combat, but somehow, this student is not being reached by my methods."

After three days of the contest, I added:

"There are a few kids in the CG who are REALLY trying...the overachievers, mostly. The other students will say things like Bonjour, Au revoir and Puis j'aller aux toilettes, but it seldom goes much further. JG asked, 'Puis j'emprunter ton dictionnaire Madame?', a sentence of considerable length. CR is also trying. [...] In the TG, all of the students have produced at least one voluntary statement. Often, they say more than one thing per class and try to say even more complex things. This is the main difference...more complex ideas are being shared by students in the TG."

If voluntary use of French is indicative of motivation, then the treatment group appears to be more motivated on the basis of my observations. Of course, the treatment group is made up of more boys, and the contest may have been more inherently appealing to boys than to girls. Also, it is questionable whether the use of French in this context is really voluntary since it is extrinsically motivated by the promise of a prize.

When given the opportunity to voluntarily sign out French magazines for supplementary reading at night, not one student from either group responded. Not one magazine was signed out overnight, in spite of the teacher-researcher's reminders and encouragement to do so. This opportunity was set to determine students' desire to learn French.

In the treatment group, I observed and recorded certain behaviours during WebCT sessions that indicated the students felt motivated by the activity. Seeing that the principal of the school had logged onto the WebCT system, one student voluntarily sent him a message that read, "J'aime WebCT. C'est une bonne façon d'apprendre le français." (I like WebCT. It's a good way to learn French.) He sent the same message to the supervisor of this research project at the University of British Columbia, who also had access to the Bulletin Board. On more than one occasion, I commented that the students "continually
asked to go to the computer lab". In fact, one student asked me whether we were going to the computer lab EVERY day, even though he was well informed of our computer lab schedule. Students logged onto the WebCT system periodically from home to post messages on the bulletin board. During their WebCT sessions, I found the students to be focused and they often consulted me for vocabulary and phrases to complete their messages.

*Measure: Student Interview Responses*

One interview question specifically related to motivation. Students in both the treatment and comparison groups were asked the same question.

*Question: Think back on the year. How motivated did you feel to do your best in French class overall? What motivated you? If you weren't motivated, please explain.*

During student-teacher interviews, students shared their reflections on what motivated them to do their best and on how motivated they felt during the course. Students in both courses expressed similar feelings. Achieving high marks was a primary motivator common to both groups. eight students in the comparison group (33 %) and four students in the treatment group (25%) reported feeling motivated by a desire for high marks.

The influence of the teacher was also identified as a motivational determinant, although relatively few students explicitly stated that the teacher was "what motivated them". Marcia, who demonstrated behaviours indicative of frustration from time to time, admitted, when asked what motivated her, "YOU! [...] Pushing us to our limit. Whenever you pushed me to my limit I got a 4 or a 4- [...] Sometimes that's what I need." In the comparison group three students (12.5%) said the teacher motivated them to do their best. In the treatment group, only one student reported feeling specifically motivated by the teacher.

One student from each group said that their main motivation was "to be able to speak fluent French."

One student from each group also stated that having friends in their class to either push them or support them motivated them to do their best.

One student in the comparison group stated that she was taking French in order to become a flight attendant, a job requiring bilingualism. Interestingly, this student did not take Grade 10 French the following year because she felt it was too difficult.
When asked “how motivated” students felt to do their best in French overall, responses in both groups varied from “not motivated at all” to “pretty motivated” to “very motivated.” No trend of motivational intensity emerged from responses given by either class. Within each group, motivational intensity seemed to range the full gamut. Students did, however, say that their level of motivation waxed and waned. It fluctuated in response to the activity of the day, in response to deadlines and in response to the things that were going on in their lives outside of French class. Stuart, a student in the treatment group said, “There were times when I kind of left it [French work] because I had other things to do.” Two students in the treatment group stated that their motivation was based on mood or fatigue. Others stated that they were more motivated at the beginning of the course and others felt they were more motivated near exam time.

Students in the treatment group were specifically asked, “Did using computers in French motivate you?” Answers varied. The range of responses included “It made us dread French less,” “yes, they did,” “Ya, I really wanted to go. I was looking forward to e-mailing” and, “it gives you more excitement to go to French.” While the intensity of their motivation differed, every student in the treatment group did agree that using computers in French motivated them to some degree.

4.2.2 Discussion – Research Question 1

In response to the first research question, the quantitative and qualitative evidence suggest that computer-mediated communication (CMC) does not motivate Grade 9 students to learn French more than a traditional communicative curriculum.

The Mean scores for Motivational Intensity (MOTINT) and Desire to Learn French (DLF) (see Table 2) from the Attitude Motivation Test Battery (Gardner & Smythe, 1974) barely differed between groups. The ANCOVA confirmed that there was no statistically significant difference between the Comparison and Treatment Groups on either of these two measures (see Tables F1 and F2). Within both groups, mean scores barely changed from pre-test to post-test. The results suggest that computer-mediated communication did not generate a greater desire or inspire a more intensified pursuit of language learning in the Treatment Group relative to the Comparison Group. It seems that both the
computer-rich curriculum and the communicative curriculum stimulated equal desire and intensity to learn French.

Also, the marginal differences on mean scores of Motivational Intensity and Desire to Learn French within the groups between the pre-test and post-test conditions (see Table 2) suggest that these variables were not particularly influenced by the French course, irrespective of the curricular differences in the Comparison and Treatment groups. The internal states measured by these two scales of the Attitude Motivation Test Battery seem to be more resistant to change than I first assumed. Since the Mean scores essentially remained constant between the pre-test and post-test for both groups, it appears that students' desire to learn French and the intensity with which they would approach their learning were set even before they started the course.

Consistent with results from Desire to Learn French (DLF) and Motivational Intensity (MOTINT), Analysis of Covariance for the Motivation (M) scale of the Attitude Motivation Test Battery, also showed no statistically significant difference between the Mean scores of the Comparison and Treatment Groups when differences at pre-test were held constant (see Table F3). The Mean scores for both groups did increase from pre-test to post-test, but the increase was very small. These findings suggest that CMC did not motivate students in the Treatment Group to learn French more than the communicative curriculum motivated students in the Comparison Group.

Analysis of Covariance of the Attitude Motivation Index (AMI) also showed no statistically significant difference between the Treatment and Comparison Groups at post-test when pre-test differences were held constant (See Table F4). As the most robust indicator of Attitudes and Motivation to learn a second language from the AMTB (Gardner, 1985b, p. 13), the implications of this analysis imply that relative to a communicative curriculum, a curriculum that includes computer-mediated communication does not generate more positive attitudes, a more enduring or intense desire to learn a second language, or a greater sense of motivation to learn French. The Attitude Motivation Index for both groups did increase between pre-test and post-test, suggesting that there was an overall improvement in attitudes and motivation from the start of the course until its end (see Table 2). However, there is no statistically
significant evidence to suggest that one curriculum improved motivation to learn French more than the other.

Analysis of results for the Motivation variable from the Schira Questionnaire further support findings from the Attitude Motivation Test Battery (AMTB). The ANCOVA showed no statistically significant difference at post-test between the Comparison and Treatment Groups (See Table F9). In response to the first research question, the data from the Schira Questionnaire would again suggest that a curriculum, which integrates computer-mediated communication, does not motivate students to learn French more than a traditional communicative curriculum. The fact that two different tests (The AMTB and Schira Questionnaire) measured motivation and produced the same result strengthens the conclusion that both groups were equally motivated to learn French.

The qualitative data informs the interpretation of the quantitative results. While students in the treatment group often said they felt motivated by the computers, it is important to consider what they did not say as well. Students did not say that computers motivated them to learn more French or persist in their study of the French language. Students said that “using computers motivated them” but their answers did not necessarily imply that the computers motivated them to learn the French language. As one student said, the computer activities made him “dread French class less”. Dreading French class less, while a step in the right direction, is a far cry from being motivated to learn and persist in learning the language. This student’s experience might have been less “dreadful” in Grade 9 than in his previous French courses, but he did not continue his study of French in Grade 10.

My professional observations were in line with what students reported. Their behaviour during WebCT time did suggest a certain excitement with the activity. However, their behaviour did not offer unequivocal evidence that they were motivated to learn French. It seems more likely that the students in the treatment group were actually motivated to a) go to the computer lab b) chat with their friends and c) have a little diversion from their daily school routine.

Further, my professional observations of the differences in motivational intensity and desire to learn French between both groups were inconclusive. I could not categorically state that one group was
more motivated during class time than the other. I consistently asked the question of myself and I consistently met with the same indecisive answer.

All evidence therefore points to the conclusion that for these participants, the treatment condition was not more motivational than the comparison condition. A curriculum that integrates computer-mediated communication does not appear to motivate students more than a traditional communicative curriculum.

It is important to note that students in both groups reported feeling motivated by a desire for high marks, by the teacher, by friends and future job prospects. Only one student in each class said that they felt motivated by a desire to speak fluent French. Even though the methods used in both treatment and comparison groups differed somewhat, students felt motivated by factors outside of the curriculum itself. Students did not say they felt motivated to learn French because of a certain type of project or test. These results also seem to imply that the pedagogical methods used to teach language are far less important to learners of a second language than big-picture "social" factors such as job prospects, friends and the teacher.

4.3 Research Question 2

When compared to students following a "traditional" communicative course of study, does the use of computers for language learning have a significantly different influence on students' attitudes about French as a language and a subject of study?

4.3.1 Results

*Measure: Attitude Motivation Test Battery (Gardner & Smythe, 1974)*

Four variables from the Attitude Motivation Test Battery (AMTB) were selected as indicators of attitude and of relevance to the second research question. These variables include: Attitude Motivation Index (AMI), Integrativeness (I), Attitude Toward the Learning Situation (ATLS) and French Teacher Inspiration (FTINS).

The Attitude-Motivation Index was used as an indicator of motivation, but since it incorporates all motivational and attitudinal factors in the test battery, it is a reliable predictor of attitude as well. The higher the score on this index, the more motivated the student and the more positive his/her attitude.
Integrativeness (I) measures the emotional reactions students have toward Francophones, students' desire to learn French for social reasons and students' general interest in learning other languages. The higher the score on this scale, the more positive students' attitudes are about French society and culture.

Attitude Toward the Learning Situation (ATLS) and French Teacher Inspiration (FTINS) measure students' attitudes about the context in which they are learning. Attitude Toward the Learning Situation (ATLS) is a composite measure that incorporates evaluations of students' French Course and French Teacher. A high score on ATLS indicates a positive attitude.

French Teacher Inspiration (FTINS) is not included in the Attitude Toward the Learning Situation (ATLS) measure. On this scale, students rate the teacher as colourful/colourless, imaginative/unimaginative, dull/exciting, tedious/fascinating, boring/interesting. A high score on this scale indicates that students feel their teacher inspires them to learn French.

Descriptive statistics for these scales are presented in Table 2. Full results from the Analysis of Covariance for each of these measures can be found in Appendix F – ANCOVA Tables.

As demonstrated by the Analysis of Covariance, when potential differences at pre-test were taken into account, there was no statistically significant difference between pre- and post-test scores on the Attitude Motivation Index (AMI2) \( f(1,36) = 0.001, p = 0.973 \) (see Table F4). The same is true of Integrativeness (I2) \( f(1,36) = 0.031, p = 0.848 \) (see Table F5) and Attitude Toward Learning Situation (ATLS2) \( f(1,36) = 0.192, p = 0.664 \) (see Table F6).

However, when adjusted for differences at pre-test, ANCOVA of mean scores for the French Teacher Inspiration (FTINS) variable reveals a statistically significant difference between the treatment and comparison groups (FTINS2) \( f(1,36) = 4.816, p = 0.035 \) (see Table F7). Whereas the mean score on this variable for the comparison group decreased from 28.39 on the pre-test to 27.67 on the post-test, the mean score increased from 28.81 to 30.31 for the treatment group from pre-test to post-test. On the post-test, the mean for the treatment group was statistically higher \( (\alpha = 0.05) \).
Measure: Schira Questionnaire

One scale from the Schira Questionnaire measured students’ attitudes. Appropriately named “Attitude”, the score is based on two Likert-type (1932) questions — “French Class is my favourite class” and “I enjoy French class”. A high score indicates a positive attitude.

When potential differences between mean scores at pre-test were held constant, Analysis of Covariance (ANCOVA) revealed no statistically significant difference between the means of the treatment and comparison groups on this measure ($t_{(135)}= 0.205, p=0.654$) (see Table F8).

Measure: Student Interview Questions & Responses

The following three interview questions related specifically to students’ attitudes.

i. What did you like most about your French class?

ii. What did you like least about your French class?

iii. Did your attitudes about French as a subject, French as a language, and/or French culture change as a result of having taken this course? If not, why? If so, why?

Students from both the treatment and comparison groups were asked these three questions during their interviews.

Students in the treatment group were also asked the following additional question related to the attitude variable:

iv. Did using computers change your attitude about French?

Question i: What did you like most about your French class?

During their interviews, many students in both the comparison and treatment groups professed that they really enjoyed the class.

When asked what they liked most about the course, students offered a variety of responses. In the comparison group, most responses focused on those activities considered “fun”. In fact, ten students in the comparison group and four students in the treatment group used the word “fun” in describing what they most liked about the course. With enthusiasm, Samantha answered, “Ummm...ummmm... [I most liked] probably just the skits that we would do, that was fun and the stuff when we would like put papers on our desks and we would have to go around, and like write down, that was cool. “ Karen said that she “liked the games,” and Melissa enjoyed “drawing on big pieces of paper and um doing fun activities and stuff”.


Elizabeth appreciated the variety of the curriculum, "I liked how we, there was like different ways of doing stuff, like there was more than one way of learning something. Like if we had the songs, so we’d like sing the songs and try to remember the verb conjugations."

Some students (four in the comparison group and three in the treatment group) stated that their attitudes were very positive during their Grade 9 French course relative to past experiences. Sam, a very tentative and shy student, offered these observations, "It was like, more fun. In some other classes, the old classes, that I used to do in my old school we just wrote things and did all kinds of boring stuff, but this, we did fun stuff and it was kind of more enjoyable." Sam’s previous experiences were used as a frame of reference for formulating his opinion about this class.

Other students in the comparison group used the same framework when deciding what they liked most about the course. Camille said, "I like the way you like, you explained things and taught things. [...] It was a lot more fun to learn it that way [...] rather than straight lesson type things." In this comment, Camille alludes to past experiences, but also refers to the influence of the teacher on her attitude and opinion about the course. Jacqueline also felt the teacher was an integral part of what she liked about the course, "Um, I liked how you made everything different, the projects, [...] and every day we did something different. " Megan added, "It was fun having a young teacher for once. Because like in the rest of the years I had like old teachers and they always made us do work and this year, we got to do some fun stuff and I liked it."

Students in the comparison group expressed positive attitudes about experiences that were communicative by design. Group and partner activities, dialogues, interviews, questionnaires and surveys were all listed among the favoured types of activities. Christine stated, "[I liked] that we did some oral stuff and we walked around the room and like talked to people and stuff, we did certain activities instead of just doing like writing work all of the time." Marcia echoed this feeling, "[I liked] Just the group activities [...] cause we got to socialize."

In the treatment group, nine students made specific reference to computers or to WebCT when asked what they liked most about the course. Students in this class also liked activities considered "fun" and "social". Louanne, one of the five girls in the treatment group stated, "I liked when we got to go on
the computers and do French [...] because it was fun being able to do it that way, getting in touch with other people and not having sheet work."

Zachary, also a student in the treatment group, enjoyed dialogue activities because they were an opportunity to interact with other students and new ideas. "I most liked the group presentations and that. Where we got to work as a group and make our own dialogues and that, instead of just you handing us out dialogues, you let us write our own, use our own ideas, it was a little more fun." Zachary's comment also reflects the value he placed on autonomy.

Krista made reference to the teacher and the importance of a comfortable learning environment, "It wasn't serious. You allowed us to have fun, to a certain extent. It wasn't like you would just stand there and talk, like dead serious. Like, we had input, we could talk, we didn't have to like sit there with our hands folded on our desk, like we could just talk out and stuff like that. And, it was like, It had a really comfortable environment. And so, it wasn't just like we sat down and worked and you get the papers and do your work and leave, [M-hmmhmm] like you could work together in partners and stuff like that." Julia added, "Basically what Krista said, except for the fact that you had relaxed discipline. You would let us do things, but you wouldn't let us slack off [...] it was really nice. As opposed to last year, which was really different - the teacher was so [...] it was like she was from the army. [...] You were more understanding than she was."

Question ii: What did you like least about your French course.

When asked what they liked least about their French course, three students in the comparison group and two in the treatment group could find nothing negative to say about their experiences. Megan, a student in the comparison group said, "There wasn't much I didn't like about this class. I looked forward to coming every day." Her sentiments were repeated by Julia, who said, "There was nothing I didn't really like," and Stephen, who stated, "There wasn't anything really that I didn't like about it."

Other students in the comparison group and treatment group offered a range of comments about activities or experiences that were unpopular. Journal writing was consistently unpopular according to students in the comparison group. Five students in the comparison group reported "journal writing" as the element of their French course that they most disliked. Note-taking, tests, dialogues in front of the class
and writing stories based on visual stimuli (such as photos or videos) were also mentioned by students in each of the classes as “boring”, “difficult” or “hated”.

Question iii(a): Did your attitudes about French as a subject change as a result of this class?

In response to this question, four students in the comparison group said “no”. They gave different reasons for their feelings. Two students said that they had always liked French, so this course merely reinforced their existing attitudes. Another student said that his attitude about French most improved when he met a French-Canadian friend at summer camp. One student said that her attitudes simply did not improve. The remaining 20 students in the comparison group responded affirmatively to the question, however.

Lori, a student in the comparison group, stated that the ambiance of her Grade 9 class, relative to that of her Grade 8 class, had a positive influence on her attitude about French as a subject. “Last year, we would like go into class and write one note and she would hardly talk to us and she’d be like, ‘copy it down’ and then we’d leave and it wasn’t...I hated it. I hated going there and not doing anything, just copying down the note. But now, it’s like, you come in here and you can talk, you can have conversations and I like it.”

Melissa, a student in the comparison group, commented on the role of the teacher in influencing her attitudes about French as a subject, “It’s funner than last year. The teacher’s a lot nicer [laughter from her partner]. The teacher last year wasn’t as cool.” Jillian, Melissa’s interview partner, added, “Ya, it changed because last year, we didn’t like, really do that much, like the teacher didn’t really help us that much. She just like gave us work and we just had to do it ourselves.”

Amelia, also from the comparison group, said that her attitudes improved because she learned more content. “Last year, I hated French. It’s like my favourite subject this year. [Why?] Probably because I learned stuff and like, that I know how to say something. When I talk to some of my parents’ friends, they know how to speak French and when I talk to them, I like understand more of what they’re saying.”

Further to Amelia’s comment, Jane added, “It feels more relevant.”

Students in the treatment group also shared similar sentiments in response to the question on attitude improvement. Mark commented on the diversity of activities in his high school French class,
"Well, in my old school, I never really enjoyed doing French because all we did was work. In high school, we do a lot of different things. We learn verbs, we do games with these verbs. It really was interesting." Cameron commented on the 'fun' factor, and stated that his attitudes improved because he was achieving, "Well, at the start of the year, it was like, 'Oh, great. French class.' [sarcastically] 'cause I've never had much fun in it, I guess, and then uh, just throughout the semester, I got more positive because I was achieving more."

In the treatment group, four students felt that their attitudes about French as a subject of study did not change. One student felt his attitudes stayed the same, but three others simply felt that their attitudes did not improve. Of the remaining 12 students who felt their attitudes did improve, five students attributed the change to the "computers". Michael, who said his attitudes improved "somewhat" also added, "...because we were using the computers and it was a little more fun than just sitting in a classroom and taking notes off the chalkboard. It was probably a lot easier to express ourselves." Louanne, another student in the treatment group, expressed feelings similar to Michael's. "Uh, yes, because when we got to go onto the computers, it like made me look forward to going, it was something really fun that we could do. I think the computers helped a lot."

Question iii(b): Did your attitudes about French as a language and culture change as a result of having taken this course?

Every student in both the treatment and comparison groups said 'no' to this question. Students who had personally visited a Francophone culture or who knew French speakers stated that their attitudes were determined by these extra-curricular involvements, and not by the course.

Question iv: Did using computers change your attitude about French?

This question was only asked of students in the treatment group. In response, students had a variety of opinions to share. A few students felt using computers in French class incited positive attitudes because "it was fun" and "relaxed". Others suggested that their confidence improved because of their computer use and with it, their attitudes also improved. Still other students suggested that the computers were just something to look forward to three times a week to break up the monotony of the school week. Students' answers included the following:
"I was more sure of speaking French. When we first started computers, I wasn't. I was rarely writing French, I was always writing English. [M - hmmhmm] Then, I got more confidence built up and I started writing French."

"Ya, it was more, we do a lot more than we did last year."

"A lot. I used to think that French was just a chore you had to do. You had to learn it, you have to learn this, you have to learn that, but with the system we used, that was intriguing."

"... hmmhmm. Ya, and plus it's not like you're all centred out or anything, you're just sort of typing, so it makes it feel less strenuous, more relaxed."

"Um, it gave me something to look forward to every Monday, Wednesday and Friday. It was really fun, because, like you could talk with your friends and ask them how to say some stuff and have like a regular conversation in French, it's like if your parents knew what the heck that was, they'd think we were from another planet."

"It was fun. It was something that I looked forward to."

Two students felt the computers had little impact on their attitudes. Stephen stated, "Uh, I don't know. It just like, cause we'd done computers a lot last year too, so, but it was different speaking French using the computers." Further, William succinctly stated that the computers did not change his attitudes about French at all.

4.3.2 Discussion – Research Question 2

Analysis of Covariance (ANCOVA) of three variables from the Attitude Motivation Test Battery - Attitude Motivation Index (AMI), Attitude Toward the Learning Situation (ATLS) and Integrativeness (I) - suggest that students' attitudes in the comparison and treatment groups were not statistically different.

The mean scores for both groups on the Integrativeness variable barely changed from pre-test to post-test suggesting that attitudes about learning languages, about Francophone culture and the desire to establish ties with members of the Francophone community are deeply rooted and resistant to change within the context and time frame of the Grade 9 Core French course. Further, this finding also suggests that the types of activities that defined the two classes may not have accessed feelings about the Francophone community or, if they did, these activities may not have been perceived as relevant by the participants of the study. The students' answers to the interview question iii(b) on attitudes and culture also revealed that they did not perceive change in "integrative" orientation.

Considering the participant demographic, the lack of change in Integrativeness is not surprising. There is no French cultural presence in the participants' geographical vicinity and they live just far enough
away from major French speaking communities that French as a Second Language instruction is really more like French as a Foreign Language. Changes in attitude were therefore most strongly related to immediate influences – the course and the teacher.

Interestingly, mean scores of Attitude toward the Learning Situation (ATLS) for both the treatment and comparison groups did increase between the pre-test and post-test conditions (treatment: 67.50 to 114.13) (comparison: 65.91 to 110.79), suggesting that both groups perceived their French courses more positively at the end of the semester. The ANCOVA, however, was not statistically significant, suggesting that neither group was more positive about their learning situation than the other.

As discussed earlier in this chapter, the composite scores for the treatment and comparison groups on the Attitude Motivation Index (AMI) did not differ statistically. As the most robust indicator of Attitude (and motivation), the lack of statistical significance between the groups on this variable strongly suggests that the communicative curriculum did not inspire more or less positive attitudes than the curriculum that integrated computer mediated conversation.

Mean scores on the French Teacher Inspiration (FTINS) variable did differ statistically between the comparison and treatment groups. Specifically, at post-test, the mean score for the treatment group was significantly higher than the mean for the comparison group, when potential differences at pre-test were held constant. This result could have several explanations.

First, students in the treatment group could have perceived me, the teacher, as more innovative or imaginative because I engaged them in the WebCT activity. They might have perceived this activity as progressive and applied their feelings about the activity to their perceptions of me. As a result, they may have evaluated me as more inspiring than the students in the other group.

Second, students in the treatment group might have been more acutely aware that I was conducting a research project by virtue of the fact that they were the “treatment” group. Three times per week, these students communicated on-line, a frequent reminder that I was trying to “figure something out”. With more frequent reminders of the research initiative, students in the treatment group might also have perceived me as more imaginative and fascinating than students in the comparison group.
Third, the relationship that develops between teacher and student through computer-mediated communication may be a unique relationship, different from the one that develops through face-to-face communication, or in a traditional classroom setting. It is possible that students felt less nervous approaching me via on-line communication. It is possible that students gained deeper insight into my personality through computer-mediated communication (CMC). It is also possible that I was able to assist students in their learning more frequently during their CMC sessions. In fact, a teacher-consultant who observed one CMC session remarked that I was able to make personal contact with every student during the class because the attentions of the others were directed toward their on-line conversations. If a hand went up, I was able to deal with that student's question immediately because there was less competition for my time. These variables could well have influenced students' perceptions of the teacher as more inspiring.

Finally, this significant result could be explained by the fact that I was more imaginative, more interesting, more colourful, more exciting and more fascinating in the treatment group. In response to this explanation, I must emphasize the lengths I took to ensure equal treatment of both groups. Since the potential influence of teacher bias were constantly on my mind, I reflected critically on my performance with each group. I was very conscious of the need to be equally engaging with both groups of students. I made every effort to bring the same enthusiasm and interest to both of my classes. I worked hard to make the experience for both groups of students equivalent on every level.

Consistent with findings from the Attitude Motivation Test Battery, analysis of covariance (ANCOVA) for the Attitude variable from the Schira Questionnaire shows that students' attitudes did not differ statistically between groups when differences at pre-test were held constant. Again, the implication from this result is that computer-mediated communication, as an integrated component of curriculum, did not promote more positive attitudes in the participants than a traditional communicative curriculum.

The qualitative findings indicate that most students in both classes enjoyed their experiences. They used descriptors like "fun" and "interesting" in reference to the course. They explicitly stated that they liked the course, and in some cases, they liked the course more than previous French courses.
They liked the diversity of activities. They liked the "socialization" component of the course and they liked the feeling in the classroom.

Did their attitudes about French as a subject improve? Overall, their answers to the interview questions seem to indicate that they did. Did the attitudes of the treatment group improve more than those of the comparison group? Given the diversity of answers to the questions about likes, dislikes and attitudes about French as a subject, it seems that there is nothing to choose between the groups on this variable. Both groups generally liked their learning environment equally.

In the treatment group, about one quarter of the participants did cite the computers as the reason for their improved attitudes about French as a subject of study. This result implies that the WebCT experience did positively influence students' perspectives. Students said they gained confidence; they felt more relaxed and liked WebCT because it was a novel mode of communication. From their answers, however, there is no indication that students who felt the computers influenced their attitudes about French were more positive or enthusiastic than those who stated other reasons. Nor was there any indication that the computer activity promoted a more positive attitude about French language and culture.

Of particular note, is the influence of the teacher on students' attitudes about French as a subject. Students in both groups suggested that I was a major determinant of their attitudes about the subject. I was not able to improve their attitudes about French culture, however. For students as young as the participants in the current study, whose range of life experiences have been relatively limited, it is perhaps naïve to expect that an isolated course, or contact with one teacher, could change their attitudes about culture. The students who already appreciated French culture were those who had met friends at camp, or who had family friends of francophone origin. If they have not experienced culture first hand, it is very difficult for students to truly identify with it.

4.4 Research Question 3

Relative to students following a traditional "communicative" syllabus, how confident do students feel about themselves and their ability to succeed when the learning environment includes computers?
4.4.1 Results

*Measure: Attitude Motivation Test Battery*

One variable from the AMTB was specifically related to the third research question. French Class Anxiety (FCANX) measures a student's degree of discomfort while participating in French class. A high score on this scale indicates a high level of anxiety. As discussed earlier, anxiety has a negative impact on a student's sense of self-efficacy/self-concept.

Descriptive statistics for French Class Anxiety (FCANX) are presented in Table 2. Results from the Analysis of Covariance (ANCOVA) for this measure appear in Appendix F, Table F8. The results show that there is no statistically significant difference between the two groups on this variable at post-test (FCANX2) ($f_{1,36}=1.603$, $p=0.214$) when potential differences at pre-test are taken into account.

*Measure: Schira Questionnaire*

Three variables from the Schira Questionnaire quantified students' feelings of self-concept - Self-concept attitude (SCA), self-concept performance (SCP) and causal attribution (CA). Descriptive statistics for these scales are presented in Table 3. Results from Analysis of Covariance (ANCOVA) are reported in Appendix F, Tables F11, F12 and F13 respectively.

ANCOVA shows that there is no statistically significant difference between the two groups on the scale of Self-concept attitude (SCA2) ($f_{1,35}=1.595$, $p=0.215$) when differences at pre-test were taken into account. The same is true for the other two variables, self-concept performance (SCP2) ($f_{1,35}=0.023$, $p=0.881$) and causal attribution (CA2) ($f_{1,35}=0.002$, $p=0.961$).

*Measure: Teacher-researcher Journal*

A teenage student's self-concept, often hidden behind fronts of bravado, impertinence and the essence of cool is difficult to read. To reach their audience and meet students' needs, however, teachers, like psychologists, must recognize behaviours indicative of internal states. This is a skill that requires a sincere interest in students, patience, resourcefulness, and the ability to establish trusting relationships. As in most anything, the insight of experience is also an invaluable tool. While the mean scores of students on measures of self-concept did not differ, small individual gains were made over the course of the semester, according to my observations.
On the first day of school, Sam, one of only 5 boys in the comparison group, proclaimed that he wasn't good at French. He approached me with some trepidation, and eyes darting from left to right. Our eyes never met directly, but he asked for a little understanding and extra help to get him through the course. Early in the semester, I overheard a conversation between Sam and another student. In my journal, I recorded, "I heard them comparing their respective intellectual shortcomings during class today...and another girl joined in citing she was certainly the least blessed of them all...of course, I chirped up with a “non...vous êtes tous très intelligents’ Positive attitudes only!” This particular incident reflects Sam's own sense of ability (or the lack thereof).

At parent-teacher interviews, Sam accompanied his mother and expressed feelings of anxiety and frustration at not being “good” at French. The frank discussion during the interview however, seemed to help Sam believe that he was capable. The following excerpt from my journal demonstrates a connection between the parent-teacher interview and Sam's improved attitude.

"I've seen a marked improvement in his attitude, particularly after parents' night, when I told his mom that I really thought Sam could do much better and that I saw lots of potential in him, he's made a consistent effort to do well...and he's getting the results. His oral performance isn't always that great...but...his overall motivation to learn and to do well is certainly greatly improved from September when he quietly pulled me aside and said that he really didn't do well in French and that he'd need extra help because he doesn't understand French that well."

A case could be made that Sam's confidence and self-concept in French improved. In his final interview, he admitted that he felt his ability to speak French improved. "I find I can speak a little easier. I can speak French...like I can kind of pronounce a little easier than I could before. [...] Like it's not a significant change but it's enough, that it's a little bit better, a little easier to understand me." Speaking was the weakest of Sam's linguistic abilities, yet he seemed to feel there was a slight improvement in his ability to communicate verbally. With confidence, he also stated, "I'm able to like understand more and put words together to make sentences and stuff easier.[...] I'd put my writing and understanding and reading mostly that's improved the most." He even suggested considering taking French in Grade 10, "Last year, I thought well, I'm just gonna take French once and that'll be it, but now I'm not sure, I might take it again next year." Sam didn't enrol in Grade 10 French, but that he considered it only briefly,
considering where he began the course, suggests a considerable improvement in his overall feeling about French and about his ability to succeed.

Similar changes occurred in students who participated in the treatment group as well. Michael and Mark both expressed a disliking for French early in the semester. In November, however, I reported, "The remarkable change in Michael's attitude is stunning. Not only did he nearly memorize the poem, but he has been participating a great deal more in class since the beginning of the year." These changes in attitude and behaviour may have been indicative of improved self-confidence.

The changes I observed in Mark's behaviour also indicated an improved self-concept.

"Mark was also particularly helpful. Yesterday, he helped me design a banner for commencement. I asked for his advice and assistance because I had heard he was quite knowledgeable of computers. 'Well,' he said, 'you've asked the right person. I'm pretty good with computers.' I giggled under my breath. This is a student who is normally quite shy and reserved and has had difficulty fitting into the high school environment. I was so pleased to see him finally standing up for himself and openly admitting he was good at something. His father told me at our parent-teacher interview that his son has low self-esteem and doesn't believe himself to be smart. According to Dad, however, he does love computers and is really eager to use them. Since Mark didn't go to 'Take your kids to work day' he helped me and I think he learned something about my job, but also gained a sense of importance from the experience. Without even being asked, he plugged in the VCR for me today...tiny steps but really important ones. I wonder how WebCT plays into this? How much of this change in social behaviour is related to the use of computers?"

Mark spoke of his own progress in the interview, "At the start of grade 9 I would have said too much French. And then, after you get used to it for a while, it's like pretty fun [...] You're just not used to it, you just want to get out of it. [...] and then half-way through the semester, you're enjoying this class. You want to be here." Mark also admitted to really enjoying WebCT, "Ya. I really wanted to go [to the computer lab]. I was looking forward to e-mailing."

Neither Michael nor Mark enrolled in Grade 10 French, but from all qualitative observations, both students made considerable gains in confidence and self-concept over the course of the semester.

Not every student who started out with a low sense of confidence ended up feeling better about his or her abilities to succeed. Krista, for example, who entered the treatment class with very limited background knowledge of French, never felt confident. "I don't really know. Because I have only had about one and a half years of French and so when I came here it was like way over my head cause I
didn't really understand it. And like we went really fast and when we did like pages of stuff on Mr. Bean and everything, and it was really hard. And the exam, ughh, I totally didn't understand the exam.”

Discussion with Krista's mother also revealed that Krista felt very unsure of herself. In my journal, I recorded, “I've been dialoguing closely with Krista's mom who says that her daughter's overall self-esteem needs a boost...” In addition, Krista was the student who had the least affinity for computers in the treatment group - the Luddite among us. The burden for her was thus twofold - linguistic and technological. In her interview she summed up her feelings,

“Because, like, I came in here and like, I don't have that much experience, so I get lost and everything. And like, I tend to want to get things really quickly and if I don't get it, then I just quit. [M - ya] And I'm still learning not to do that because my brain shifts down, well, I get frustrated really easy and that is something that I've picked up from my mom,[M-ya] like her and I both do that,[M-ya] like we are learning from each other and like, if I don't get it, I shut down, and so it really annoys me, because like in my own sort of way, I don't want to shut down, but it's just the way I am. [M-ya] And so, I get sooo frustrated, so I just start fooling around cause I just have no clue and I don't want to make an effort.”

Measure: Student Interviews

The perception that many activities in both classes were “fun” also informs interpretation of the “French class anxiety” variable. A student’s level of confidence in the face of challenge is a major determinant of anxiety (Deci & Ryan, 1985) and when asked to “compare their level of confidence in speaking and using French between the start of the semester and its end,” students from both classes overwhelmingly communicated an increased sense of confidence and ability. In the comparison group, 21 students (87.5%) stated that they felt more confident in speaking and using French at the end of the course than they felt at its beginning. Only three students (12.5%) in the comparison group felt their level of confidence remained the same over the course of the semester, but no student expressed having a lower sense of confidence at the end of the course than at the beginning.

Megan, a student in the comparison group, offered, “Well, at the beginning, like before, I didn't really know as much, so I wouldn't feel very confident in using it, but now, I can because we learned a lot more verbs and a lot more ways to speak in it and actually you could say what you want to instead of just saying something you learned.” Brian, also a student in the comparison group, said, “Last year, I was a little hesitant because I didn't know much vocabulary, but this year I know more.” Emily felt so at ease
that she noticed French words coming to her more readily in diverse contexts, “In the beginning of the year, I didn’t want to talk French at all, but now I don’t mind it. It comes like natural now. Sometimes when I’m writing, like when I was writing my math exam, instead of putting “because’, I wrote “parce que’ {laughter from everyone} I had to erase it...”

Similarly, most students felt more confident in the treatment group. Fourteen students (77%) stated that they felt more confident in their ability to speak and to use French at the end of the course than they felt at the beginning. Ben stated, “Uh, that’s been my best improvement. Last year, I just had the basics but this year, I can think a little bit more.” Scott, a very critical and analytical thinker concurred, “Yes, quite a bit. Because we had to do a lot more speaking and the activities [...] ya, oral activities than we did in my grade 8 class. And you helped us a lot...and memorizing too, helped us a lot”

Some students in the treatment group mentioned the influence of WebCT on their levels of anxiety in class. Zachary said, “[The computers] probably reduced my stress level. It was a lot easier to express yourself. It’s a lot of fun. We got to talk about what you want to one another.” Julie commented on many facets of the WebCT experience, pressure being one of them,

“Computers in French influenced me by um, making me feel more confident in my writing. Because I’ve never been good at writing things down, I’ve always been better at speaking [...] but by writing things down, I could actually get a sense of how I was supposed to write things down, as if I was going to on paper [...] And by speaking with your friends or people in the classroom that weren’t like trying to yell at you, because they made the same mistakes too. I think it really influenced me, because you weren’t under any pressure, and you weren’t under, like it wasn’t going to be on the next test or something, so you didn’t have to be like Oh, worried.”

When asked specifically if using computers boosted their confidence, students in the treatment group offered a range of answers. Eleven students offered an affirmative response. Six of these “yeses” were lukewarm, however. Some students said that computers “sort of” boosted their confidence, or that computers boosted their confidence “a little”. Four students directly stated that computers did not boost their confidence in using French. The remaining three students in the class were not sure if computers boosted their confidence or not.
4.4.2 Discussion – Research Question 3

Analysis of Covariance (ANCOVA) of the French Class Anxiety (FCANX) measure from the AMBT indicates that there is no statistically significant difference between the comparison and treatment groups. This result suggests that students in both groups were equally anxious at the end of the study when potential differences at pre-test were taken into consideration.

Analysis of covariance conducted on the three variables from the Schira Questionnaire - Self-confidence Attitude (SCA), Self-confidence Performance (SCP) and Causal Attribution (CA), also show no statistically significant differences between the comparison and treatment groups. This result suggests that students who learn a second language in a strictly communicative environment feel as self-confident about their ability to succeed as those who learn in a communicative environment that includes computer-mediated communication.

The observations recorded in my professional journal and the answers reported by students during their interviews seem to support the quantitative findings. Overall, most students reported that they felt more confident in their ability to speak and to use French at the end of their course. Was there a marked difference between the comparison and treatment groups in “self-concept”, however? Not from what I observed. In both classes, I observed students who felt confident and those who did not. From the interviews, a comparable percentage of students in both groups seemed to feel their level of confidence in speaking and in using French improved over the course of the semester. A comparable percentage of students felt their level of confidence remained consistent from the start of the semester to its end.

Concerning the few students who lacked confidence in the beginning and maintained this position throughout the course, I made the following comments in my journal,

"The one consistent observation I did make however, was that less motivated students tended to be those who were struggling. The motivation cycle seemed to threaten sucking these kids down to the doldrums...the worse they did, the less motivated to achieve were they...and so on. Often, if a class started to become difficult for these students (I think of Nicholas, Jonathan and Krista) their behaviour would deteriorate, they'd make more verbal comments either blatantly negative or with a tone of exasperation, they'd become more obstinate when asked if they needed help or when reprimanded for their behaviour...and it usually wasn't better for them until the next day."

Although some students made great strides and emerged from the course feeling more confident, there were also students who maintained a negative self-concept and believed themselves incapable. For these students, it didn't seemingly matter whether they were in the treatment group or the comparison
group—the pattern of behaviour was the same. It may be that these students were victims of their own self-fulfilling prophecies. They didn’t have confidence coming into the class and instead of embracing the encouragement and benefits of their learning situations, resigned themselves to a semester of low self-confidence and relatively poor performance.

For some students in the treatment group, the computers did seem to alleviate anxieties. When asked if using computers boosted their confidence, students in this group did not offer a resounding "yes" in response. Their answers varied considerably from "absolutely" to "sort of" to "no". Again, this piece of evidence supports all other quantitative and qualitative data collected in this study. It seems that students who learn in a communicative classroom feel as confident as those who learn in a computer-enriched environment.

4.5 Research Question 4

How does CMC impact students’ second language performance in comparison to students following a traditional “communicative” course of study?

4.5.1 Results

Measure: Grade 8 Core French Test (Harley, Lapkin, et al, 1990)

The Grade 8 Core French Test is composed of five sub-tests, écoute (listening comprehension), lecture (reading comprehension), composition (writing composition), dictée (dictation) and oral (speaking). Descriptive statistics for performance on the OISE Grade 8 Core French Test are presented in Table 4, (section 4.1). The pre-test results are comparable to the Grade 8 averages from the norms of the test, presented in Tabled 1 (section 3.5.2). Analysis of Covariance for all scores on each sub-test reveal no statistically significant differences between groups on these measures of language performance when potential differences at pre-test are equalized. ANCOVA results for the Test d’écoute (ECOUTE2) \( (f_{(1,34)}=1.48, p=0.232) \) are outlined in Appendix F, Table F14. ANCOVA results for the Test de lecture (LECTURE2) \( (f_{(1,34)}=0.183, p=0.671) \) are outlined in Table F15. ANCOVA results for the Composition (COMP2) \( (f_{(1,34)}=0.003, p=0.959) \) can be found in Table F16. ANCOVA results for the Dictée (DICTEE2) \( (f_{(1,34)}=1.69, p=0.211) \) are presented in Table F17. Finally, ANCOVA results for the Test oral (TOTALOE2) \( (f_{(1,10)}=0.138, p=0.718) \) are summarized in Table F18.
Measure: Final Report Card Marks

Descriptive statistics for the final report card marks of both classes are presented in Table 5 (section 4.1). The results of an independent samples t-test demonstrated no statistically significant difference between the means of the two groups \( t_{\text{obs}}(0.580) < t_{\text{crit}}(2.021), \text{df} = 40, \alpha=0.05 \). Equal variance was assumed. The null hypothesis \( H_0: \mu_1=\mu_2 \) is therefore maintained. The mean academic achievement of the treatment and comparison groups was not statistically different.

Measure: Student Interviews

Of the twenty-four students who participated in the Comparison group, twenty-two of them (91.6%) stated that they felt their French improved after having taken FSF 1D. When asked which skills they felt improved most, speaking, reading and writing were each cited by seven students respectively. Listening was cited five times as the most-improved language skill. (Two students couldn’t decide between two skills that they felt improved equally.) Students also elaborated on their feelings of improvement. Lori stated, “Well, since you always talk in French like during the whole class, I can understand it better when somebody talks to me in French, I can pick up stuff easier (M-okaay) Cause all through public school and stuff, they’d never talk French to us, they’d just speak French to us when we were reading something (M-right) and now, I can like understand it.” Tim added, “Um, well, last year, I didn’t have much vocabulary, very little vocabulary, but I have a lot more this year.” In addition, Sam said, “I’m able to like understand more and put words together to make sentences and stuff easier.”

In the treatment group, thirteen students (76%) said they felt their French improved after having taken the course. Two perceived no improvement and two weren’t sure if their skills improved or not. Interestingly, however, when asked during an interview which skills improved most, writing was stated eleven times (49%), reading six times (26%) and speaking only received four endorsements (17%). Two students in this class stated listening as their most improved language skill (9%).

Scott and Stephen, two students from the treatment group, identify a relationship between the computers and improved writing skills. Scott said, “Yes, yes, I feel my French improved after taking this class because computers helped me write it, made me write down a lot more French, explicit French.” Stephen continued, “Ya, like I found I was checking my verbs and making sure they were correct and
they were corresponding to the right thing, to make sure actually, you’re making the right... [agreements].”

Later in the interview, Stephen was asked how using computers influenced him. In response, he cites a connection between computers and the development of his reading and writing skills, “... ya, cause I like looked at other peoples’ messages and sort of see like, oh, like that’s how you do it, sort of thing [M-okay] or you’d have to look it up sort of everyone was reading... and learning from one another.” Mark added, “I learned the proper ways of a bunch of verbs just from looking at messages on the bulletin board.”

In addition to these comments, which suggest students were “noticing” language and learning from their observations, four students stated that WebCT helped them learn vocabulary.

4.5.2 Discussion – Research Question 4

Analysis of the Grade 8 Core French Test using ANCOVA shows no statistically significant difference between students' performance between the two groups when potential differences at pre-test are taken into consideration. This result suggests that neither group learned more (or less) than the other. On all measures of second language performance, the groups performed at the same level.

The final report card grades tell the same story. The independent samples t-test demonstrated that the mean grades for the treatment and comparison groups were not statistically different. The two groups essentially achieved to the same level.

Did the students learn? Yes. Their ability to use and understand French did improve over the course of the semester. The mean scores on all tests of the Grade 8 Core French test did improve for both groups from the pre-test to the post-test condition. The quantitative results demonstrate that the students in the comparison group learned as much as the students in the treatment group (and vice versa). From these results, however, it cannot be assumed that computer-mediated communication offers some academic advantage to students learning a second language. Students in the treatment group did not outperform students in the comparison group on any test of the Grade 8 Core French test. Further, their final grades were not statistically higher.

The qualitative results strongly suggest that students in both groups perceived improvements in their second language performance. When asked which skill improved the most, answers from students...
in the comparison group were equally divided. Since these students followed a traditional "communicative" course of study, the teacher-researcher tried to place equal emphasis on all language strands – reading, writing and oral communication. This may explain why the students in the comparison group collectively felt they improved over the entire range of language skills.

Since the students in the treatment group spent a considerable amount of time reading and writing French on-line, it stands to reason that they would perceive their writing and reading skills to have improved the most. Seventy-five percent of the students in this class stated that either reading or writing was their most-improved skill. This sends a strong message. Students clearly recognized that the specific practice they gained on-line influenced their L2 competency.

In spite of the quantitative findings, which suggest no statistically significant differences between the two groups on measures of L2 performance, students' own perceptions of their language skills seem to reflect the strengths one might expect given the differences in the learning environments. Had the project been conducted with these students over a longer period of time, the quantitative results may have corroborated students' personal feelings.

Neither quantitative nor qualitative results suggest that students' language learning performance was better in one group than the other. Students may have learned differently in the two contexts, but overall, the results suggest that both conditions offered equally rich opportunities for second language learning.

4.6 General Discussion and Synthesis of Results

On the basis of motivational theory (Dörnyei, 1994a, 1994b, 2001; Tremblay and Gardner, 1995) and previous research in the area of computer-assisted language learning, (Beauvois, 1998; Kern, 1995; Trenchs, 1996), it was expected that giving students a socially relevant forum for second language learning that lowered stress and promoted computer literacy, would incite more positive attitudes and higher levels of motivation to learn French. In spite of my bias, which predicted differences in attitude, motivation, self-concept and performance between the treatment and comparison groups, the quantitative and qualitative results convincingly suggest otherwise.
No statistically significant mean differences were determined on any variable examined in the current study, except French Teacher Inspiration (FTINS). Quantitative analysis (ANCOVA) of seven scales on the Attitude Motivation Test Battery (AMTB) suggested that students in both classes were equally motivated and shared comparable attitudes about the course of study, their learning environment, French language, and French culture. ANCOVA of five scales from The Schira Questionnaire revealed no statistically significant difference in students' self-concept. Generally, students' feelings about their ability to succeed, their control over their own success and their competence in French were the same between the treatment and comparison groups.

Likewise, students' performance on the Grade 8 Core French test did not significantly differ on any variable, even though improvements within groups did occur between the pre-test and post-test conditions. These differences in mean scores from pre-test to post-test are likely due, in part, to the learning that occurred during the semester. Memory of the test questions between the two testing conditions may have contributed to improved scores the second time around as well. The important point, however, is that the levels of improvement on all scales of the Grade 8 Core French Test were essentially the same for both groups.

Analysis of the qualitative data revealed that the students in the treatment group did enjoy the computer experience, and for many of the reasons predicted. Students commented that the experience was "fun", that it "boosted their confidence", that they learned vocabulary and noticed phrases they did not know before. Students enjoyed the social aspect of the activity and eagerly asked to go to the computer lab, even on days when they knew they would be working in the classroom. Every student in the treatment group said the computer experience motivated them in some way. Every student agreed that they learned French during their WebCT sessions. Many students in the treatment group said they felt more confident in using French after having taken the course. The teacher's observations also echoed these feelings.

However, it cannot be said that students in the treatment group were more motivated by their experience, felt more positive or more confident about their second language abilities than students who followed a communicative curriculum. Students in the comparison group also felt motivated. Nearly
every student in the comparison group felt that his or her French improved because of the course and many felt more confident about their L2 abilities at the end of the course.

Returning to the essential questions of this project – How does computer-mediated communication (CMC) influence Grade 9 students' motivation, attitudes, self-concept and performance relative to the influence of a communicative curriculum?

From these results, computer-mediated communication (CMC), was received quite well by the students who used it. It seems to have had a positive influence on students' attitudes about their course of study. It helped some students to feel more confident about their abilities, and did facilitate some L2 learning. It contributed to students' level of motivation, to their attitudes, self-concept and performance, but there is no evidence to suggest that the computer activity inspired a stronger desire to learn French than the "computer-free" environment. In fact, students' motivation may simply have been to use the computers themselves. The results do not suggest that CMC offers any advantage to students over a traditional communicative language learning experience on the four variables of attitude, motivation, self-concept and performance.

In addition to the course-specific factors that influenced students' attitudes, motivation, self-concept and performance, the teacher also played a significant role in both groups. On the AMTB, the teacher was rated highly by both groups. At post-test, it was determined by Analysis of Covariance that the treatment group gave me (the teacher) a statistically higher rating than the comparison group on the French Teacher Inspiration (FTINS) scale. As discussed earlier, the treatment group may have perceived me as more inspiring because they participated in WebCT; an activity that may have been interpreted as progressive and novel by the students. The relationships that students were able to develop with me via WebCT may have been different than the relationships I developed with students in the comparison group. This may have lead to my higher rating on the French Teacher Inspiration variable from students in the treatment group.
5 Conclusions

5.1 General Conclusions

In the year 2001, it is difficult to imagine a world without computers. E-mail and the World Wide Web have revolutionized the way people think, write, communicate, research, shop, and conduct business. In the context of education, considerable human and financial resources have been invested into the development and implementation of computer programs across all subject areas and all strata of institutions from pre-school to university. In Ontario, where conservative political ideology has revolutionized the public system of education over the past six years, the Ministry of Education emphasizes the importance of cultivating computer literacy in students, a mandate driven, in part, by a workplace that handsomely rewards those who have specific technological skills. Computers, and the way they are used in education, reflect society's values but teachers, charged with the responsibility of educating children, must be judicious in their assessment of the value computers bring to learning.

The current research seems to suggest that relative to a communicative language-learning environment, a curriculum that integrates computer-mediated communication offers no significant advantage to students in grade 9 FSL on the four variables of attitude, motivation, self-concept and performance. In this study, students who used WebCT three times each week did not feel more motivated than students who followed a strictly communicative curriculum. They did not feel more positive about French as a subject, language or culture than their colleagues who studied without computers felt. They did not feel less anxious or more confident in their abilities to use French. They did not perform better than the comparison group on a test of linguistic skills, or on their final report cards.

Other researchers have concluded that Computer Assisted Language Learning offers many benefits for language learners. Kern (1995) concluded that synchronous electronic discussion on the InterChange Local Area Network (LAN) offers more frequent opportunities for student expression and leads to more language production (p.470). Further, he concluded that students' language output using computers "was of an overall greater level of sophistication than oral discussion, in terms of morphosyntactic features and in terms of the variety of discourse functions used." (p. 470). Other studies have concluded that computer-mediated communication offers opportunities for collaboration among
students, teachers and native speakers of the language (Beauvois, 1998; Trechsch, 1996; Sengputa, 2001). Kitade (2000) suggests that CMC offers opportunity for comprehensible input and output (Kitade, 2000). It allows for negotiation of meaning among learners and has the power to significantly contribute to the "development of grammatical competence among classroom language learners" (Pellitieri, 2000, p. 83). It is rooted in a context that decreases learner anxiety and offers considerable opportunity for student expression (Beauvois, 1998; Kern, 1995).

The results of this study do contradict the commonly held belief that computer-mediated communication enhances language learning. It is important to note, however, that much of the research conducted in the field has not been comparative in design. Had my study only focused on the students in the treatment group, my results might have been much closer to the findings of other research. Students in the treatment group did learn French and they did generally enjoy their experience. Many of them did express feeling motivated. However, this study demonstrates that students who followed a communicative curriculum learned just as much and felt equally positive, motivated and confident.

It is interesting to note that Anne Green and Bonnie Earnest Youngs (2001), who investigated the influence of the Web on novice L2 students' reading, writing, listening, speaking and cultural understanding, came to a similar conclusion in their comparative study at Carnegie Mellon University. Two classes of first-year French and two classes of first-year German participated in their study. Comparison groups attended four 50-minute classroom sessions per week. Treatment groups attended three 50-minute classroom sessions per week and completed one web-based activity per week. Participants in the treatment group read French or German-language websites, answered questions about the content of the sites and evaluated the sites for readability. The researchers collected both quantitative and qualitative data through questionnaires and performance evaluations. They concluded that "the substitution of one class day for directed, pedagogically sound web activities seems to have allowed the treatment groups to continue to progress toward their personal and professional goals and allowed them to learn language at a rate similar to that of their peers in the control groups." (p. 108). The quantitative results of the study showed "no statistically significant differences between the control and treatment groups for students in either language or semester of the study on the variables of reading,
writing, listening, speaking and cultural understanding." (p. 108). As in my own research, Green and Earnest Youngs reported that students generally enjoyed their experiences using the Web, but again, the treatment group did not perform better on performance evaluations. The findings of Green and Earnest Youngs (2001) strongly support the conclusions of the current study.

5.2 Implications of the Study

Although the generalizability of the current study to other contexts is limited due to the relatively small and restricted sample group, the conclusions do help to inform pedagogical practice within the context of the Grade 9 FSL classroom and offer a perspective that expands the current understanding of what computers are and what they are not.

My observations in the treatment class did confirm some of my predictions based on the theoretical connections between second language acquisition, computer-assisted language learning and motivation. The computer, and in particular computer-mediated communication, is a useful tool for L2 learning. Computers do motivate some students. They do incite positive attitudes about the course and its content. Computer-mediated communication does create a socially relevant environment for communication in the Grade 9 FSL classroom. Further, CMC furnishes an ideal opportunity for students to produce language – grammatical or not – as it helps them to recognize the gaps in their linguistic capabilities. CMC is autonomous and it does give students the chance to control their communicative output. From a pedagogical perspective, WebCT time often allowed me to respond immediately to students’ questions. While the other students continued to compose their messages, I could answer specific queries about vocabulary, sentence structure, or the meaning of a certain phrase. Further, CMC allowed me to model language for students through discourse composed just above students’ current language level (i + 1) (Krashen, 1982).

Of course, the current research also shows that a communicative curriculum based on relevant topics of interest to students equally promotes motivation, positive attitudes, and a strong self-concept. Interaction and communication across a diverse range of non-technical reading, writing, listening and speaking activities allow for ample comprehensible input and output.
Thus, computers are not a panacea for language learning. They offer teachers and students a vast array of potential language learning opportunities, but they are not necessarily the tool that is best suited to every job, or the only tool that can do the job well. In education, focus has long since shifted to emphasize the importance of computer literacy across the curriculum. Computers are an important part of our world but language teachers, school administrators, school board officials and Ministry personnel should approach technology critically, keeping in mind that computers are not always the best or the only solution that can meet students' needs.

5.3 Limitations and Future considerations

The consistency of the quantitative and qualitative results provides strong evidence in support of the conclusions. It is important, however, to identify limitations of the study and identify directions for future research that could eliminate any question of the reliability and validity of the findings.

First, it is possible that the two programs did not differ enough. After all, students in the treatment group also participated in a range of communicative activities during their non-WebCT class time. Further, the on-line activities of the treatment group were indeed "communicative" in nature, since they focused on the learner's needs and provided a meaningful "context" for language use. Diversity of experience, rather than specific type of experience, could be the actual variable influencing students' attitudes, motivation, self-concept and ultimately their performance. To eliminate this limitation, future research should be conducted across a much wider range of schools and classroom contexts. Comparisons between a broader range of communicative and computer-enhanced classrooms would generate deeper understanding of the relative benefits of both types of language learning programs.

Second, motivation and attitudes are complex cognitive and emotional states. When Ontario students enter the FSL classroom in Grade 9, they enter with five years of second language knowledge, five years of experiences on which they have based their attitudes, five years of successes or failures in FSL, and five years of learning that may or may not have been relevant to their needs and interests. Students' attitudes about French are also influenced by their parents' perspectives, by personal experiences and by the fractious undercurrents of the sovereignty debate that permeate Canadian culture. It may simply be that by the time students get to Grade 9 French, they have already formulated
enduring attitudes about their ability to learn a second language, about the relevance of the language to their future, about the relevance of French to Canada, and about why they do or don't want to continue studying French beyond the point of obligation. If this is the case, it is unrealistic to expect one course to change the foundations of students' beliefs in the long term, even if it does engage students in socially relevant activities and provide extensive opportunities for success. If the research were conducted over a longer period of time, the relative influences of a communicative curriculum and a computer-enhanced curriculum on students' attitudes, motivation, self-concept and performance might be more pronounced. Future research should also involve a greater sample of participants – both students and teachers. The longer the time period for the study and the more diverse the participants, the more robust the results would be.

Chambers (1999) hypothesizes that the teacher is the most important determinant of the social psychological foundations of motivation for teenage students studying a second language as a matter of obligation. Chapter 8 of his most recent book is entitled “The Pupils' Perspective from the Classroom”. In it, he states, “The teacher carries an enormous burden of responsibility. She holds all the strings. Her approach to teaching, her personality, her power to motivate, make learning meaningful and provide something which pupils refer to as 'fun', represent the real foundation upon which pupils' judgement of the learning experience is based.”(p.137). The teacher was shown to play a significant role in students' enjoyment of the French course in this study. Students in both groups commented on the teacher's influence on their motivation to learn French and on their attitudes about the subject.

Further, students in the comparison group perceived me as more inspirational than students in the comparison group. This one statistically significant finding among the many others that were not, suggests that computer-mediated communication could have a real benefit in the development of positive relationships between teachers and students. Future research should investigate the nature of the relationships that develop between students and teachers in both communicative and computer-mediated L2 contexts.
References


Swain, M. (1998). The Output Hypothesis. 34th Congress of the ALAA, Griffith University, Brisbane, Australia.


Appendix A

Information package distributed to students and parents regarding the research project

September 13, 1999

To: Parents/Guardians of Grade 9 students enrolled in Academic-level French with Michelle Schira at Delhi District Secondary School

From: Ms. Michelle Schira, Teacher-Researcher and Master of Arts Candidate, University of British Columbia and Dr. Monique Bournot-Trites, Assistant Professor and Research Supervisor, Department of Language Education, University of British Columbia

Re: Research Project in Grade 9 Academic-Level French Classes

As part of the requirements for a Master of Arts degree, Ms. Michelle Schira will be conducting a study during the first semester of the 1999-2000 school year in two academic-level French classes at Delhi District Secondary School. This study is entitled: Performance, Attitude, Motivation and Self-Concept in Grade 9 French: Does Computer Technology Have a Significant Influence? Your son or daughter is currently enrolled in one of the classes that will be participating in the research project and we are therefore writing to inform you of its purposes and rationale. In accordance with Grade Erie District School Board and UBC research requirements, we are also seeking your consent for your child's participation in this study.

Learning a second language can be a difficult and frustrating experience for students. Grade 9 students, for whom French is a mandatory subject, often demonstrate a lack of motivation or negative attitudes toward the language because, among other reasons, they fail to see the relevance of the course to their present lives or their future. Generally speaking, it may be true that French is of no immediate relevance to many students living in English-speaking Ontario. Given that we are living in an age of globalization and communication, however, students in Canada and around the world must acquire the skills that will allow them to compete in and contribute to our global economy. A second language is among the most important assets a student can acquire in preparation for the world stage.

The question that confronts second language educators then, is how best to motivate students to learn French. French must be made relevant to students' everyday lives but again, the question is "how"? Integrating computers into the French classroom may be one way to promote positive attitudes, increased motivation, and strong self-concept, particularly for students today, who generally have a fair amount of computer experience. Since attitude, motivation and self-concept (a student's sense of confidence and control over their learning environment) are critical predictors of proficiency in second language, it is important to determine how computers influence these variables. Computers offer enormous potential benefits for students in all subject areas and particularly in language learning, but before curriculum decisions are made about their widespread application in French, it is critical to have solid evidence of their influence on students' attitudes, motivation, self-concept and performance. This study will endeavour to do just that — establish solid evidence of the impact of computers on grade 9 French students' in-class experiences.

Ms. Schira's classes will be classified as Groups A and B. The two classes will follow an identical course of study. Group B, however, will be using computers to converse with one another in French three times per week, whereas the students in Group A will be conversing with one another face-to-face in the classroom. Whether your son or daughter is enrolled in Group A or B will have no bearing on the quality of education he or she will receive. As both educator and researcher, it is Ms. Schira's responsibility to ensure that every student receives equally meritorious and enriching instruction in French. Both classes
will be evaluated on the same measures and criteria in this course, and will have equal opportunities for learning and growth.

As an action research project, this study is founded on the regular, every-day happenings in the classroom and its intention is to improve learning and teaching. The difference between a class where no research is being conducted and the class in which your child is enrolled relates to the recording and conscious reflection and interpretation of each day's events. Ms. Schira will be recording and interpreting what goes on in both of her classes and will be compiling her findings for her Master's thesis.

All data collected will be kept confidential and secure. It will be used only for research purposes and will have no bearing on students' grades in the course. We would like to stress that the education and treatment of any student who chooses not to participate in the research project will in no way be jeopardized. Students who choose not to participate will complete normal classroom activities but the professional observations made by the teacher-researcher of their performance, attitudes, motivation and self-concept will not be included in any research reports. We acknowledge that you, as a parent, may feel pressure to agree to your child's participation because Ms. Schira is your child's teacher. We would like to confront this concern openly by assuring you first of your right to refuse or withdraw your child's participation in non-curriculum aspects of this study and secondly that, should you choose to do so, there will be no consequence to your child's standing.

We have enclosed, for your information, an "Overview of Assessment Procedures" containing full details of research procedures, their objectives, scheduling and the researcher's responsibilities. Should you have further questions about the research project and your son or daughter's involvement, do not hesitate to contact either of us: Michelle Schira at DDSS, (519) 582-0410, or Dr. Monique Bournot-Trites at UBC, (604) 822-4873. You may also contact Dr. Richard Spratley, Director of the UBC Office of Research Services at (604) 822-8598 if you are concerned about your child's rights or treatment in connection with this study.

Overview of Research Procedures

Purpose:

This research project will investigate the influences of computer technology on the attitudes, motivation, self-concept and performance of Grade 9 French students. Comparisons of attitudes, motivation, self-concept and performance will be made between students in Group B, who will use computers in French class, and those in Group A, who will follow the same course of study as Group B, but will not use computers. Since attitude, motivation and self-concept are critical predictors of proficiency in second language acquisition, this research aims to determine, through the comparison of these two classes, whether computers are a useful tool in stimulating the emotional domain in adolescent second language learners enrolled in a mandatory French class. Should computers prove effective in promoting positive attitudes and motivations, this research will have large implications for future curriculum planning in second language courses. The data collected from this project will be used as the basis of Ms. Schira's Master's thesis.

Study Procedures:

For the most part, students' daily activities and progress in class will be the focus of the research. Both classes will be following the same curriculum and will experience equally enriching language learning activities. Both classes will use the same textbooks, complete the same projects and write the same tests and exams. An objective third party will pick from a hat to determine which section will serve as the "computer" group in the study. This group will use two types of computer applications. First, students will be required to log onto the course website and explore links, which support the topics of study. Second, these students will engage in conversation with one another, in French, on the course Web CT Bulletin
Board. Although students in Group A will not have access to computers, any planned, additional language resources accessed by the other class on-line will be provided for them in printed form. Furthermore, students in the Group A classroom will engage in additional oral, reading and writing activities during the time that Group B spends on-line.

**Assessment Procedures:**

The following chart outlines each of the assessment procedures to be used in this research, their purposes, when the tests will be administered and the estimated amount of time each one will take. Both classes will be asked to participate in each of the assessment procedures.

<table>
<thead>
<tr>
<th>Assessment Instrument</th>
<th>Purpose of Instrument</th>
<th>When and Where Administered?</th>
<th>Est. Time Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Part Questionnaire</td>
<td>To determine: 1) Students' background experiences with French. 2) Students' perceptions of their own abilities in French and their general feelings about French and French class. 3) Students' experiences with computers and their attitudes about computers.</td>
<td>Questionnaire administered in class. October 4, 1999 February 7, 2000</td>
<td>60 minutes each time</td>
</tr>
<tr>
<td>Standardized Attitude-Motivation Test Battery (Developed at the University of Western Ontario)</td>
<td>To measure students' attitudes and motivation for learning French.</td>
<td>Test administered in class. October 5, 1999 February 8, 2000</td>
<td>75 minutes each time</td>
</tr>
<tr>
<td>Grade 8 Core French Test (developed at the University of Toronto)</td>
<td>To measure students' performance levels in reading, writing, listening, comprehension and speaking.</td>
<td>I Reading, writing and listening comprehension tests administered in class. October 7 and 8, 1999 February 9 and 10, 2000 II Speaking test will be conducted outside of class. Schedules will be determined according to student availability.</td>
<td>I - 90 minutes each time II - 10 minutes per student each time</td>
</tr>
<tr>
<td>Focus-group interview</td>
<td>To give students an opportunity to express their attitudes and impressions of the course, the research project, and their own development throughout the semester.</td>
<td>Participation will be requested of students after the course is finished and final marks have been submitted. Scheduling will be determined on the basis of students' availability.</td>
<td>15 minutes</td>
</tr>
</tbody>
</table>

Any student whose parents refuse permission for participation in the study will be assigned relevant school work to complete while the others work on the tests and questionnaires in class. Any students who choose not to participate in particular assessments will be assigned alternative work to complete. Since the teacher-researcher will be using her normal professional observations of students' attitudes, motivation, and performance in class as part of her research, she will refrain from using any observations about non-participants in her research reports. Data collected from the assessment procedures outlined in the above chart are for the express purposes of research and are not considered part of the course of study. Data collected will therefore have no bearing on students' grades in the course.
Confidentiality:

Any information resulting from this research study will be kept strictly confidential. All documents will be identified only by code number and kept in a locked cabinet in the school safe. All data saved on hard disk will be password protected. Data will be accessible only to Ms. Schira and her research advisors at the University of British Columbia. Any reference made to individual students or group scores in published articles or reports of the completed study will be kept anonymous.
Appendix B

Course Syllabus for FSF 1D (M. Schira, 1999)

Bienvenue à FSF 1D
Le meilleur cours de français de ta vie!!!

Professeur: Mme Michelle Schira
Salle de classe: 308
Numéro de téléphone à l'école: (519) 582-0410
Courier électronique: mschira@home.com
site web: http://members.home.net/mschira/ddss_fsf

Laws

There are four major rules in this class. These rules are non-negotiable and will be enforced strictly.

1. Respect - for oneself, for all persons and property in the classroom and in the school, and for humanity.
2. Effort - 100% all of the time.
3. Français - enough said.
4. Attitude - please check all negativity at the door. This is a positive zone only.

Course Materials

All students are asked to purchase the following materials:

- a three ring binder
- lined paper
- a journal - preferably with blank pages suitable for drawing, writing and cutting and pasting
- pens, pencils and any drawing tools they wish to have at their disposal - coloured markers, pencils, pastels, water colours etc....
- a small pair of scissors
- a glue stick

Students must bring their materials to class every day. Students will have the option to store their journals in the classroom.

Late Policy

Late assignments will NOT be accepted on the grounds that once the due date has passed, that particular part of the course is over and cannot be repeated. Ample warning will be given so that students can organize their time and get work in on schedule. For all assignments, a due date “date de remise” and a last call “dernier appel” will be clearly stated and posted in the classroom. Students are asked to adhere to deadlines. Work left incomplete will be recorded as a "non-performance". Should unforeseen circumstances interfere with your work for this class, please speak with me personally.

Units of Study

1 - Mon milieu scolaire
2- Je m'entends bien avec les autres
3 – Une vedette est née, créer un téléspectacle
4- Des sports et des loisirs: on en parle
Course Assessment

Emphasis will be placed on work done in class, both independently and in groups. Evaluation criteria for all assignments will include measures of students':

knowledge of the language, its forms and structures
understanding of content
critical thinking and inquiry skills
ability to communicate information and ideas
ability to use the language properly within context
ability to apply their knowledge in different contexts

Elements of the course will be weighted as follows in calculation of term grades:

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<thead>
<tr>
<th>Oral Communication Skills (Speaking &amp; Listening)</th>
<th>34%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>33%</td>
</tr>
<tr>
<td>Writing</td>
<td>33%</td>
</tr>
</tbody>
</table>

Learning skills such as: readiness for class, organization, attitude, and homework completion will be monitored and anecdotal comments will be stated on students' report cards. Voluntary use of French in class will be assessed and marks will be given for this in the oral communication component.

The term 2 mark will be an accumulation of all work done throughout the year.

The final mark will be weighted as follows:

<table>
<thead>
<tr>
<th>Terms 1 and 2</th>
<th>70%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
</tbody>
</table>

The final exam comprises two parts, a written exam and an oral exam. The written exam makes up 70% of the final exam grade, and the oral exam counts for 30%. No exemptions will be granted for the final exam.
Appendix C
Review of -ER verbs within the context of a theme (M. Schira, 1999)

FSF 1D - Révision des verbes du 1er groupe
Unité 1 - Mon milieu scolaire

Utilise le verbe **JOUER** pour compléter les phrases suivantes.

En automne à DDSS, les filles ____________ au basketball.
En automne, les garçons ____________ au football ou au volleyball.
Dans la classe de musique, on ____________ des instruments.
Dans la classe de musique, je ____________ de la/du ____________.
Dans la classe de français, nous ____________ parfois des jeux.
Sur les ordinateurs, les élèves peuvent ____________ au Solitaire.

Utilise le verbe **ÉTUDIER** pour compléter les phrases suivantes.

A DDSS, j’______________________________ le français, les mathématiques, l’anglais, les sciences, les ordinateurs, la musique, la technologie et la nutrition.
En sciences, nous ____________ les cellules, les bactéries, les plantes, les animaux, l’énergie, l’électricité et l’environnement.
En mathématiques, tu ____________ l’algèbre et la géométrie.
Est-ce que vous ____________ le guide canadien de la nourriture dans la classe de nutrition?
Qui ____________ les verbes du 1er groupe dans la classe de français?
Quelle pièce de Shakespeare ____________-t-ils dans la classe d’anglais?

En bas, répondez aux questions suivantes dans vos propres mots. Utilisez le verbe **JOUER** dans la première réponse et le verbe **ÉTUDIER** dans la deuxième réponse.

Q: Quels sports joues-tu?
R:
Q: Quels sujets étudies-tu ce semestre?
R:
Appendix D

Final exam for FSF 1D – Ecriture et oral (Schira, 2000)

EXAMEN FINAL D’ÉCRITURE
à remettre: jeudi le 27 janvier 2000
Professeur: Mme M. Schira

Regardez l’image et composez une histoire. Utilisez les questions comme guide d’écriture.

1. Comment s’appellent les deux filles dans l’image?
2. Qui a gagné? Qui a perdu?
3. Quelle est la relation entre les deux filles?
4. Qu’est-ce qui s’est passé avant la course?
5. Qu’est-ce qui va se passer après la course?

Évaluation

<table>
<thead>
<tr>
<th>Critère</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and Understanding</td>
<td>-uses few of the required elements</td>
<td>-uses most required elements with some accuracy</td>
<td>-uses all required elements with considerable accuracy</td>
<td>-uses all required elements with near-perfect accuracy</td>
</tr>
<tr>
<td></td>
<td>-little accuracy</td>
<td>-demonstrates some understanding of verb tenses</td>
<td>-demonstrates good understanding of verb tenses</td>
<td>-demonstrates excellent understanding of verb tenses</td>
</tr>
<tr>
<td></td>
<td>-demonstrates little understanding of verb tense</td>
<td>-present, past and futur proche, verb forms, agreement of adjectives and nouns</td>
<td>-present, past and futur proche, verb forms, agreement of adjectives and nouns</td>
<td>-present, past and futur proche, verb forms, agreement of adjectives and nouns</td>
</tr>
<tr>
<td></td>
<td>-makes many errors</td>
<td>-makes some errors</td>
<td>-makes few mistakes</td>
<td>-makes few to no mistakes</td>
</tr>
<tr>
<td>Thinking and Inquiry</td>
<td>-story demonstrates little insightfulness, creativity or individuality of thought</td>
<td>-story demonstrates some creativity and uniqueness in thinking</td>
<td>-story demonstrates unique and creative thought</td>
<td>-story demonstrates outstanding creativity and very insightful interpretation of image</td>
</tr>
<tr>
<td></td>
<td>-does not use starter questions to guide thinking</td>
<td>-uses some starter questions to guide thinking</td>
<td>-uses starter questions to guide thinking</td>
<td>-uses starter questions to guide thinking but also embellishes with own ideas</td>
</tr>
<tr>
<td></td>
<td>-story illogical in flow</td>
<td>-story somewhat logical in flow</td>
<td>-story follows a logical flow of ideas</td>
<td>-story follows a logical flow of ideas</td>
</tr>
<tr>
<td>Communication</td>
<td>-ideas limited in clarity</td>
<td>-ideas somewhat clear</td>
<td>-ideas structured with considerable clarity</td>
<td>-ideas clearly structured</td>
</tr>
<tr>
<td></td>
<td>-vocabulary and language structures used with limited accuracy</td>
<td>-vocabulary and language structures somewhat accurate</td>
<td>-vocabulary and language structures used with considerable accuracy</td>
<td>-vocabulary and language structures used with accuracy</td>
</tr>
<tr>
<td>Application</td>
<td>-with great assistance, produces a story of limited quality</td>
<td>-with some assistance produces a story of considerable quality</td>
<td>-individually produces a story of strong quality</td>
<td>-individually produces a story of outstanding overall quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-length, accuracy and creativity approaching standard</td>
<td>-story of appropriate length of considerable accuracy and creativity</td>
<td>-story of the appropriate length</td>
</tr>
</tbody>
</table>

Note: Students were permitted two half-classes to work on this culminating task before submitting it for assessment. Students received only minimal assistance from the teacher-researcher and were not permitted to consult with classmates. Students were allowed the use of French-English dictionaries for this part of the exam.
Outline of oral exam and assessment checklists (M. Schira, 2000)

Note: Students completed the oral exam during the scheduled examination period in their usual classroom setting. The oral exam lasted approximately 10 minutes during which time students answered one question of personal significance, two questions based on themes of the course and with their partner presented a prepared dialogue. Dialogue themes were assigned and given to students during the last week of classes. Students selected their own partners and in a couple of cases, the teacher-researcher intervened to ensure every student's opportunity for success. Students were expected to memorize their dialogues and present them dramatically.

L'examen oral
FSF 1D

OUTLINE
1) Question personnelle (1 question)
2) Questions sur le contenu du cours (2 questions)
3) Dialogue préparé

1) Liste de questions personnelles possibles

Bonjour, comment ça va?
Comment ça va aujourd'hui?
Comment vont tes examens?
Comment est ton horaire pour le deuxième semestre? Quels cours as-tu?
Combien d'examens as-tu pendant la période d'examens?

2) Questions sur le contenu du cours possibles:

Donne-moi les instructions pour arriver à la classe de français.
Quels cours est-ce que tu as suivi ce semestre? Qui étaient tes professeurs? Quelles notes est-ce que tu espères recevoir dans tes cours?
Quelles activités parascolaires a-t-on ici à DDSS? Est-ce que tu participes aux activités parascolaires? Lesquelles?
Dans la cafétéria de l'école, qu'est-ce que qu'on peut manger? Quels sont les spécialités de la cafétéria?
Quand tu as un problème personnel, avec qui parles-tu? Pourquoi?
Quelles sont les qualités de ton meilleur(e) ami?
A ton avis, quelle qualité est la plus importante dans un(e) ami(e)? Pourquoi?
A ton avis, quel sujet scolaire est le plus important? Pourquoi?
A ton avis, quel sujet scolaire est le moins important? Pourquoi?
A ton avis, quel sujet scolaire est le plus difficile? Pourquoi?
Qu'est-ce que tu fais le weekend normalement?
Quelles activités peut-on faire dans la neige?
Quelles activités peut-on faire dehors, dans le plein air?
Quel est ton loisir ou ton passe-temps préféré? Pourquoi préfères-tu cette activité?
Quand il pleut dehors, qu'est-ce que tu fais?
Quand il fait beau dehors, qu'est-ce que tu fais?
A ton avis, est-ce que l'école est essentielle? Pourquoi ou pourquoi pas?
A ton avis, est-ce que les devoirs sont nécessaires? Pourquoi ou pourquoi pas?
Qu'est-ce que tu vas faire ce weekend?
Sujets de dialogue

1) Un élève est perdu dans les couloirs de DDSS et il/elle doit trouver une salle de classe. L’autre élève donne les renseignements pour aider l’élève perdu.

2) Les amis planifient un weekend idéal. Ils ne sont pas toujours d'accord mais, enfin, ils/elles trouvent un compromis.

3) Les amis veulent aller au cinéma mais ils ne sont pas toujours d'accord sur le choix du film. Enfin, ils trouvent un compromis.

4) Les amis discutent de leur école. Ils parlent des avantages et les désavantages de DDSS.

5) Les amis discutent de leurs loisirs et de leurs passe-temps. Chacun donne ses opinions sur les intérêts de leurs amis aussi.

6) Les amis viennent de recevoir leur nouvel horaire pour le deuxième semestre. Ils discutent de leurs cours, de leurs classes et de leurs espoirs pour le deuxième semestre de l’année scolaire.
Appendix E

Summary of Attitude Motivation Test Battery subscales, scores and codes. (Adapted from Gardner, 1985b by Schira Hagerman)

Note: Highlighted subscales indicate those used to answer the four research questions of this study.

<table>
<thead>
<tr>
<th>AMTB Subscale</th>
<th>Question Type</th>
<th>Scoring Code</th>
<th>Measure</th>
<th>Scoring Max score</th>
<th>Meaning of Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes toward French Canadians</td>
<td>Likert</td>
<td>ATFC</td>
<td>10 positively-worded statements about French Canadian people</td>
<td>Max = 70</td>
<td>High score indicates a positive attitude about French-speaking Canadians.</td>
</tr>
<tr>
<td>Interest in Foreign Languages</td>
<td>Likert</td>
<td>IFL</td>
<td>10 positively-worded items which assess participants' interest in studying languages. No specific language is mentioned in these items.</td>
<td>Max = 70</td>
<td>High score indicates strong interest in learning languages</td>
</tr>
<tr>
<td>Attitudes toward European French</td>
<td>Likert</td>
<td>ATEF</td>
<td>10 positively-worded statements about the European French</td>
<td>Max = 70</td>
<td>High score indicates a positive attitude toward European French people</td>
</tr>
<tr>
<td>Attitudes toward learning French</td>
<td>Likert</td>
<td>ATLF</td>
<td>5 positively-worded and 5 negatively-worded statements about learning French</td>
<td>Max = 70</td>
<td>High score indicates a positive attitude toward learning French</td>
</tr>
<tr>
<td>Integrative Orientation</td>
<td>Likert</td>
<td>INTEG</td>
<td>4 items that emphasize the importance of learning French to permit social interaction with French Canadians or others who speak French</td>
<td>Max = 28</td>
<td>High score indicates that the student endorses integrative reasons for studying French</td>
</tr>
<tr>
<td>Instrumental Orientation</td>
<td>Likert</td>
<td>INST</td>
<td>4 items that emphasize the pragmatic or utilitarian value of learning French</td>
<td>Max score = 28</td>
<td>High score indicates that the student endorses instrumental reasons for studying French</td>
</tr>
<tr>
<td>French Class Anxiety</td>
<td>Likert</td>
<td>FCANX</td>
<td>5 items focusing on the anxiety students feel in French class</td>
<td>Max score = 35</td>
<td>High score indicates a high level of anxiety in the French class</td>
</tr>
<tr>
<td>Parental Encouragement</td>
<td>Likert</td>
<td>PARENC</td>
<td>10 positively-worded items assessing the extent to which students feel their parents support their studies of French</td>
<td>Max score = 70</td>
<td>High score indicates a high level of perceived parental support</td>
</tr>
<tr>
<td>Motivational Intensity</td>
<td>Multiple-Choice</td>
<td>MOTINT</td>
<td>10 items that measure the intensity of student to learn French in terms of completion of classroom assignments and future plans to use French</td>
<td>Max score = 30</td>
<td>High score represents a high degree of effort expended in the acquisition of the language</td>
</tr>
<tr>
<td>Desire to Learn French</td>
<td>Multiple-Choice</td>
<td>DLF</td>
<td>10 items measuring student's desire to learn French</td>
<td>Max score = 30</td>
<td>High score indicates a strong desire to learn French</td>
</tr>
<tr>
<td>Orientation Index</td>
<td>Multiple-Choice</td>
<td>CI</td>
<td>1 item consisting of 4 possible reasons for studying French. Two reasons are instrumental, two are integrative.</td>
<td>Dichotomous/ Nominal scale 1 or 2</td>
<td>Students who pick either instrumental reason are scored 1; those who pick either integrative reason are scored 2.</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------</td>
<td>----</td>
<td>-------------------------------------------------</td>
<td>---------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>French Teacher-</td>
<td>Semtic</td>
<td>FTEVAL</td>
<td>10 scales that reflect students' general evaluation of their teacher unfriendly-friendly unreliable-reliable inconsiderate-considerate bad-good unpleasant-pleasant inefficient-efficient impolite-polite insincere-sincere undependable-dependable cheerless-cheerful</td>
<td>Max score = 70</td>
<td>High score indicates a positive evaluation of the teacher.</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Differential</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French Teacher -</td>
<td>Semantic</td>
<td>FTRAP</td>
<td>5 scales measuring teacher-student rapport. suspicious-trusting insensitive-sensitive unapproachable-approachable impatient-patient disinterested-interested</td>
<td>Max score = 35</td>
<td>High score indicates a greater perceived rapport and warmth of the teacher.</td>
</tr>
<tr>
<td>Rapport</td>
<td>Differential</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French Teacher -</td>
<td>Semantic</td>
<td>FTCOM</td>
<td>5 scales measuring perceived teacher competence. disorganized-organized unindustrious-industrious unintelligent-intelligent incapable-capable incompetent-competent</td>
<td>Max score = 35</td>
<td>High score indicates a positive perception of the teacher's ability to do her job.</td>
</tr>
<tr>
<td>Competence</td>
<td>Differential</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French Teacher -</td>
<td>Semantic</td>
<td>FTINS</td>
<td>5 scales rating the extent to which the teacher inspires her students to learn French. colourless-colourful unimaginative-imaginative dull-exciting tedious-fascinating boring-interesting</td>
<td>Max score = 35</td>
<td>High score indicates that participants perceive the teacher to be inspirational.</td>
</tr>
<tr>
<td>French Course – Evaluation</td>
<td>Semantic Differential</td>
<td>FCEVAL</td>
<td>10 scales rating the course’s overall quality bad-good disagreeable-agreeable painful-pleasurable unsatisfying-satisfying awful-nice unpleasant-pleasant unenjoyable-enjoyable unrewarding-rewarding worthless-valuable unappealing-appealing</td>
<td>Max score = 70</td>
<td>High score indicates a positive overall perception of the course</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------</td>
<td>--------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>French Course – Difficulty</td>
<td>Semantic Differential</td>
<td>FCDIF</td>
<td>5 scales measuring the perceived difficulty of the course simple-complicated elementary-complex effortless-hard clear-confusing easy-difficult</td>
<td>Max score = 35</td>
<td>High score indicates a high level of perceived difficulty</td>
</tr>
<tr>
<td>French Course – Utility</td>
<td>Semantic Differential</td>
<td>FCUTIL</td>
<td>5 scales measuring the usefulness of the course to the student non-educational-educational meaningless-meaningful unnecessary-necessary useless-useful unimportant-important</td>
<td>Max score = 35</td>
<td>High score indicates a high level of perceived utility of the course</td>
</tr>
<tr>
<td>French Course – Interest</td>
<td>Semantic Differential</td>
<td>FCINT</td>
<td>5 scales measuring the perceived interest of the course tedious-fascinating monotonous-absorbing boring-interesting dull-exciting colourless-colourful</td>
<td>Max score = 35</td>
<td>High score indicates high level of perceived interest of the course</td>
</tr>
<tr>
<td>Integrativeness</td>
<td>Composite</td>
<td>I</td>
<td>ATEC + ATEF + INTEG + IFL</td>
<td>Max score = 238</td>
<td>High score indicates that the participant has a positive view of the French language community and is motivated to learn French for integrative reasons</td>
</tr>
<tr>
<td>Motivation</td>
<td>Composite</td>
<td>M</td>
<td>MOTINT + DLF + ATLF</td>
<td>Max score = 130</td>
<td>High score indicates a high level of motivation to learn French</td>
</tr>
<tr>
<td>Attitudes toward the learning situation</td>
<td>Composite</td>
<td>ATLS</td>
<td>FTEVAL + FCEVAL</td>
<td>Max score</td>
<td>High score indicates a highly positive perception of the language-learning context</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------</td>
<td>------</td>
<td>-----------------</td>
<td>-----------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Attitude/Motivation Index</td>
<td>Composite</td>
<td>AMI</td>
<td>I + M + ATLS - FCANX + INST</td>
<td>Max score = 501</td>
<td>High score indicates an overall positive attitude and strong motivation to learn French as a second language.</td>
</tr>
</tbody>
</table>
Appendix F

Analysis of Covariance (ANCOVA) Tables

All ANCOVA tables are grouped by Measure.

- Tables 1-8 present the analyses of variables from the Attitude Motivation Test Battery.
- Tables 9-13 present the analyses of variables from the Schira Questionnaire.
- Tables 14-18 present the analyses of variables from the OISE Grade 8 Core French Test.

**Attitude Motivation Test Battery – ANCOVA Tables**

Table F1

*ANCOVA of the Motivational Intensity variable (MOTINT)*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares(b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>2</td>
<td>55.720</td>
<td>4.034</td>
<td>0.026</td>
<td>113.441</td>
</tr>
<tr>
<td>Model (a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>263.941</td>
<td>18.773</td>
<td>0.000</td>
<td>263.941</td>
</tr>
<tr>
<td>Covariate – MOTINT1</td>
<td>1</td>
<td>110.210</td>
<td>7.839</td>
<td>0.008</td>
<td>110.210</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>1.253</td>
<td>0.089</td>
<td>0.767</td>
<td>1.253</td>
</tr>
<tr>
<td>Error</td>
<td>36</td>
<td>14.060</td>
<td></td>
<td></td>
<td>506.149</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05
b R Squared = 0.183 (Adjusted R squared = 0.138)
Table F2

**ANCOVA of the Desire to Learn French variable (DLF)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares(b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (a)</td>
<td>2</td>
<td>24.160</td>
<td>1.168</td>
<td>0.322</td>
<td>48.320</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>372.201</td>
<td>18.001</td>
<td>0.000</td>
<td>372.201</td>
</tr>
<tr>
<td>Covariate - DLF1</td>
<td>1</td>
<td>46.587</td>
<td>2.2253</td>
<td>0.142</td>
<td>46.587</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>5.224</td>
<td>0.003</td>
<td>0.960</td>
<td>5.224</td>
</tr>
<tr>
<td>Error</td>
<td>36</td>
<td>20.676</td>
<td></td>
<td></td>
<td>744.346</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05
b R Squared = 0.061 (Adjusted R squared = 0.009)

Table F3

**ANCOVA of the Motivation variable (M)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>1024.198</td>
<td>1.776</td>
<td>0.184</td>
<td>2048.396</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>10759.427</td>
<td>18.661</td>
<td>0.000</td>
<td>10759.427</td>
</tr>
<tr>
<td>Covariate - M1</td>
<td>1</td>
<td>1696.421</td>
<td>2.942</td>
<td>0.095</td>
<td>1696.421</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>103.296</td>
<td>0.179</td>
<td>0.675</td>
<td>103.296</td>
</tr>
<tr>
<td>Error</td>
<td>36</td>
<td>576.563</td>
<td></td>
<td></td>
<td>20756.270</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05
b R Squared = 0.90 (Adjusted R squared = 0.039)
Table F4

*ANCOVA of the Attitude Motivation Index variable (AMI)*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>11261.940</td>
<td>2.033</td>
<td>0.146</td>
<td>22523.880</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>72614.382</td>
<td>13.107</td>
<td>0.001</td>
<td>72614.382</td>
</tr>
<tr>
<td>Covariate – AMI1</td>
<td>1</td>
<td>22081.213</td>
<td>3.986</td>
<td>0.053</td>
<td>22081.213</td>
</tr>
<tr>
<td><strong>GROUP</strong></td>
<td>1</td>
<td>6.575</td>
<td>0.001</td>
<td>0.973</td>
<td>6.575</td>
</tr>
<tr>
<td><strong>Error</strong></td>
<td>36</td>
<td>5540.069</td>
<td></td>
<td></td>
<td>199442.479</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05  
b R Squared = 0.101 (Adjusted R squared = 0.052)

Table F5

*ANCOVA of the Integrativeness variable (I)*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>2432.929</td>
<td>2.579</td>
<td>0.90</td>
<td>4865.858</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>11935.385</td>
<td>12.653</td>
<td>0.001</td>
<td>11935.385</td>
</tr>
<tr>
<td>Covariate – I1</td>
<td>1</td>
<td>4551.756</td>
<td>4.826</td>
<td>0.035</td>
<td>4551.756</td>
</tr>
<tr>
<td><strong>GROUP</strong></td>
<td>1</td>
<td>34.968</td>
<td>0.037</td>
<td>0.848</td>
<td>34.968</td>
</tr>
<tr>
<td><strong>Error</strong></td>
<td>36</td>
<td>943.266</td>
<td></td>
<td></td>
<td>33957.578</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05  
b R Squared = 0.125 (Adjusted R squared = 0.077)
### Table F6

**ANCOVA of the Attitude Toward the Learning Situation variable (ATLS)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>1142.674</td>
<td>3.111</td>
<td>0.57</td>
<td>2285.347</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>1577.933</td>
<td>4.296</td>
<td>0.45</td>
<td>1577.933</td>
</tr>
<tr>
<td>Covariate - ATLS1</td>
<td>1</td>
<td>2165.162</td>
<td>5.895</td>
<td>0.020</td>
<td>2165.162</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>70.547</td>
<td>0.192</td>
<td>0.664</td>
<td>70.547</td>
</tr>
<tr>
<td>Error</td>
<td>36</td>
<td>367.289</td>
<td></td>
<td></td>
<td>13222.369</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05  
b R Squared = 0.147 (Adjusted R squared = 0.100)

### Table F7

**ANCOVA of the French Teacher Inspiration variable (FTINS)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>98.664</td>
<td>5.984</td>
<td>0.006</td>
<td>197.327</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>236.437</td>
<td>14.339</td>
<td>0.001</td>
<td>236.437</td>
</tr>
<tr>
<td>Covariate - FTINS1</td>
<td>1</td>
<td>121.471</td>
<td>7.367</td>
<td>0.010</td>
<td>121.471</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>79.414</td>
<td>4.816</td>
<td>0.035*</td>
<td>79.414</td>
</tr>
<tr>
<td>Error</td>
<td>36</td>
<td>16.489</td>
<td></td>
<td></td>
<td>593.596</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05  
b R Squared = 0.249 (Adjusted R squared = 0.208)  
*significant, p < 0.05
### Table F8

**ANCOVA of the French Class Anxiety variable (FCANX)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>245.169</td>
<td>6.258</td>
<td>0.005</td>
<td>490.338</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>477.068</td>
<td>12.178</td>
<td>0.001</td>
<td>477.068</td>
</tr>
<tr>
<td>Covariate – FCANX1</td>
<td>1</td>
<td>379.405</td>
<td>9.685</td>
<td>0.004</td>
<td>379.405</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>62.813</td>
<td>1.603</td>
<td>0.214</td>
<td>62.813</td>
</tr>
<tr>
<td>Error</td>
<td>36</td>
<td>39.176</td>
<td></td>
<td></td>
<td>1410.329</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05
b R Squared = 0.258 (Adjusted R squared = 0.217)

### Schira Questionnaire – ANCOVA Tables

### Table F9

**ANCOVA of the Attitude variable (A)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>108.855</td>
<td>17.832</td>
<td>0.000</td>
<td>217.710</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>11.556</td>
<td>1.893</td>
<td>0.178</td>
<td>11.556</td>
</tr>
<tr>
<td>Covariate – A1</td>
<td>1</td>
<td>212.734</td>
<td>34.849</td>
<td>0.000</td>
<td>212.734</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>1.251</td>
<td>0.205</td>
<td>0.654</td>
<td>1.251</td>
</tr>
<tr>
<td>Error</td>
<td>35</td>
<td>6.105</td>
<td></td>
<td></td>
<td>213.658</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05
b R Squared = 0.505 (Adjusted R squared = 0.476)
Table F10

**ANCOVA of the Motivation variable**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>103.776</td>
<td>7.444</td>
<td>0.002</td>
<td>207.552</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>198.324</td>
<td>14.226</td>
<td>0.001</td>
<td>198.324</td>
</tr>
<tr>
<td>Covariate – M1</td>
<td>1</td>
<td>205.825</td>
<td>14.764</td>
<td>0.000</td>
<td>205.825</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>1.114</td>
<td>0.080</td>
<td>0.779</td>
<td>1.114</td>
</tr>
<tr>
<td>Error</td>
<td>35</td>
<td>13.941</td>
<td></td>
<td></td>
<td>487.948</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05  
b R Squared = 0.298 (Adjusted R squared = 0.258)

Table F11

**ANCOVA of the Self-Concept/Attitude Variable (SCA)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>552.405</td>
<td>29.733</td>
<td>0.000</td>
<td>1104.810</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>104.949</td>
<td>5.649</td>
<td>0.023</td>
<td>104.949</td>
</tr>
<tr>
<td>Covariate – SCA1</td>
<td>1</td>
<td>1104.504</td>
<td>59.449</td>
<td>0.215</td>
<td>1104.504</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>29.639</td>
<td>1.595</td>
<td>0.215</td>
<td>29.639</td>
</tr>
<tr>
<td>Error</td>
<td>35</td>
<td>18.579</td>
<td></td>
<td></td>
<td>650.269</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05  
b R Squared = 0.629 (Adjusted R squared = 0.608)
Table F12

**ANCOVA of the Self-Concept/Performance variable (SCP)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>3023.317</td>
<td>10.666</td>
<td>0.000</td>
<td>6046.634</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>3980.136</td>
<td>14.042</td>
<td>0.001</td>
<td>3980.136</td>
</tr>
<tr>
<td>Covariate - SCP1</td>
<td>1</td>
<td>5896.734</td>
<td>20.804</td>
<td>0.000</td>
<td>5896.734</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>6.406</td>
<td>0.023</td>
<td>0.881</td>
<td>6.406</td>
</tr>
<tr>
<td>Error</td>
<td>35</td>
<td>283.447</td>
<td></td>
<td></td>
<td>9920.629</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05  
b R Squared = 0.379 (Adjusted R squared = 0.343)

Table F13

**ANCOVA of the Causal Attribution variable (CA)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>38.423</td>
<td>13.364</td>
<td>0.000</td>
<td>76.845</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>75.364</td>
<td>26.213</td>
<td>0.000</td>
<td>75.364</td>
</tr>
<tr>
<td>Covariate - CA1</td>
<td>1</td>
<td>76.576</td>
<td>26.634</td>
<td>0.000</td>
<td>76.576</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>7.066</td>
<td>0.002</td>
<td>0.961</td>
<td>7.066</td>
</tr>
<tr>
<td>Error</td>
<td>35</td>
<td>2.875</td>
<td></td>
<td></td>
<td>100.629</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05  
b R Squared = 0.433 (Adjusted R squared = 0.401)
OISE Grade 8 Core French Test – ANCOVA Tables

Table F14

ANCOVA of the Test d'écoute (Listening Test) (ECOUTE)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>34.389</td>
<td>6.017</td>
<td>0.006</td>
<td>68.777</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>42.628</td>
<td>7.459</td>
<td>0.010</td>
<td>42.628</td>
</tr>
<tr>
<td>Covariate - ECOUTE</td>
<td>1</td>
<td>60.651</td>
<td>10.613</td>
<td>0.003</td>
<td>60.651</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>8.476</td>
<td>1.483</td>
<td>0.232</td>
<td>8.476</td>
</tr>
<tr>
<td>Error</td>
<td>34</td>
<td>5.715</td>
<td></td>
<td></td>
<td>194.304</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05
b R Squared = 0.261 (Adjusted R squared = 0.218)

Table F15

ANCOVA of the Test de lecture (Reading Test) (LECTURE)

<table>
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<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>51.188</td>
<td>7.396</td>
<td>0.002</td>
<td>102.375</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>119.220</td>
<td>17.227</td>
<td>0.000</td>
<td>119.220</td>
</tr>
<tr>
<td>Covariate - LECTURE</td>
<td>1</td>
<td>100.199</td>
<td>14.478</td>
<td>0.001</td>
<td>100.199</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>1.269</td>
<td>0.183</td>
<td>0.671</td>
<td>1.269</td>
</tr>
<tr>
<td>Error</td>
<td>34</td>
<td>6.921</td>
<td></td>
<td></td>
<td>235.301</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05
b R Squared = 0.303 (Adjusted R squared = 0.262)
Table F16

**ANCOVA of the Test de composition (Written Composition) (COMP)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>17.480</td>
<td>4.135</td>
<td>0.025</td>
<td>34.961</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>99.352</td>
<td>23.500</td>
<td>0.000</td>
<td>99.352</td>
</tr>
<tr>
<td>Covariate - COMP</td>
<td>1</td>
<td>34.904</td>
<td>8.256</td>
<td>0.007</td>
<td>34.904</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>1.144</td>
<td>0.003</td>
<td>0.959</td>
<td>1.144</td>
</tr>
<tr>
<td>Error</td>
<td>34</td>
<td>4.228</td>
<td></td>
<td></td>
<td>143.742</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05
b R Squared = 0.196 (Adjusted R squared = 0.148)

Table F17

**ANCOVA of the Test de dictée (Written Dictation) (DICTEE)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>617.165</td>
<td>15.766</td>
<td>0.000</td>
<td>1234.329</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>1267.368</td>
<td>32.377</td>
<td>0.000</td>
<td>1267.368</td>
</tr>
<tr>
<td>Covariate - DICTEE</td>
<td>1</td>
<td>1215.471</td>
<td>31.051</td>
<td>0.000</td>
<td>1215.471</td>
</tr>
<tr>
<td>GROUP</td>
<td>1</td>
<td>63.581</td>
<td>1.624</td>
<td>0.211</td>
<td>63.581</td>
</tr>
<tr>
<td>Error</td>
<td>34</td>
<td>39.145</td>
<td></td>
<td></td>
<td>1330.914</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05
b R Squared = 0.481 (Adjusted R squared = 0.451)
Table F18

**ANCOVA of the Test oral (Speaking Test)(ORAL)**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Sum of Squares (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model (b)</td>
<td>2</td>
<td>0.675</td>
<td>0.077</td>
<td>0.926</td>
<td>1.351</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>348.085</td>
<td>39.679</td>
<td>0.000</td>
<td>348.085</td>
</tr>
<tr>
<td>Covariate - ORAL</td>
<td>1</td>
<td>0.149</td>
<td>0.017</td>
<td>0.899</td>
<td>0.149</td>
</tr>
<tr>
<td><strong>GROUP</strong></td>
<td>1</td>
<td>1.206</td>
<td>0.138</td>
<td>0.718</td>
<td>1.206</td>
</tr>
<tr>
<td>Error</td>
<td>10</td>
<td>8.773</td>
<td></td>
<td></td>
<td>87.726</td>
</tr>
</tbody>
</table>

a Computed using alpha = 0.05
b R Squared = 0. 015 (Adjusted R squared = -0.182)