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ABSTRACT

Foreign language students experience added difficulty when they are isolated from native speakers and from the culture of the target language. It has been posited that MOO (Multi-User Domain Object Oriented) may help overcome the geographical isolation of these students. MOOs are Internet-based virtual worlds in which people from all over the real world meet for synchronous textual conversations and can interact with asynchronous textual objects found there. Students who enjoy a MOO site may identify with its virtual target language community and find integrative motivation that the literature suggests is necessary for advanced language acquisition. This study focused on the affective nature of MOO. An experimental group of high school English-as-a-foreign-language (EFL) students experienced 12 academic hours at a MOO site for EFL students. Using pretest and posttest questionnaires, participants indicated their anxiety about and motivations towards various EFL procedures and English class in general. Findings demonstrate that some significantly positive attitudes toward using MOOs as an EFL procedure, particularly for male students and those who felt proficient with computers. Nevertheless, the findings did not match the enthusiasm found in various position papers about MOO and EFL instruction. The experimental group gave significantly higher scores for relevance and expected success in regard to general EFL instruction. However, it gave MOO significantly lower scores in relevance satisfaction as an EFL procedure when compared to the overall averages of the 13 other EFL procedures. No other major significant differences were found. Numerous tables and figures are included, as well as 152 references and 7 appendices with all pretests, posttests, questionnaires, and other materials used in the research. (KFT)

Multi-User Domain Object Oriented (MOO) as a High School Procedure for Foreign Language Acquisition

by

James A. Backer

A Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Doctoral Program in Computer Technology in Education
School of Computer and Information Sciences
Nova Southeastern University

1999

We hereby certify that this dissertation, submitted by James A. Backer, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the dissertation requirements for the degree of Doctor of Philosophy.

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Foreign language students experience added difficulty when they are isolated from native speakers and from the culture of the target language. It has been posited that MOOs (Multi-user domain Object Oriented) may help to overcome the geographical isolation of these students. MOOs are Internet-based virtual worlds in which people from all over the real world meet for synchronous textual conversations and can interact with asynchronous textual objects found there. Students who enjoy a MOO site may identify with its virtual target language community and find integrative motivation which the literature suggests is necessary for advanced language acquisition.

This study focused on the affective nature of MOO. An experimental group of Israeli high school EFL (English as a Foreign Language) students experienced 12 academic hours at *schMOOze University*, a MOO site for students of English as a Second/Foreign Language. A control group employed normal EFL procedures, including reading comprehension passages, taped songs, class discussions, and grammar exercises. Using pretest and posttest questionnaires, participants indicated their anxiety about and motivation towards various EFL procedures and English class in general. (Motivation was divided into course-specific subconstructs: interest, relevance, expectation of success, and satisfaction.)

The findings demonstrated some significantly positive attitudes towards using MOO as an EFL procedure, particularly for male students and those who felt proficient with computers. Nevertheless, the findings did not match the enthusiasm found in various position papers about MOO in Second/Foreign Language instruction. The experimental group gave significantly higher scores for relevance and expected success *in regard to general EFL instruction*. However, it gave MOO significantly lower scores in relevance and satisfaction *as an EFL procedure* when compared to the overall averages of the 13 other EFL procedures. No other major significant differences were found.

External factors, which could not be compensated for by the experimental design, may have caused the discrepancy between the position papers and the findings. Repeated, long interruptions of the research may well have produced feelings of discontinuity and frustration, rather than greater motivation, for students unfamiliar with the technology. Therefore, recommendations for further research include an experimental design with a more concentrated MOO experience.

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Introduction

Statement of Problem and Goal

Many of the problems of foreign language instruction can be traced to the students' physical isolation from native speakers of the target language (Dornyei, 1990). A particular Internet communications program, called MOO (Multi-user domain Object Oriented), may be a partial answer to the problems stemming from the isolation of foreign language students. On a theoretical level, using MOO can be supported by currently accepted hypotheses about second/foreign language instruction relating to: acquisition, motivation, anxiety, simulations/role plays/fantasy/games, schema theory in reading, and computer mediated communications (CMC). In terms of financing a MOO-based experience for foreign language students, it can be argued that the cost of using MOO is within the reach of even financially hard pressed high schools once they have connected to the Internet.

The Situation of Second Language Students

Foreign language (FL) instruction is distinguished from *second language (SL)* instruction primarily by its physical situation and the implications stemming from that physical situation (Brown, 1993; Dornyei, 1990, 1994). Students of a second language usually live in an area where that language is used for general needs by a large segment of the population. This means that the students can immediately practice their newly obtained

linguistic knowledge in authentic situations, outside of the classroom. Often this real-life language practice can focus on the interests of the students, rather than those of the classroom teacher, and can last as long as the students choose. Current theory maintains that this type of natural, student-centered use of language is more effective in reinforcing language acquisition than traditional teacher-centered frontal lessons focusing on rules and forms (Krashen, 1997; Meunier, 1997).

Often, the students of a second language study in a class with peers from different countries, speaking many different first (native) languages. They have all traveled to a new place to study, work, live, or experience as visitors. Given their various native languages, the social needs in the class, as well as the teacher-defined academic needs, are dealt with in the target language. An experienced teacher uses this natural need to communicate in order to accelerate language acquisition. High quality classroom exercises often include linguistic realia and prepare the students to become independent learners outside the class. Part of that preparation is the development of cultural-linguistic empathy for people who are trying to make themselves comprehensible (Brown, 1993). Interacting in a supportive classroom environment with non-native speakers prepares students to interact with native speakers in a less supportive environment outside of class.

Thus, the student of a second language can access the target language by choice outside the class and by necessity inside the class. This situation fits nicely with current theory

that posits the acquisition of a new language through authentic interaction with native speakers, more fluent non-native speakers, or both. Authentic use of language allows the students to construct a mental model of the new language, examine that model in the light of new linguistic input, and then modify the mental model. In this way, students move along the interlanguage continuum from the first language to the target language, gradually refining their mental model (Krashen, 1997; Long, 1983; Pica,1994; Selinker, 1972; Swain, 1985). The condition of a low-stress environment in which these processes occur is critical. Much of the current theory posits that low levels of anxiety and high levels of motivation are key indicators of students' success in the second/foreign language classroom (Gardner & MacIntyre, 1991; Krashen, 1997; MacIntyre, 1995).

The Situation of Foreign Language Students

Students of a foreign language live in an area where there are few, if any, speakers of the language which they are studying. Thus, outside the classroom they have little or no contact with the language, its speakers, or its culture. The quality of the classroom teacher, working within the timetable and the physical limitations of the school, determines the quantity and quality of the foreign language experience. Because of the nature of school schedules, most students of a foreign language do not even have the opportunity to practice with more advanced students of the language. Even if such meetings were organized, students speaking the same native language would find it highly unnatural and unnecessary to communicate in the foreign language. Moreover, not only does the isolation from native speakers and from more fluent non-native speakers

exclude the possibility of practice of forms and lexis, it also excludes the possibility of developing the necessary cultural-linguistic empathy that makes advanced communications possible in a second/foreign language (Brown, 1993; Dornyei, 1990, 1994). Although instrumental motivation (i.e., profiting from knowledge by getting good grades in required courses) may be enough for foreign language students to do well on an introductory level, research indicates that such instrumental motivation alone will not be enough for success on more advanced levels. Here integrative motivation (i.e., the desire to associate with speakers of the language and their culture) appears to be a more important factor (Dornyei, 1990, 1994). The isolation of foreign language students leads to a lack of commitment towards the speakers and culture of the new language, thus inhibiting the development of integrative motivation needed to reach advanced communicative competency in that language (Brown, 1993; Dornyei, 1990,1994). Obviously, geographic isolation puts students of a foreign language at a distinct disadvantage compared to students of a second language.

The Case of International Languages

A special case of has been made for international languages, existing between second languages and foreign languages (Kachru, 1986). Here a specific segment of a population uses a language for specific purposes. In India and other former colonial countries, the bureaucracy often uses the colonial language to conduct its business, particularly if the local population is divided along ethnic-linguistic lines. The use of a different language (even an imperialistic language) is politically expedient, bridging linguistic diversities,

rather than proclaiming one local language superior to the others (Brown, 1993; Finegan & Besnier, 1989). In addition, many specific commercial groups use particular international languages for doing business among themselves as well as with foreigners. For example, pilots and air controllers routinely use English, regardless of their native languages.

Although the existence of international languages must be noted, the students of international languages are not in a unique situation In fact, they are quite like foreign language students. Their motivation is instrumental rather than integrative: knowing the target language can be extremely profitable. Moreover, there is little desire to become like native speakers because the students' role models are usually non-native speakers. Despite this, the students usually find themselves isolated from the speakers of the international language, unless they are fortunate enough to have work or apprenticeships with the target language population. These students usually cannot walk into a government office or into a corporate office for a chat in an international language setting as they could walk into a grocery store or a cafe in a second language situation. Thus, for the purposes of this study, the students of an international language were included with students of a foreign language.

Telecommunications as a Possible Solution for Foreign Language Students

The emerging synchronous and asynchronous technologies of computer mediated communications (CMC) offer a partial solution to the problem of geographic isolation of

foreign language students. (This is particularly true for students of English as a foreign language because the prevalent language of the Internet is English.) In addition, research indicates that computer mediated communications can facilitate second/foreign language acquisition by creating low-stress and student-centered environments (Warschauer, 1998; Warschauer, Turbee, & Roberts, 1996). In particular, textual programs may offer lower-stressed interaction than programs with live video, audio channels, or both. In what Beauvois (1992) called *conversation in slow motion* (i.e., textual conversations), students have more time to contemplate the form and content of the input and the output. Oral/aural conversation in real time, whether face to face or computer mediated, increases the anxiety of students trying to understand rapid input and respond with meaningful output. Research suggests that the extra time granted in textual communications facilitates comprehension, interaction, examination of the mental model of the language, and the modification of that model based on the interaction (Beauvois, 1992; Warschauer, 1998).

There is a plethora of procedures available to foreign language teachers (Warschauer, 1995a), but the awareness of these procedures is less than it could be. Some of them are so novel that no empirical literature exists about their efficacy in the classroom. Moreover, because of monetary considerations and institutional conservatism, many schools throughout the world have not yet connected to the Internet, making awareness of computer mediated procedures in the foreign language classroom hypothetical or irrelevant (Cummins & Sayers, 1995; Holderness, 1994). Furthermore, in schools now

taking their first steps into cyberspace, it would be presumptuous to expect widespread knowledge of the empirical literature. In addition, most of the existing empirical work has been about asynchronous Internet-based procedures used at the college level, substantially ignoring both synchronous possibilities and the needs of secondary schools (Warschauer, 1996a, 1996b; Warschauer, Turbee, & Roberts, 1996).

Supplementing the still incipient body of research, position papers have appeared in print, or as ephemeral web pages, expressing the authors' unsubstantiated enthusiasm about computer mediated communications in the second/foreign language classroom (Frizler, 1995). Yet, these technophile position papers do not represent (or influence) the majority of teachers and administrators who operate in a conservative environment that systematically retards the implementation of technological procedures and the radically different pedagogical styles they embody (Hodas, 1993; Jacobs, 1992).

Time and funding are two crucial limitations which structurally impede the implementation of technological solutions by foreign language teachers (Cummings & Sayers, 1995; Holderness, 1994). Like all teachers, they strive to reach certain goals, using what they perceive as the most efficient procedures, within a certain amount of class and homework time, given the technologies that the schools offer. This means making choices between methodologies, procedures, and the specific programs that embody them (Hodas, 1993). The limitations of time and funding are particularly true in the field of computer-aided language learning (CALL), where foreign language teachers

are in school-wide competition for computer access and face a quickly changing marketplace of computer hardware and courseware (Holderness, 1994).

The problem of limited funding is particularly acute for high school foreign language teachers, whose schools tend to be poorer than local universities (Cummins & Sayers, 1995). The relative poverty is even greater for EFL (English as a foreign language) high school teachers whose schools usually cannot afford the same computer hardware and software as their counterparts in ESL (English as a second language) environments. Most high schools in Africa, Asia, and Latin America cannot compete with the technological level of high schools in most English speaking countries (Cummins & Sayers, 1995; Warschauer, 1997). As a result, many EFL teachers (like other foreign language teachers) throughout the world have limited access to computer and Internet technology; and what technology does exist tends to be years behind the cutting edge (Holderness, 1994). The technological inferiority of EFL learning environments should be considered neither marginal nor trivial because many, if not most, schools in the world offer EFL rather than ESL (Kachru, 1986).

A Definition of MOO in the EFL Context

MOO (Multi-user domain Object Oriented) may alleviate many of the problems stemming from the isolation of foreign language students. Technically, MOO is a database program kept on a proprietary server and accessed via the Internet, mixing

synchronous and asynchronous features. Although a MOO site can be accessed directly with a telnet program, this creates the problem of the users not being able to see their input before they send it. A more manageable situation is created by using a server-client arrangement where the MOO-client offers a separate buffer for user input (Falsetti, 1995; Hahn, 1996; Reid, 1994). In addition, the increasing number of MOO sites now accessible through the World Wide Web eliminate the problems of using MOO via telnet.

MOO sites have their historical origins in the computer version of the *Dungeons and Dragons* game, first developed for single computer users at Stanford Artificial Intelligence Laboratory in the early 1970's. In 1978, Roy Trubshaw, a student at the University of Essex (England) created the first MUD (Multi User Dungeon). This program allowed users from all over the real world to log into a computer-based imaginary world, simultaneously via telnet. In this virtual world, the participants could slay dragons, foil villains, or die trying. This was all done with a textual interface, as if the users had stepped into the pages of a novel and had become characters in that novel. In the original MUD program, the virtual world was fixed by the original programmer. Subsequent modifications in the MUD format allowed the users to modify the virtual world as they played. Further modifications eliminated much of the combative competition and created virtual worlds that stressed social interaction and cooperation. One of these modifications was called MOO (Multi-user *dungeon* Object Oriented, later Multi-user *domain* Object Oriented) and was installed on many university servers to encourage collaborative telecommunications. In some cases, the collaboration was dedicated to specific academic subjects, such as rhetoric, biology, history, or language

studies. In most cases, MOO sites were set up by universities or commercial organizations as a place for people to meet and socialize (Bruckman, 1997; Falsetti, 1995; Hahn, 1996; Reid, 1994).

A MOO site can be visualized as a virtual world with a geography made up of interlocking locations. People entering a MOO are represented by self-created (i.e., potentially anonymous and fictional) characters and can meet in pairs, or groups, in the various locations. The users can also expand the MOO site by building additional locations and filling them with virtual objects which can be examined and manipulated by all the characters (Reid, 1994). Most MOO sites are still primarily textual, demanding the users to imagine the virtual world as it is described on the screen. As stated before, entering a MOO site is like stepping into the pages of a novel and participating, as a character, deciding with the other characters how the plot should develop (Bruckman, 1997; Hahn, 1996; Reid, 1994).

The basic metaphor of a MOO site is a community, whose members frequently visit and meet with each other (Turkle, 1995, 1998). Depending on the MOO site, there are various types of synchronous and asynchronous forms of communications. Characters may synchronously *say* things to each other in the same location, or *page* someone in a different location. (Both saying and paging are performed by typing messages and then sending them to the MOO site.) In addition, many MOO sites offer special channels, something like a CB radio, to enable synchronous communications to a predetermined subset of the characters currently online. Once again, depending on the MOO site, there

are a number of asynchronous possibilities for communication. All the descriptions of locations and objects are, in fact, asynchronous messages for other people (usually unknown audiences) to read sometime in the future. Some of the objects, such as whiteboards and graffiti walls, have a dual asynchronous nature. Their descriptions are created for future readers who then can leave their own asynchronous messages on the objects for other characters to read. Another form of asynchronous communication is MOOmail, which functions like e-mail within the MOO site, enabling characters to leave messages for other characters currently not present. An additional form of asynchronous communication is the MOO newspaper, which exists within the MOO site, publishing current information that may be of interest to the registered characters. All these forms of synchronous and asynchronous communications strengthen the MOO site's primary metaphor: a permanent community (Reid, 1994).

Students' repeated visits to the MOO community foster a feeling of membership, which is indicated by their social/functional climb in the ranks of the community: guest, registered character, room owner, builder, programmer, wizard. Moreover, the creation of objects fosters a feeling of ownership within this community (Bollier, 1995; Bruckman, 1997; Hall, 1998). This dual feeling of membership and ownership in such a fantasy-based virtual world potentially offers foreign language students a low-stress environment, filled with meaningful, negotiated interaction. This interaction exists on four levels: interaction with other characters (representing people from all over the world), interaction with the MOO environment itself (reading the various descriptions and writing the commands to manipulate the objects), interaction with the underlying MOO program in order to build

new locations and objects (reading instructions, writing commands, and composing descriptions), and interaction with online MOO experts (wizards, programmers, and more experienced builders) to seek aid while building complex objects. In short, the MOO environment offers foreign language students endless opportunities to read and write meaningful language, and learn about their peers around the world. Through these interactions with native speakers, physically isolated foreign language students will have the chance to develop positive attitudes towards the target language, its speakers, and its culture. Although interaction with more fluent non-native speakers may not reinforce commitment to the culture of the target language, it will offer opportunities to negotiate meaningful communication in that language. The more fluent non-native speakers, like the native speakers, will help the students along the interlanguage continuum. This is particularly true if the non-native cyberfriends speak first languages radically different than the students' first language, forcing both groups to break away from mistakes caused by local first language interference (Dornyei, 1990, 1994; Kelm, 1996; Krashen, 1997; MacIntyre, 1995).

Thus, ESL/EFL teachers can direct their students to properly chosen MOO sites for authentic experiences in English. Although MOO has a dual nature, a communications program and a fantasy world, teachers are advised to see MOO as a holistic learning experience. Language instructors looking for a textual communications program, without a virtual world, can find technically easier programs, such as IRC (Internet Relay Chat). Likewise, teachers simply searching for interesting reading passages could have their students use the World Wide Web. On the other hand, MOO combines communications

in English with contextualized reading passages in order to create a dynamic ESL/EFL instructional environment. Teachers should encourage their students to meet people from all over the world and to explore, with their cyberfriends, the elements in the virtual world (e.g., a cafeteria, an art gallery, a swimming pool, a scrabble game, etc.). This way the students participate in authentic conversations about cross-cultural matters while they use authentic language relating to their surroundings in the virtual world.

In addition, because MOO is basically textual, it has minimal bandwidth requirements and does not need powerful computers, multimedia equipment, or massive connectivity to the Internet (Allison, 1997; Sanchez, 1996a; Turbee, 1996). Thus, on a technical level, MOO offers a partial solution for financially pressed high schools. In fact, a single second-hand computer operating with a dial-up modem can effectively bring small groups of students to a virtual world inhabited by speakers of the target language.

There are many MOO sites (and similar sites with related names such as MUD - Multi User Domain, MUSH - Multi User Shared Hallucination, MUVE - Multi User Virtual Environment, CVE - Collaborative Virtual Environment, etc.), each with its own theme, content, technical options, and population of users. Some are educationally oriented while others are definitely not suited for school use (Turbee, 1997). Rein (1998) listed 39 educational MOO sites out of a general list of more that 125 sites. Five of the educational MOO sites were specifically for students of second/foreign languages. Thorne's (1996) partial list of MOOs, MUDs, and MUSHes included 10 language education sites including first, second, and foreign languages. One MOO site designed specifically for

ESL/EFL students and teachers is *schMOOze University* (Falsetti, 1995; Awaji, 1998). Despite the paucity of empirical literature, this MOO site seemed to be a logical choice as an instructional tool with high school EFL students, and thus became a logical location for empirical work to validate (or discredit) using MOO as an EFL procedure. (Other educational MOO sites were rejected in this study because the target population of the MOO was too young, or would be in school during different times than the experimental population in Israel.)

Restatement of the Problem and Goal

In conclusion, this dissertation responded to a two-fold problem: the isolation of foreign language students (particularly students of English as a foreign language) from speakers of the target language, and the paucity of empirical evaluation about MOO, which could alleviate that isolation. The goal of the dissertation was to evaluate one particular MOO site, called schMOOze University, as an effective environment for EFL language acquisition. The dissertation was grounded in current second/foreign language theory, related educational theories, and empirical research. While dealing with foreign language instruction in general and ESL/EFL instruction in specific, emphasis was placed on EFL teaching at the high school level.

Relevance of Study

Since the 1980's, an increasing number of second/foreign language teachers have integrated computer technology into their work, despite the financial problems and the

general technophobe attitudes of many schools (Freiermuth, 1998; Frizler, 1995; Hodas,1993; Holderness, 1994; Jacobs, 1992; Meunier; 1994; Warschauer, 1996a, 1996b). During this period, the use of computer aided language learning (CALL) has shifted from behaviorist "drill and kill" and multiple-choice programs, to text-manipulation programs (e.g., Cloze and Storyboard formats) concurrently with using the computer as an open tool (wordprocessing, databases, etc.), and most recently to using the computer as a communications tool (Barson & Debski, 1996; Tella, 1996). With the move to computer mediated communications (CMC) procedures, it has been claimed that such procedures reduce anxiety and increase motivation in the foreign language classroom (Warschauer, Turbee, & Roberts, 1996).

It is reasonable that foreign language teachers know the comparative strengths and weaknesses of the various communications programs, such as MOO, before they allocate time and other resources in order to use them in class. This coincides with the demands of school administrators to know the best way to exploit the newly purchased technology (Dunkel, 1991).

Up until now, most of the empirical studies that have been published about the use of MOO in second/foreign language instruction (Lundstrom, 1995; Pinto, 1996; Sanchez, 1996a) have focused on the "chat" element, basically ignoring the program's fantasy/simulation/game aspect and its implications in the affective domain of language acquisition. Although enthusiastic position papers about using MOO in language instruction (Awaji, 1998; Davies, Shield, & Weininger, 1998a, 1998b; Falsetti, 1995;

Sanchez, 1995, 1996b; Schwienhorst, 1997, 1998a, 1998b; Turbee, 1996, 1997) deal with the fantasy/simulation/game aspect in theoretical terms, by definition, these position papers do not offer empirical proof for their claims. Yet, many teachers, with limited time and funding, want to read about the details of MOO, and of other Internet programs, before investing time and energy exploring these procedures.

In addition, most of the empirical studies published about MOO as an instructional procedure for second/foreign language deal with college level students, ignoring high school students. Beyond the obvious differences in age and maturity, there are other factors that may affect the applicability of MOO in high school classes. For example, long term EFL studies are often mandatory in many, if not most, public schools in the world. Being forced to study a language year after year (unlike minimal college language requirements) may affect the motivation of the students in the high school class in a way that does not appear in college level language classes. In addition, it would appear that the personality types (as measured by the Myers-Briggs Type Indicator - MBTI), and therefore the learning styles, of university foreign language majors is considerably different from those of the total university population (Moody, 1988). Once again, because EFL studies are often required for all high school students, the findings about self-selected college foreign language students may not be applicable to the high school EFL setting.

Another question is that of resource allocation. The teacher has to assign priorities to all possible instructional procedures, deciding the amount of time to allot to each and the

amount of preparation time required for each. Although in-class use of some procedures may lead to the students' voluntary use of those procedures outside of class, reallocating procedures is a zero-sum game in terms of finite class time. A teacher choosing to use MOO, or any new procedure, must decide which procedures will lose class time. Another resource a teacher has to consider is the monetary cost of each procedure.

In conclusion, this dissertation attempted to advance the body of knowledge about using MOO as a foreign language procedure at the high school level. Specifically, it dealt with the affective issues of anxiety and motivation entailed in language acquisition while using MOO. The dissertation also addressed the question of which procedures would lose some, or all, of the currently allocated classroom resources if the foreign language teachers decide to use MOO.

Barriers and Issues

Technical Issues

There are a number of technical and pedagogical problems that have impeded the research about, and implementation of, educational MOO sites used as foreign language instructional environments. Most of the technical problems stem from the novelty of the procedure and the lack of Internet connectivity in the schools and colleges. There have been few locations and little time to research the theoretical implications and to test the procedure empirically. Thus, teachers are not aware of the MOO environment and how to exploit it with second/foreign language classes. This is particularly true for using the

MOO environment at the high school level. However, the technical problems are marginal in comparison to the pedagogical problems.

Pedagogical Issues

Many second/foreign language teachers, wary of the rapid changes in didactic approaches and classroom procedures that have characterized the profession since the mid 1960's (Brown, 1993), have chosen conservative survival strategies. Many other second/foreign language teachers, who are more open to change, have been disappointed with the unfulfilled promises of educational technology. Language laboratories, educational television, video, and early use of computers have failed to live up to their original revolutionary promises (Baines, 1997; Oppenheimer, 1997). Other teachers are wary of venturing into a technological world in which their students often know more than they do. In addition, many teachers fear the profound pedagogical changes that accompany certain procedures, moving the teacher from the center stage and allowing much greater student autonomy (Hodas, 1993; Jacobs, 1992). Finally, even teachers ready for such fundamental changes are often stymied by their social and political implications. The Internet transcends the walls of the schoolyard and the local community. The students may encounter opinions, images, and other types of information that run contrary to local norms. Many school districts in America have become battle grounds between liberal educators and conservative moralists. The former would empower the students to freely search for and evaluate information while the latter would shelter students from the darker side of cyberspace in specific, and life in general (Lloyd, 1998). This cultural conflict over the Internet will probably be replicated throughout the world as more and

more schools come online. In Israel, for example, many religious schools have chosen not to connect to the Internet, despite the existence of intranets that are suitable to the schools' philosophies.

In the area of ESL/EFL instruction, there are particular pedagogical problems. Many teachers do not want to expose their students to nonstandard English on the Internet, which can include the texts of non-native speakers, uncorrected mistakes of native speakers, the ubiquitous dialect of Cyber-English (Frizler, 1995; Lundstrom, 1995), and the obscenities encountered in many of the synchronous communications programs (Lloyd, 1998). In addition, in this age of high-speed, visual video games, some teachers may question the primarily textual content of an educational MOO site and belittle the ASCII drawings, maps, and diagrams often found in the MOO environment (ASCII - American Standard Code for Information Interchange - is the basic set of symbols used by most computers in the world). The question here, of course, is whether a primarily textual procedure is the best environment available for second/foreign language acquisition, particularly at a high school level. In addition, many teachers, trained in their profession well before the advent of computers and the Internet, question the value of using procedures based on virtual reality fantasies, whether they are graphical fantasies or textual fantasies (Rieber, 1996). As a result of all these objections, many teachers are predisposed against using the MOO environment.

These pedagogical issues, in addition to budgetary considerations, weigh heavily when school administrators decide in which technologies to invest and which to ignore. Thus, a

practical evaluation of the educational MOO environment must confront these issues and analyze their validity and importance.

Research Questions and Hypotheses

The purpose of this study was to increase the practical understanding of how a properly chosen MOO environment could function as a foreign language instructional procedure, particularly at the high school level. Much of current second/foreign language acquisition theory has focused on two general elements, the students' processing of the target language via interaction and the affective factors influencing the students. Thus, research on MOO should address one, or both, of these issues to be relevant for the second/foreign language teaching community. The present study focused on the affective constructs of foreign language anxiety and foreign language motivation (Dornyei, 1990, 1994; Kelm, 1996; MacIntyre, 1995) reported by students who used MOO as a classroom procedure. Due to theoretical and technical considerations explained below, in the section on Limitations and Delimitations, the cognitive aspect of how well the MOO environment facilitates the processing of linguistic input, was left for future research.

The decision to concentrate on motivation was taken with the knowledge that both general second/foreign language acquisition theory and second/foreign language motivational theory are in a state of flux (Brown, 1993; Crookes & Schmidt, 1991; Kelm, 1996; Long, 1990, 1993; Oxford & Shearin, 1994). Brown, Long, and others analyzed the frequent and radical changes in general second/foreign language acquisition theories since

the Second World War. Crookes and Schmidt along with Oxford and Shearin reviewed how the specific concept of motivation in second/foreign language acquisition has been defined and redefined, leading to a lack of consensus in the field. Nevertheless, Dornyei's (1994) taxonomy of foreign language motivation offered a reasonable division of course-specific motivational components. These components were: interest, relevance, expectancy, and satisfaction. Interest was the students' basic reaction to class material and how it is presented: Was it fun? Was it interesting? Relevance referred to the perceived importance of the procedure to the students' lives, both in and out of the classroom. Expectancy reflected the students' expectations of doing well and feeling in control of the material. Satisfaction addressed the students' feelings of intellectual satisfaction and feelings that the procedure was worthwhile.

Along with motivation, anxiety is a key factor in the affective domain of language acquisition. Most recent language-anxiety research has overwhelmingly supported the view that anxiety plays a major role in directly and indirectly affecting language learning and acquisition. There seems to be a bidirectional negative correlation between anxiety and linguistic performance. Many students enter a downward spiral in which the awareness of their cognitive problems (apparent with slower and less successful performance) leads to greater anxiety which further impedes cognition. This developmental process often coincides, and interacts, with the appearance of students' strong self-consciousness during their adolescent years. Research has indicated that language learning anxiety is weakest for children and strongest for adolescents and adults (MacIntyre, 1995: MacIntyre & Gardner, 1991). Although communication apprehension

may exist in natural environments outside of the classroom, the worries about being formally evaluated (test anxiety) and the worries about looking foolish in front of peers (social anxiety) are additional types of anxiety found in the classroom (Ely, 1986; MacIntyre, 1995: MacIntyre & Gardner, 1991; Young, 1991). The reviews of literature have consistently pointed to significantly higher levels of anxiety in language classes as compared to other academic subjects, supporting the hypothesis of a separate language learning anxiety construct. In fact, several of the empirical studies reviewed by MacIntyre and Gardner (1991) indicated that "anxiety provides some of the highest correlations of attitudes with achievement" (p. 103). Thus, it seems obvious that MOO should be put to the anxiety text: Does using MOO in the foreign language class increase or decrease students' anxiety?

It has long been recognized that within a single class, second/foreign language students have different personality traits and corresponding learning styles (Ehrman & Oxford, 1988; Moody, 1988; Oxford & Nyikos, 1989; Skehan, 1991). Meunier (1996) and others have used the Myers-Briggs Type Indicator (MBTI) and alternative instruments to search for correlations between affective differences and the successful use of computer assisted instructional procedures in language class. However, research findings based on these instruments have little relevance for most high school teachers because administrators are adverse to spending the money and time on yet another standardized test, this time not required by the school districts. Until such learning style indicators become standard instruments in high schools, more accessible criteria must be sought for effective differentiation in computer-aided second/foreign language instruction. Research indicates

that gender, keyboard skills, and general computer anxiety may be fruitful and accessible indicators for success in computer-aided second/foreign language classrooms (Meunier, 1996; Warschauer, 1996a; Warschauer, Turbee, & Roberts, 1996). For the second/foreign language teacher contemplating MOO for a class, or for part of a class; it would be indeed relevant to know how gender, keyboard skills, and general computer anxiety influence the students' levels of motivation and anxiety while using this procedure.

Thus, the specific research questions of this study were:

1. Are high school foreign language students motivated to use MOO to the extent that merits the adoption of this procedure?

2. If MOO is adopted as a foreign language procedure on the high school level, can the students indicate which of the preexisting procedures should be replaced by MOO?

3. Do gender, keyboard skills, or general computer anxiety influence the students' motivation to use MOO as a foreign language procedure at the high school level?

Based on the research questions and the review of literature, presented in Chapter II of this dissertation, the following hypotheses (phrased in terms of expected outcomes, rather than null hypotheses) were addressed:

1. The students will report less than average anxiety and more than average interest, relevance, expectancy, and satisfaction about using MOO in high school foreign language class in comparison to other instructional procedures used.

2. Gender will not be significantly related to self-reported anxiety, interest, relevance, expectancy, and satisfaction while using MOO as a foreign language procedure at the high school level.

3. Self-reported keyboard skills will correlate negatively with self-reported anxiety and positively with self-reported interest, relevance, expectancy, and satisfaction while using MOO as a foreign language procedure at the high school level.

4. Self-reported general computer anxiety will correlate positively with self-reported anxiety and negatively with self-reported interest, relevance, expectancy, and satisfaction while using MOO as a foreign language procedure at the high school level.

5. The students using MOO in class will report lower levels of anxiety and higher levels of interest, relevance, expectancy, and satisfaction about foreign language instruction (in general) than students not using MOO.

6. In terms of anxiety and motivation, students will express clear opinions about which foreign language procedures should be displaced in order to include MOO in the curriculum.

Limitations and Delimitations

Limitations

The following limitations to the study were noted:

1. Linguistic input found in MOO is bimodal, presenting itself as synchronous conversations and asynchronous descriptions and messages previously left by other characters. Although a MOO log, recording characters' activities, may indicate the quality of synchronous interaction, it might not accurately reflect the quality of processing asynchronous input. A log cannot distinguish between reading a text that requires no observable reaction as opposed to not reading the text in the first place. This problem is compounded by the uncertainties involved in comparing oral output with the typed output of students with varying keyboard skills. Thus, it would be erroneous to compare transcripts of small group oral interaction in class with the logs of MOO users.
2. There was a technical/administrative factor impeding research on participants' linguistic interaction in the MOO environment. According to the rules of the Institutional Review Board (IRB) of Nova Southeastern University, all participants in

a research project must give prior consent to participation. In a MOO program, there are two types of interlocutors, registered characters and guests. Although it was conceivable to contact all the registered characters before a research project begins, it was impossible to predict which guests would appear on any particular day. These guests would be totally anonymous and could not be identified. Thus, prior consent could not be asked for, nor granted.

3. Another limitation of the study, once again arising from the Institutional Review Board requirements for prior participant consent, was the problem of the Hawthorne Effect. The participants might have changed their normal patterns of activity and speech because they knew that they were being observed. The very act of asking for prior consent might have influenced the students' activities during the experiment.
4. The Internet lab at the experiment site had 15 stations. This required dividing the experimental population into subgroups accessing the MOO site at different times, and at different hours of the day. Thus, it was impossible to ensure absolute uniformity of the quantity or quality of potential interlocutors for each session. As a result, some students were forced to interact with preexisting written texts more than interacting with written utterances from online interlocutors. (Although this was always an option, when there were no potential interlocutors it became the only option.) This difference might have influenced the type of linguistic input the students received, the strategies of processing the input, and the levels of motivation. In addition, the difference in time during the school day might have affected the students' ability to concentrate on the MOO task in a uniform way.

5. The English staff at the experiment site decided to maintain a special remedial Five Point Bagrut (National Matriculation) class. The teachers took this decision due to instructional problems over the previous two years, placing 25 students outside the potential experimental population. As a result, there were only three classes available for the project: two experimental and one control. Although having two control groups would have been preferable, the project existed in the real world, with real world considerations. Nevertheless, having a smaller experimental population (N = 62), with two experimental groups and only one control group might have influenced the results of the project.
6. Due to scheduling considerations, the three classes participating in the experiment had different teachers. Although the teachers were working according to the national syllabus of the Ministry of Education, and had agreed to coordinate their instruction as much as possible, differences in teaching styles and attitude probably influenced the results of the research.
7. The Har V'Gai Regional School (the experiment site) did not offer touch-typing courses either in Hebrew or English. As a result, few teachers demanded typed papers from their students. Thus, many of the students had minimal hunt-and-peck keyboard skills. Those students who frequently used computers may have developed more efficient one-finger or two-finger keyboard skills, but it was assumed that only a few students knew how to touch type. For the purposes of this research project, the lack of typing skills in a foreign language (English), with a different character set than the students' first language (Hebrew or Russian), might have influenced the results of the study.

Delimitations

The following delimitations to the study were noted:

1. Only 11th grade students on the Five Point English Bagrut level in the Har V'Gai Regional School participated in this project. (*Bagrut* is the National Matriculation Examination, where Five Points is the highest level in English.) Generalizations stemming from this study may not be relevant to lower grades or lower levels of the 11th grade.

2. S*chMOOze University*, a MOO site created for students and teachers of English as a second/foreign language was the only MOO site used in class during the project. Because the experimental students were studying English as a foreign language (EFL); research findings might not be the basis of generalizations for students of English as a second language (ESL), students using a different English MOO site, or students of other languages visiting non-English MOO sites.

3. Previous studies done at the Har V'Gai Regional School (the experiment site) had indicated rapid student fatigue with surveys and a tendency to sabotage questionnaires after students had lost interest in them. Israeli schools have been less involved with standardized exams than their counterparts in many western nations. Thus, the students seemed to have little respect for surveys which did not influence their grades. As a result, brevity was the overriding prerequisite for the design of the instruments

for this project. To encourage the students' rapid understanding of the questions, a short explanation of the specific theoretical concept (anxiety, interest, relevancy, expectancy, or satisfaction) preceded each subsection, using the same linguistic structure as the other subsection explanations. Hopefully, the students were able to proceed quickly through the subsection after they understood the construct. Also to increase student comprehension of the questionnaire and decrease time needed to answer, all questions and answers were in Hebrew. In addition, the native Russian speakers in the experiment received a Russian translation of the questionnaire. Nevertheless, the required brevity of the questionnaires might have influenced their quality.

4. The need for a short, and unequivocally clear, instrument eliminated the possibility of reverse coding of questions as a check for internal consistency of students' answers.

Definition of Terms

Affective filter - The affective filter is a term used by Krashen (1985) to refer to a psychological construct impeding language acquisition. This construct is a composite of a number of psychological, social, political, cultural, and economic factors that would cause a student of a foreign or second language to resist both language acquisition, language learning, or both (Brown, 1993).

Because the construct of the affective filter has not been quantified, the strength of a student's affective filter cannot be measured directly. For the purposes of this study, the strength of the affective filter, while using a certain teaching procedure, was judged indirectly by measuring the subject's willingness to use that particular instructional procedure in comparison to other teaching procedures.

Bagrut - The Bagrut Exams are the national matriculation examinations for the State of Israel (Chief Inspector for English, 1996). The Ministry of Education of the State of Israel constructs, administers, and corrects the English Bagrut Exam, usually in the 12th grade, although some advanced classes receive permission to take the exam in the 11th grade. The four levels of the English Bagrut, in descending order, are: Five Point, Four Point, Three Point, and One Point. The Five Point and Four Point exams are Israeli university entrance level exams, with most universities preferring the Five Point exam.

Comprehensible input - Krashen (1985) defined comprehensible input as language that students are able to understand. If *i* represents students' linguistic competence, then *i+1* is the language a bit beyond the current level, which the students can still understand with the aid of contextual clues, social assistance, or both. This is the linguistic parallel to Vygotsky's (1987) Zone of Proximal Development. Long (1983a), Pica (1987, 1996), Swain (1985), and others have refined Krashen's definition of comprehensible input to include an i+1 obtained by negotiated interaction. This parallels another of Vygotsky's concepts, stressing the basic social nature of learning. Without a caregiver (an adult or

more advanced peer) trying to make meaning out of the students' output (oral or written), the students have little chance to improve current linguistic competencies.

Comprehensible output - After Krashen posited comprehensible input as a prerequisite for second/foreign language acquisition, researchers began to focus on comprehensible output as an opportunity for students to attend to the various elements of the target language. Output that is not comprehensible calls for negotiation and for further input to help the student along the interlanguage continuum (Pica, 1994; Swain, 1985).

EFL - Studying *English as a Foreign Language* occurs in a non-English speaking environment. The students in an EFL class usually all speak the same first language so there is no natural reason to use the target language, English. In addition, students of EFL typically have exposure to English only a few hours a week, usually in the confines of an institutional setting (Brown, 1993).

ESL - Studying *English as a Second Language* occurs in classroom surrounded by an English speaking environment. Students must practice English, after class hours, to function in the host community. In addition, the students in an ESL class often come from various native language backgrounds, so they must use English to communicate with the teacher and with peers (Brown, 1993).

Instrumental motivation - Students feel that knowing a certain language is somehow profitable. This view motivates them in their studies in an instrumental manner. This type of motivation is distinct from integrative motivation (Brown, 1993).

Integrative motivation - Students may want to associate with the speakers of a language and their culture. This desire will motivate their language studies in an integrative manner (Brown, 1993).

Interlanguage continuum - Speakers of a native language do not suddenly become speakers of another language. They go through a process of making and testing hypotheses about the target language, with or without the assistance of formal instruction. They begin with knowledge about language in general, gained from their native language, and move toward the target language. Bit by bit, they readjust their mental models of the new language, improving their communicative competency in that language. Successful hypotheses become mental constructions that correspond to the rules of the new language. Unsuccessful hypotheses are revised or discarded. At any particular moment, the language the students are acquiring is located on an interlanguage continuum between the native language and the target language (Selinker, 1972). Truly successful students make the journey to a high level of competency in the target language, while less successful students become fossilized somewhere along the interlanguage continuum (Brown, 1993).

Language acquisition - This paper accepted the modification of Long (1983a), Pica (1987, 1996), Swain (1985), and others of Krashen's (1981) definition of language

acquisition. Krashen defined language acquisition as a natural, subconscious, and intuitive process of mentally constructing the system of that language. The medium in which this process takes place is low-stress meaningful language use, where the students receive comprehensible input. For Krashen, exposure to language in this type of environment is sufficient for acquisition. Long, Pica, Swain, and others refined this definition by stating that input becomes comprehensible during a process of negotiation with other people who are at a higher level of competence in the target language. As part of negotiated interaction, comprehensible output allows for hypothesis testing and cognitive awareness of the language. The concept of a subconscious and intuitive process in a low-stressed environment remains important in this modified definition.

Language learning - For Krashen (1981), language learning is a conscious process of memorizing forms and rules of the target language. In this process, the students' mental monitors check for correct use of these forms and rules in controlled situations such as exams and essays. According to Krashen, the monitor inhibits the students from testing hypotheses in real life situations. As a result, Krashen (1982) claimed that language learning and language acquisition are, in fact, mutually exclusive processes. Disputing this extreme position, Gregg (1984) pointed out that conscious knowledge can become subconscious, and the reverse. Therefore, there was no justification for Krashen's strict division between learning and acquisition. In addition, Long (1983b) demonstrated that formal language learning could lead to greater communicative competency in the target language. Nevertheless, while Gregg, Long, and others challenged Krashen's extreme position about the mutual exclusivity of acquisition and learning, they basically accepted

the conceptual dichotomy of in-class conscious learning vs. natural (usually out of class) subconscious acquisition.

MOO environment - MOO (Multi-user domain Object Oriented) is a computer-based, textual virtual world, made up of interlocking locations that may contain objects (Reid, 1994). People who use the MOO environment choose self-described characters that can move through the locations and manipulate the objects. Each MOO site has a general theme (e.g. a college campus, the Wild West, a forest, an ocean, etc.) and the locations and objects tend to reflect that theme. People experienced in MOO can extend the MOO site by building additional locations, objects, or both. An important aspect of MOO is the potential for synchronous internet communications that allow people from all over the world to gather in the various virtual locations and converse with each other via their MOO characters. Conceptually, visiting a MOO site is like stepping into the pages of a book, becoming a character in the book, and being able to influence the plot from the inside the book.

Although having its origin in the game *Dungeons and Dragons*, many MOOs have developed away from competitive and violent games towards social, cooperative, and occasionally educational activities (Reid, 1994). There are MOO sites for language education, and schMOOze University is the most well-known MOO site for ESL/EFL students and teachers. For the purposes of this paper, schMOOze University was the appropriately chosen MOO environment for EFL students.

Negotiated interaction - Negotiated interaction is a term put forth by Long (1983b), Pica (1987, 1996), and others in order to expand and refine Krashen's (1981 & 1985) concept of comprehensible input which facilitates language acquisition.

Target language - The target language is another term for the second or foreign language. The target language is found on the opposite end of the interlanguage continuum from the native language (Brown, 1993).

Summary

Students of a foreign language have two major problems that stem from their isolation from native speakers and more fluent non-native speakers of the target language. First, foreign language students have little opportunity to interact with speakers of the target language. They cannot get input in order to examine their own mental models of the language, nor can they test hypotheses about the language in the form of output. Second, the isolation of foreign language students impedes the creation of positive attitudes towards the target language population and culture, and therefore impedes the development of motivation to learn the target language itself.

Bringing foreign language students to a properly chosen MOO site may be a partial solution to these two problems. The foreign language students may develop a positive attitude toward the virtual community speaking the target language and be motivated to visit the MOO site in their free time. This would increase the opportunities to interact

with native speakers and more fluent non-native speakers. In addition, the game like quality of MOO fantasy and the inherently interesting possibility of meeting peers from all over the world may lower the students' affective filter and facilitate greater language acquisition.

This project examined the opinions of 11th grade students of English as a Foreign Language (EFL). The students reported their levels of anxiety, interest, relevance, expectancy, and satisfaction while using MOO as opposed to other foreign language procedures. Indirectly, the students indicated which procedures they preferred to displace in order to allocate time for using MOO. In addition, this project investigated the influence of gender, keyboard skills, and general computer anxiety on the student's attitudes towards using MOO as a foreign language procedure.

Chapter II

Review of Literature

Historical Overview of the Theory and Research Literature

MOO (Multi-user domain object oriented) is a textual, Internet-based, virtual world in which participants from all over the real world can meet and communicate. The goal of this dissertation was to investigate the claim that MOO could be used successfully as an instructional tool in high school foreign language classes. In preparing such a dissertation, the following related fields were explored: second language acquisition (SLA) theory, second/foreign language learning motivation and theories, educational simulations/role plays/fantasy/games theories as used in second/foreign language instruction, schema theory in second/foreign language reading, computer mediated communications (CMC) theory in second/foreign language instruction, and the incipient field of MOO-specific research relating to second/foreign language instruction.

Second Language Acquisition (SLA) Theory.

Krashen (1976, 1977, 1985,1997) posited that the two prerequisites for facilitating second language acquisition are students' encountering comprehensible input and a lowered affective filter. Although accepting some modifications to his work over the last 20 years, Krashen has defended the validity of his main hypotheses. According to Krashen,

students *learn* a language in a controlled academic setting by focusing on forms and rules, and then by reproducing these forms and rules during exams and exercises. Language *acquisition* occurs subconsciously in naturalistic settings, while using meaningful language in an environment of low stress (i.e., a weak affective filter). Krashen's input hypothesis defined students' current level of comprehension as *i* and the input that would increase linguistic competency as *i+1*, a bit beyond the students' current level, but within the students' developmental capabilities. Students internalize the *i+1* by subconsciously comparing it with their previous mental model of the language. If there is a discrepancy between the input and the model, the model is modified, thus moving the students along what Selinker (1972) termed the *interlanguage continuum* toward the target language. According to Virgil and Oller (as cited in Brown, 1993), fossilization occurs when students stop moving toward the target language, reflecting the sense that the current mental model is functionally acceptable, and no longer challenged by input from the students' interlocutors.

Krashen defined the affective filter as a screening device in the internal processing system, governed by the acquirers' "motives, needs, attitudes, and emotional states" (Dulay, Burt, & Krashen, 1982, p. 46), that allows or prohibits the acceptance of new input. In other words, a lowered affective filter was "an open attitude" as Krashen called it in 1997 (p.17). A strong affective filter would lead to rapid fossilization.

Krashen's monitor hypothesis was closely related to the construct of the affective filter. According to Krashen, students developed a cognitive self-checking device, a monitor, to

help them create correct output. A strong monitor is extremely useful in controlled situations of language *learning,* such as examinations and essays, but hinders the students' *acquiring* a language by working against the needed low-stress linguistic environment. Students with strong monitors tend to be too fearful to freely interact in the new language, thus avoiding the input necessary to modify their mental models of the language (Gregg, 1984; Krashen, 1977).

Krashen's concepts were very similar to those of Chomsky (1965), Piaget (1967, 1973, 1976), and Vygostsky (1978). The input hypothesis was parallel to Chomsky's theory that the brain has a language acquisition device (LAD) whose language specific switches are set when input from a particular language is presented. Krashen's explanation of the movement along the interlanguage continuum resembled Piaget's concepts of equilibration, including *assimilation* of information into existing schemas and *accommodation* of mental models to accept information that does not fit previous schemas. Finally, the *i+1* was the linguistic parallel to Vygotsky's zone of proximal development, the context in which new language knowledge could be acquired with the aid of a caregiver.

Krashen's concepts have been modified and adapted by Long (1983), Pica (1994), Pica and Doughty (1987), Pica, Lincoln-Porter, Paninos, and Linnell (1996), and others to define comprehensible input as a process of negotiated interaction. As a result, comprehensible *output* has been upgraded from Krashen's vehicle for merely requesting additional comprehensible input to an integral part of negotiated interaction. In opposition

to Krashen, Swain (1985) saw comprehensible output as independent from input, allowing the students to actively test linguistic hypotheses within meaningful contexts. In addition, Swain maintained that through comprehensible output, the students move from a passive semantic analysis of a language to an active syntactic analysis of that language. Swain's theories agreed with Virgil and Oller's theories of fossilization (as cited in Brown, 1993), according to which, interlocutors can signal acceptance, or the need for more negotiation of meaning, in the face of students' output. When the interlocutors signal acceptance on both an affective and a cognitive level, many students tend to feel that their mental model of the language and its output are good enough to be functional. At this point their model fossilizes in the interlanguage continuum, before reaching the target language.

The modification of Krashen's input hypothesis by Long, Pica, Swain, and others reflected Vygotsky's (1978) dictum that learning is done in a social setting and that a caregiver is needed to help the learner into the zone of proximal development. Linguistically, it is native speakers, or more fluent non-native speakers of a language, who negotiate meaning through interaction with the students, helping them form and test hypotheses, causing them to construct mental models of the target language, and ultimately helping the students move along the interlanguage continuum towards the target language (Pica, Holliday, Lewis & Morgenthaler, 1989; Pica, Lincoln-Porter, Paninos & Linnel, 1996). The converse should be noted here: interlocutors who are neither native speakers, nor more fluent non-native speakers, can do relatively little to move the students towards the target language. Without the intervention of more

competent speakers of the target language, the interlanguage of students will soon fossilize. This is particularly true when students in a class speak the same native language, reinforcing first language interference with no awareness of alternative structures (Brown, 1993; Conrad, 1996; Meunier, 1997). For example, students whose native language does not include the relative pronoun *whose* or the perfect aspect will probably not discover these structures by themselves.

Krashen's claim that acquisition is a totally subconscious process has been challenged by theorists who stressed the importance of conscious awareness of linguistic forms (Warschauer, 1998). Schmidt (1990), for example, claimed that students' awareness of new linguistic forms transforms new *input* into *intake*, incorporating it into the students' mental model of the language. In his review of the literature, Warschauer (1998) noted that the input-interaction-output models make a number of claims. First, comprehensible input is necessary (but not sufficient) for second language acquisition. Second, meaning-oriented negotiation between non-native speakers and native speakers leads to modifications of the non-native speakers' mental model of the language because it clarifies the input, focuses on new linguistic forms, and flags incorrect attempts to use the second or foreign language. Third, some awareness of new forms is important, and perhaps crucial, for modifying mental models of the target language. Fourth, comprehensible output is an important element in second/foreign language acquisition because it enhances fluency, creates an awareness on the part of the students about the weaknesses in their current mental model of the language, allows the students to test hypotheses about the target language, and allows metalinguistic evaluation of the target

language when the students ask native speakers or more fluent non-native speakers about the target language.

Second/Foreign Language Learning Motivation and Anxiety Theories.

Although Krashen has generated much focused debate with his concept of comprehensible input, it would appear that his umbrella construct of an affective filter has not created as much interest. Crookes and Schmidt (1991) wrote that "the concept of the affective filter has been considered by many to be the weakest part of Krashen's theory of second language acquisition" (p. 478), and they went on to review the literature that rejected Krashen's construct. Nevertheless, many researchers have continued to base their work, in part, on Krashen's concepts of the affective filter (Young, 1991). Whether using Krashen's terminology or not, recent literature about the affective domain has been fragmented among many overlapping areas of interest, often suffering from the lack of standard definitions of terms (Brown, 1993; Crookes & Schmidt, 1991; Gardner & Tremblay, 1994; Kelm, 1996; Oxford & Shearin, 1994). For example, Brown's (1993) review of the literature distinguished the affective domain from the cognitive aspects of learning and included elements such as self-esteem, inhibition, risk taking, anxiety, empathy, extroversion, motivation, cultural stereotypes, attitudes, acculturation, social distance, and cultural differences. Kelm (1996), on the other hand, defined the elements of the affective domain as: "personality, attitude, motivation, peer identification, anxiety, monitoring, inductive abilities, etc." (p. 26). Disregarding Kelm's open-ended "etc.", only two of his listed components matched Brown's: motivation and anxiety. Yet the exact definition of these two terms have been heatedly debated in recent years (Oxford &

Shearin, 1994). For decades there had been a general acceptance of the second language motivation theories of Gardner and his associates (Gardner, 1988; Gardner & MacIntyre, 1991; Gardner & Lambert, 1959; Gardner & Tremblay, 1994; Gilksman, Gardner, & Smythe, 1982; Lalonde & Gardner, 1985; Lambert, Gardner, Barik, & Tunstall, 1963), dividing language learning motivation into two types. Integrative motivation involved associating with, and becoming like, the target language group. Instrumental motivation involved profiting from the ability to use the target language for particular purposes, such as job-related tasks, but not necessarily becoming like native speakers. Recently, this dichotomy has been criticized as insufficient. Au (1988) attacked Gardner et al.'s theories head on, questioning aspects of generality, lack of empirical evidence, poor definition of terms, and faulty experimental design. Other authors (Crookes & Schmidt, 1991; Dornyei, 1990, 1994; Ely, 1986a, 1986b; Oxford, 1994; Oxford & Shearin, 1994) also found the theories of Gardner and his associates insufficient, but professed to build upon these theories rather than discard them.

Oxford and Shearin (1994) noted the confusion in Gardner et al.'s theory about the difference between motivation in second language and foreign language environments. They agreed with Dornyei (1990) that integrative motivation may be much less important for foreign language students who do not come into contact with the target language, or people speaking it, outside of the language classroom. In fact, according to Dornyei, quite often the foreign language students know so little about the realities of the target language cultures that the students are neutral and uncommitted about associating with the native speakers. Thus, instrumental motivation is relatively more important for foreign language

students than second language students. Along with this instrumental motivation, Dornyei saw the psychological need for achievement as a sufficient motivating factor at the beginning and intermediate levels of language proficiency. Fulfilling foreign language requirements in school has little in common with integrative or instrumental motivation, but is sufficient for motivating ambitious students. At the advanced level of proficiency, Dornyei suggested that the lack of integrative motivation grows more important as a factor in foreign language students' difficulties in acquiring the language. Oxford and Shearin agreed that the continued lack of integrative motivation for foreign language students often prevents them from achieving advanced levels of proficiency. In attempting to analyze a separate foreign language motivation construct, Dornyei (1994) offered three levels: the language level, the learner level, and the learning situation level. Within the learning situation level, there were three groups of components: course-specific motivational components, teacher-specific motivational components, and group-specific motivational components. Basing his definition of course-specific motivation on the work of Crookes and Schmidt (1991), Dornyei offered four course-specific motivational components: interest, relevance (to the students' lives), expectancy (expectations of success and feelings of being in control), and satisfaction (Dornyei, 1994). These, and the other definitions in Dornyei's taxonomy, were strongly supported by Oxford (1994). Here, Dornyei, based on Crookes and Schmidt, and supported by Oxford, offered a tool for analyzing the motivation of foreign language students using specific methodological procedures (including MOO) in terms of course-specific motivation.

Another relevant construct of the affective domain is language learning anxiety. MacIntyre and Gardner (1991) noted that despite numerous studies since the 1970's, this construct suffers from the lack of a standard definition and, until recently, a number of conflicting conclusions arising from the research. However, with refinements in theory and measurement, most recent research has overwhelmingly supported the view that anxiety plays a major role in directly and indirectly influencing language learning and acquisition (Ely, 1986; MacIntyre, 1995: MacIntyre & Gardner, 1991; Young, 1991). The major dissenting voice about the importance of anxiety in language learning comes from Sparks and Granschow (as cited in MacIntyre, 1995), who posited that language aptitude is the dominant factor in language learning success and regard language anxiety as a side effect.

Some of the early contradictory research findings could be explained with the adoption of the Yerkes-Dodson Law which stated that low levels of anxiety actually aid the students to focus on the task at hand, thus causing superior performance compared to students who are indifferent to the task (MacIntyre, 1995). Nevertheless, as the anxiety of dealing with a particular task increases, a point is reached where the affective demands on cognitive processing become so great that each increment of anxiety impedes the students' successful completion of the task. These two types of anxieties were termed *facilitating anxiety* and *debilitating anxiety* (MacIntyre, 1995). Most of the literature dealt with debilitating anxiety, and suggested a bidirectional negative correlation between anxiety and linguistic performance. Many students enter a downward spiral in which the awareness of their cognitive problems (apparent with slower and less successful

performance) leads to greater anxiety which further impedes cognition (Ely, 1986; MacIntyre, 1995: MacIntyre & Gardner, 1991; Young, 1991). Based on a review of several studies of young children, adolescents, and adults, MacIntyre and Gardner (1991) suggested a developmental process in which initial experience with language anxiety increases with time. The knowledge of past difficulties and failures leads to greater anxiety, which leads to further interference with cognitive processing. This developmental process often coincides, and interacts, with the appearance of students' strong self-consciousness during their adolescent years. As the research indicated, language learning anxiety is weakest for children and strongest for adolescents and adults (MacIntyre & Gardner, 1991).

People are often anxious about their ability to function in a second or foreign language, particularly in oral/aural situations, a type of anxiety termed *communication apprehension* (MacIntyre & Gardner, 1991). Unlike reading and writing, which allow for contemplation and correction, listening and speaking demand high levels of concentration in a time frame not controlled by the students. When there is only one chance to successfully process the input or output, the pressure on students increases. Even in a conversational situation, people will feel ill at ease repeatedly requesting the same information (MacIntyre & Gardner, 1991; Young, 1991).

While communication apprehension may exist in natural environments outside of the classroom, inside the classroom there are additional types of anxiety: the worries about being formally evaluated (test anxiety) and the worries of looking foolish in front of peers

(social anxiety) (MacIntyre & Gardner, 1991; Young, 1991). Examining grade 7 and grade 9 Canadian Francophone students, Clement, Gardner, and Smythe (as cited in MacIntyre & Gardner, 1991) found that self-confidence in English performance was the lowest among students who were exposed to English only in the classroom as opposed to being exposed to English at home, with friends, or both. (In this study, and others like it, self-confidence was defined as the lack of anxiety and was positively correlated with language learning motivation.) Young (1991) suggested six sources of classroom language anxiety: "1) personal and interpersonal anxieties; 2) learner beliefs about language learning; 3) instructor beliefs about language learning; 4) instructor-learner interactions; 5) classroom procedures; and 6) language testing" (p. 427). MacIntyre and Gardner (1991) would call the anxiety prevalent in the language classroom *situation-specific anxiety* stemming from the social context in which the anxious students find themselves (as opposed to *trait anxiety,* which is a permanent characteristic of individuals, and to *state anxiety,* which is a problematic mixture of trait and situation-specific anxieties). The reviews of literature have consistently pointed to significantly higher levels of anxiety in language classes as compared to other academic subjects, supporting the hypothesis of a separate language learning anxiety construct. In fact, several of the empirical studies reviewed by MacIntyre and Gardner (1991) indicated that "anxiety provides some of the highest correlations of attitudes with achievement" (p. 103).

Extending the analysis, Horwitz, Horwitz, and Cope (as cited in Young, 1991) were the first to posit the difference between second language anxiety and foreign language

anxiety. Referring to the findings of Horwitz et al. and others, MacIntyre and Gardner (1991) discussed the sociolinguistic aspects of second language and foreign language anxiety. Members of certain language groups tend to fear cultural assimilation more than members of other language groups. For example, Clement et al. (as cited in MacIntyre & Gardner, 1991) found that Canadian Francophone students saw speaking English as a threat to their cultural identity while Canadian Anglophone students did not have similar fears about speaking French. Radin (as cited in Young, 1991) used the term *existential anxiety* to describe the Francophones' fears of cultural assimilation. By changing their cultural patterns, the Francophones would lose their current identity. This is closely related to Guiora's (as cited in Brown, 1993; Young, 1991) concept of language ego, according to which students go through an identity conflict during the inevitable process of taking on new identities when using the target language. Lambert (as cited in MacIntyre & Gardner, 1991) called the Francophones' language-based loss of identity *subtractive bilingualism* while others have termed the Anglophones' experience as *additive bilingualism* (Brown, 1993).

The research of Pak, Dion, and Dion (as cited in MacIntyre & Gardner, 1991) suggested that Chinese speaking students in Canada experience additive bilingualism while studying English rather than subtractive bilingualism. Pak et al. stated that the Chinese speaking students demonstrate linguistic rather than cultural assimilation. Their visible difference from stereotypical Anglophones cause the Chinese speakers less anxiety about identity and allow them to concentrate more easily on their English studies.

Schumann (as cited in Brown, 1993) dealt with the construct of social distance between language groups that come in contact with each other, a construct closely connected to subtractive and additive bilingualism. Briefly, the greater the perceived social distance between two language groups, the less chance of successful second language acquisition by the members of those groups. Of course, social distance is not the only, nor necessarily the most dominant, factor predicting success in the language classroom, as seen in studies like the one done by Pak et al. The positive, instrumental motivation of sociopolitically and economically subordinate groups may well be stronger than the negative aspects of social distance. For example, conquered and enslaved populations have understood the brutally practical necessity (i.e., instrumental motivation) of learning the language of their conquerors and masters. Thus, social distance is only one element within the larger construct of anxiety, a construct which strongly predicts success in second/foreign language classrooms (Brown, 1993; MacIntyre & Gardner, 1991).

As mentioned above, Dornyei (1990), like Horwitz et al. (as cited in Young, 1991), made the distinction between second language and foreign language environments. Foreign language students usually have not had enough contact with the target language group to develop positive or negative feelings about that group, its culture, and its language. Thus, the anxieties of subtractive bilingualism and similar factors impeding integrative motivation are missing in most foreign language classrooms. As a result, whatever motivation exists in foreign language classrooms tends to be instrumental motivation (Brown, 1993; Dornyei, 1994).

Young (1991) presented an extensive review of the literature relating to language anxiety in the classroom, in which she wrote:

> MacIntyre and Gardner contend that learners do not begin the language learning experience with language anxiety. If they experience anxiety, it is most likely state anxiety. According to them, language anxiety occurs only after attitudes and emotions regarding the language learning experience have been formed. If MacIntyre and Gardner's theory is correct, this suggests that the problem is not so much in the student but in the language learning experience, i.e., the methodology. Student language anxiety might be an indication that we are doing something fundamentally unnatural in our methodology. (p. 429)

Among her various suggestions for more natural methodological procedures to decrease anxiety in the second/foreign language classroom, Young suggested the use of games: collaborative problem-solving games as well as traditional competitive ones. Citing Krashen, she noted that the best way to reduce anxiety is to make the content of the lesson so interesting that the students forget they are in language class. This is the power of a good game. Saunders and Crookall (as cited in Young, 1991) also posited that games can lower language anxiety by overcoming the inhibition and caution that adults feel in formal learning environments.

Simulations/Role Plays/Fantasy/Games Theories as Used in Second/Foreign Language Instruction.

Rieber (1996) reviewed the meager research on using forms of play in general adult education. He posited that the concept of play is not easily accepted as serious pedagogy by adult learners and teachers. Thus, only recently has the potential of play in adult education been recognized by researchers. It would appear, though, that second/foreign language instruction has somewhat escaped this psychological impediment in the past.

Simulations, role play, drama, fantasy, and games have a long, although marginal, tradition in second/foreign language methodology. While two goals of such procedures are to lower anxiety and raise motivation levels in the classroom, a third goal is the creation of meaningful situations in which to develop communicative competence and practice lexis, grammar, style, and other linguistic elements (Harmer, 1983; Omaggio, 1978; Saunders & Crookall, 1985; Ur, 1988).

Scarcella (1978) reviewed the use of sociodrama in second language acquisition. Stern (1980) analyzed the psycholinguistic basis for using drama as a second language acquisition tool. Di Pietro (1981, 1982) and Rodriquez and White (1983) dealt with the long tradition of role plays in language teaching. Categorizing games and simulations according to Bloom's taxonomy of educational objectives, Omaggio (1978, 1982) made a case for using these procedures in second language instruction. The most advanced category is that of social interaction games, creating the most intense emotional involvement and a need to communicate. Writing specifically about simulations, Wright (1998) reviewed theoretical and empirical material supporting claims of greater student motivation and activation during simulations. Nevertheless, Crookall (as cited in Wright, 1998) found that students believe that they learn less grammar via simulation. Wright's (1998) empirical research called this belief into question, by finding no significant difference in learning grammar between students using simulation and those using more traditional procedures. While Wright's experiment dealt with computerized simulations with static graphics, Meunier (1994) noted the ability of contemporary computer technology to provide a multimedia immersion for linguistic experience within the

framework of live-action simulations. These simulations give the students a greater sense of authenticity and cultural reality.

Many of the methodological procedures, mentioned above, converge in "Suggestopedia." Bancroft (1995), identified seven types of right brain learning strategies in Suggestopedia: visual thinking, fantasy, evocative language, metaphor, multisensory learning, music, and direct experience. With the aim of lowering anxiety levels, students enrolled in Suggestopedia classes take on new persona, with new names and new personal histories. Lying on reclining chairs and breathing according to yoga methods, they allow their imaginations to experience aural texts while carefully chosen background music accompanies the lesson. Follow-up role plays and other linguistic games, based on the texts, aid the students to understand the passages when they finally read them.

Schema Theory in Second/Foreign Language Reading.

Reading in the target language, according to schema theorists, is an interactive process in which the reader brings to the text a previous knowledge of the world, including knowledge of texts, that facilitates the understanding of that text (Anderson & Pearson, 1988, Carrell & Eisterhold, 1983; Grabe, 1988). All students have a large number of schemas that organize their world view. If new information fits into a slot within an existing schema, then the text is easily understood. Here, the readers use top-down strategies of predicting meaning as well as bottom-up strategies of word and grammatical recognition. If, on the other hand, the new information does not belong to any existing schema, then the readers cannot benefit from the top-down strategies and are limited to

bottom-up strategies. For example, a text about a family will be more comprehensible to most students than a text about quantum theory physics, even if the lexis and grammar are equivalent in both texts.

Computer Mediated Communications (CMC) Theory in Second/Foreign Language Instruction.

Computer mediated communications (CMC) research in the field of second language acquisition appeared in the mid 1980's. This new field of research has grown as second/foreign language teachers have gained access to networked classrooms, the Internet, or both (Warschauer, 1996a). Many teachers saw the potential for using computer mediated communications: to create natural situations of negotiated interaction for their students, to lower the anxiety levels in the classroom, and to increase student motivation (Freiermuth, 1998; Frizler, 1995; Meunier; 1994; Warschauer, 1996a, 1996b). These teachers first used asynchronous e-mail, and many continue to do so, to promote collaborative work and other forms of linguistic interaction in the target language (Barson, Frommer & Schwartz, 1993; Goodwin, Hamrick & Stewart, 1993; Lunde, 1990; Kroonenberg, 1994/1995; Soh & Soon, 1991) In fact, Warschauer (1996b) suggested that e-mail is more popular with language teachers than synchronous procedures (to be discussed below) used in a single class. E-mail is an asynchronous procedure that is much easier to organize than synchronous procedures. E-mail potentially can put language students in contact with native speakers of the target languages all over the world (Barson, Frommer, & Schwartz, 1993; Paramskas, 1993; Sayers, 1993; Soh & Soon, 1991), thus accessing native speaker input in the form of negotiated interaction,

facilitating movement along the interlanguage continuum, and discouraging fossilization (Long, 1983a).

The use of synchronous tools on local area networks (LANs) quickly followed the development of e-mail procedures, allowing students to participate in written conversations within a single second/foreign language classroom (Beauvois, 1992, 1994/1995; Chun, 1994; Kelm, 1992; Kern, 1995, Warschauer, 1996a, 1996b; Warschauer, Turbee, & Roberts, 1996). Research done by Beauvois (1992, 1994/5), Kelm (1992), and Kern (1995) indicated greater student motivation, greater participation by most of the students, and less anxiety while using synchronous computer mediated communications. Sullivan's (1993) anecdotal observations repeated the themes of less anxiety and greater student participation. Kern (1995) suggested that the use of pseudonyms decreases anxiety among many of the students. Using the Myer-Briggs Type Indicator, Beauvois and Eledge (1996) found that synchronous computer mediated communications aided both introvert and extrovert students. Warschauer, Turbee, and Roberts (1996) reviewed recent qualitative and quantitative computer mediated communications research and reported findings of greater student autonomy, greater equality in the classroom, a movement from teacher-centered to student-centered learning activities, and improved learning skills (assuming a properly organized computer mediated communications environment). Kern (1995) and Warschauer (1996a) found that students produce more target language output in computer mediated communications environments as opposed to oral discussions in regular classes. Warschauer (1996b) noted the favorable attitudes (i.e., less anxiety and more motivation) of both ESL (English as a

Second Language) and EFL (English as a Foreign Language) students towards using computer mediated communications as an instructional procedure, regardless of gender and keyboard skills. He also suggested that when computer mediated communications procedures are integrated into the curriculum (as opposed to being supplementary material), they are more successful in motivating the students.

A major procedural change occurred when synchronous procedures left the confines of a LAN (local area network) in a single classroom and turned to the Internet. Foregoing easier control and planning using the LAN, teachers brought the students in real-time contact with native speakers from other parts of the world. This alleviated the problem of fossilization of interlanguage caused by continued interaction between non-native speakers at the same level and with the same mother language (Conrad, 1996; Meunier, 1997). It also offers truly interesting topics for discussion (Meunier, 1997) such as differences in life styles and world views.

Computer mediated communications, whether on a LAN or on the Internet, does not afford the students unlimited time to contemplate input and output (as in e-mail); nevertheless, the immediate pressures of face-to-face conversations are alleviated (Warschauer, 1998). The process of negotiated interaction proceeds at a rate that Beauvois (1992) called *conversation in slow motion* which allows the students to study the input and monitor their output (Warschauer, 1998). While examining students using mIRC (an Internet multi-user chat program), Freiermuth (1998) found many of the same

advantages for students using Internet-based programs as those reported for LAN-based programs: greater participation by most students, less anxiety, and greater motivation.

Nevertheless, the comments about synchronous computer mediated communications were not all positive. Meunier (1997) and Sabbatelli (1997) suggested that some students would suffer anxiety about using computers while Pinto (1996) offered empirical evidence of this problem. Meunier recorded various problems stemming from simultaneous use of a program, filling the screen with so many messages that students could not keep up with the content. Kelm (1992), Meunier (1997), and others noted the problem of flaming (unnecessarily harsh criticism) that probably would not have occurred in a face-to-face discussion. Furthermore, both Kelm (1992) and Freiermuth (1998) mentioned the considerable amount of time that synchronous computer mediated communications demand. Lundstrom's (1995) research with talkers (a type of synchronous communications program found on the Internet) dealt with the problems of Cyber English, the emerging register of the Internet (Ferrara, Brunner, & Whittemore, 1991; Hawisher & Moran, 1993; Murray, 1988), questioning the instructional price paid by allowing students to use non-Standard English. (Frizler, 1995, on the other hand, considered the use of Cyber English a valuable skill and suggested teaching it in the classroom.) A further problem was raised by Meunier (1997), who examined the potential of using computer mediated communications with students showing different learning styles (as categorized by the Myers-Briggs Types Indicator). Basing her analysis on personal classroom experience and supporting research literature, Meunier cautioned that computer mediated communications procedures receive a mixed reaction from some

types of personalities in the classroom. In addition, Meunier posited that gender is a significant variable in the success of computer mediated communications in the language classroom, a position that contradicted Warschauer's (1996b) empirical findings. In general, Meunier (1997) warned ESL/EFL teachers that:

> Students are likely to consider CMC a waste of class time if they experience: 1) unclear directions for computer functions, 2) off-track discussions, 3) technical manipulations of VCR and TV monitors in addition to controlling computer functions, 4) inability to see the advantage of causal conversations on the computer, 5) lack of interesting topics, 6) not enough flexibility in discussions, 7) limitation of participation by the instructor to one sentence at a time, and 8) too much concern for language accuracy. (p. 128)

While Meunier's caveats could be raised about any classroom procedure, it should be noted that many technophiles tend to treat computer-aid procedures, particularly use of the Internet, as a universal educational solution (Kearsley, 1998). Thus, Meunier's stating the obvious is relevant in this context.

It should be noted that most of the findings, both positive and negative, came from research done with college students. Of the research papers reviewed, only Beauvois's (1992) and Sanchez's (1996a) papers dealt with high school students using a synchronous computer mediated communications tools: Beauvois's on a LAN and Sanchez's on the Internet.

The Theory and Research Literature Specific to the Topic

Definition and Description of MOO.

Multi-user domain Object Oriented (MOO) is one particular type of computer mediated communications program that has received enthusiastic reviews in printed and web-based position papers expounding the potentials of using MOO in ESL/EFL instruction (Davies, Shield, & Weininger, 1998a, 1998b; Falsetti, 1995; Frizler, 1995; Golz, 1995; Hall, 1998; Langham, 1994; Sanchez, 1995, 1996b; Turbee, 1995a, 1995b, 1966, 1997). Each MOO site is a virtual world, found on the Internet, in which participants from all over the real world can communicate with each other by typing messages. Beyond this synchronous chat function, the virtual world is comprised of a series of locations, each with a potentially rich textual description. Often there are virtual objects in these locations that can be manipulated. Thus, the virtual world presents a contextualized schema (such as a college cafeteria, a stockbroker's office, a disco, etc.) in which participants can discuss real world matters or collaboratively participate in the MOO simulation. For example, students entering a virtual cafeteria could take trays, read the menu, order food from the virtual waiter, sit at a table, and eat the food. This could occur while the participants were discussing the cultural differences of their real world societies.

The overriding metaphor of a MOO site is that of a community, with a core of permanent members who feel at home and interact with each other frequently (Haynes & Holmevik, 1998). This sense of community is reinforced by the participants' ability to extend the MOO site by building (and owning) new locations and objects. Proof of ownership can be

found with close examination of the locations and objects (Hall, 1998). Also strengthening the metaphor of community is the existence of a MOOmail service (like e-mail, but existing only in the MOO site), discussion lists within the MOO site, and a MOO newspaper (Reid, 1994; Turkle, 1995). Building and owning objects in a virtual educational community has been attractive for a number of contemporary constructivists (Doherty, 1994; Hall, 1998; Langham, 1994; Rieber, 1991; Turkle, 1995). According to the constructivist theories of Vygotsky (1962, 1978), Freire (1970), Freire and Faundez (1989), students actively construct their own knowledge rather that receive some objective knowledge from teachers and written material. Hall (1998) posited that the proper use of MOO can facilitate a constructivist learning experience, especially for foreign language students.

MOO in the Framework of Second/Foreign Language Learning Theories.

The enthusiasm about MOO (and related programs such as MUDs - Multi User Domains, MUSHes - Multi User Shared Hallucinations, MUVEs - Multi User Virtual Environments, and CVEs - Collaborative Virtual Environments) has stemmed from the extension of the general theories and research findings of the areas reviewed above. Sanchez (1996b) explained how using MOO is compatible with a number of contemporary second/foreign language methodologies: the Natural Approach (Krashen & Terrell, 1983), the Silent Way (Gattegno, 1972), Galyean's (1982) Confluent Design, Harvey's (1982) Communicative Games, and Suggestopedia (Bancroft, 1983). Indeed, there is a substantial theoretical basis for using MOO environments for improving second/foreign language reading and writing within a wide range of methodologies.

In the cognitive domain, MOO facilitates language acquisition (as opposed to learning) through slow-motion negotiated interaction (Beauvois, 1992) between students and native speakers and more fluent non-native speakers (Long, 1983b; Pica, 1994; Pica & Doughty, 1987; Pica, Lincoln-Porter, Paninos, & Linnell, 1996). Students receive large amounts of input but only focus on the i+1, the additional input that can actually be processed (Krashen, 1976, 1977, 1985, 1997). In other words, the students enter the zone of proximal development with other interlocutors acting as caregivers (Vygotsky, 1978). The input is compared to the student's mental model of the language and the processes of assimilation and accommodation (Piaget, 1967, 1973, 1976) allow the student to move along the interlanguage continuum. This constant interaction with native speakers and more fluent non-native speakers works against fossilization of interlanguage forms.

In the affective domain, the simulation/role play/fantasy/game nature of MOO should alleviate much of the anxiety in the classroom and increases motivation to use the language, thereby helping students acquire it. The theme of a properly chosen MOO site accesses well-known schemas, which aid the students' predictive reading strategies (Anderson & Pearson, 1988, Carrell & Eisterhold, 1983; Grabe, 1988). In addition, the potential of meeting peers from all over the world and comparing life styles will motivate many students to use language for their own purposes. Anonymity and other characteristics of computer mediated communications will lower anxiety levels in a class that becomes more student-centered and egalitarian (Beauvois, 1992, 1994/1995; Chun,

1994; Kelm, 1992; Kern, 1995, Warschauer, 1996a, 1996b; Warschauer, Turbee, & Roberts, 1996).

Although Warschauer (1996b) indicated that second language students would also be motivated to use MOOs, it would appear that foreign language students would receive the greater benefit: the contact with native speakers despite the isolation of their foreign language classrooms. The particular motivation for foreign language students could be measured using Dornyei's (1994) four subcategories of foreign language motivation components: interest, relevance, expectancy, and satisfaction. As mentioned above, the interest would come from the game-like nature of MOO (Rieber, 1996) and the attraction of meeting peers from all over the world. The relevance would stem from the freedom to converse with peers about student-chosen topics, gravitating to relevant aspects of the students' lives (Hall, 1998). The students' attitude toward the target language might also serve as a source of relevance. In the case of English, many ESL/EFL students will be motivated to practice English in a MOO for both instrumental and integrative reasons. The expectancy of the students' being in control of the learning process is highly probable in a MOO environment. The satisfaction involved in using MOO has a number of aspects: the satisfaction of successfully communicating with peers about relevant topics, a growing sense of ownership of the MOO site through building objects and describing one's self and one's environment, and the satisfaction stemming from the increasing feeling of membership in a virtual community (Turkle, 1995, 1998).

In addition, the work of MacIntyre and Gardner (1991) indicated that anxiety, while using the MOO as a foreign language procedure, could also be used as analytic measurement. In particular, student anonymity (Bancroft, 1995; Kern, 1995) and the game-like nature of MOO should decrease anxiety and encourage increased participation in a student-centered learning environment (Rieber, 1996). Another factor that should lower students' anxiety about using language is the feeling of being part of a supportive community.

Continued visits to a MOO site increase the potential of making real friendships and advancing upward in the social/functional hierarchy of the virtual community. Both phenomena reinforce the sense of membership in that virtual community (Turkle, 1995, 1998). The feelings of ownership of personally structured environments and objects in those environments will tend to increase the feelings of membership in the virtual community. With strong feelings of belonging and ownership, students will be motivated to return to the MOO site (Turkle, 1995), each time encountering additional potential for negotiated interaction, with both comprehensible input and output. In many ways, this self-reinforcing process is similar to integrative motivation, a crucially important prerequisite for success at advanced levels of language acquisition, but which is notably missing in traditional foreign language classrooms. Because traditional foreign language students are isolated from the target language groups, they feel uncommitted about integrating with those groups (Dornyei, 1994). In contrast to this physical isolation, students will feel a desire to integrate with the native speakers and the more fluent non-native speakers that inhabit a supportive and attractive MOO community.

Existing MOO-specific Research.

There is a small, but growing, number of authors who have explored MOO (and related MUDs - multi-user domains, MUSHes - multi-user shared hallucinations, MUVEs - multi-user virtual environments, and CVEs - collaborative virtual environments) specifically as a second/foreign language instructional procedure. While most of the literature consists of position papers (Davies, Shield, & Weininger, 1998a, 1998b; Falsetti, 1995; Frizler, 1995; Golz, 1995; Hall, 1998; Sanchez, 1995, 1996b; Turbee, 1995a, 1995b, 1996, 1997), a few research projects have been done in this field.

Pinto (1996) worked with 15 college ESL students during ninety minute periods, once a week for four weeks. He examined the technical impediments to interaction and the students' choice of communication moves during their interaction while in the schMOOze University MOO site. After showing initial restraint during the first session, with 29 average moves (both MOO commands and utterances to other people), the figure rose to 46 average moves in the second session, 60 average moves in the third, and 57 average moves in the fourth. The average percentages of these moves that were successful (according to the technical demands of the MOO program) were both high and fairly constant: 80%, 80%, 84%, and 83%. Despite the indication of growing self confidence, with a high level of success for most of the 15 students, two students frequently suffered technical problems and appeared disoriented in the MOO environment throughout the experiment. These two students had no, or minimal, previous computer experience. Thus, it is impossible to say if their problem was a developmental one, that would be remedied with more exposure to MOO, or a permanent one. Nevertheless, it is clear that some

students have initial, and possibly ongoing, problems with the technical aspects of functioning in the MOO environment. Finally, Pinto's analysis of the students' conversational moves suggested an interview style consisting of short interactions with little development of themes and a low level of cohesion in the over-all conversations.

Despite the occasional technical problems and the lack of conversational consistency, most of the students expressed positive attitudes towards using MOO in class. Nevertheless, Pinto suggested that taking large groups of students to a MOO site may not be the most effective way to use the medium. His students tended to stay in the same location talking to each other, resulting in two problems. First, the students did not take advantage of potential negotiated interaction with native speakers and more fluent non-native speakers in other locations in the MOO site. Second, when many people are in the same location, the utterances and commands fill the screen very quickly, creating problems for slow readers and slow typists. (Had the students moved to different locations, these problems would have been alleviated.) Instead, Pinto suggested that using MOO as an individual activity would be a more effective instructional procedure. He also conjectured that MOO would be more advantageous for EFL students than ESL students who can easily access native speaker input via face to face conversations. Supporting this foreign language vs. second language distinction is the fact that, despite their self-reported positive attitudes, none of the ESL students voluntarily used schMOOze outside of class. In most foreign language situations, a computer mediated communications environment like schMOOze might be the only opportunity to have conversations with native speakers, and thus may be an attractive out-of-class option.

In the framework of a qualitative study, Sanchez (1996a) took eleven high school students of intermediate French as a Foreign Language to Le MOO Francais. Besides meeting people from other real world locations and exploring the preexisting virtual locations of Le MOO Francais, Sanchez's students constructed a *Virtual Versailles* based on their in-class studies. The students felt that they spent more time on task when online than in the classroom because of the individual, interactive, low anxiety, creative and enjoyable nature of MOO. On her part, Sanchez stressed the importance of the students' ability in the MOO environment to reflect on their utterances before sending them, leading to lower anxiety, improved comprehension of output, as well as higher grammatical accuracy during output production. In short, the students and the researcher believed that the students had improved their language skills during the time they used the French MOO site.

Nevertheless, Sanchez noted definite problems while using MOO for language instruction: occasional technical difficulties with the local network and the internet connection, the existence of faulty French found in the MOO site, the difficulty of some students to hold conversations with complete strangers and to build up relationships in cyberspace, and occasional reported boredom by weaker students. Despite these reported complaints by some students, the majority enjoyed and appreciated MOO as a foreign language procedure. They felt more secure typing French to native speakers via computer mediated communications than speaking it face to face. They also enjoyed the ability to create new locations and objects in the MOO site.

Although Sanchez observed that her findings supported the use of MOO in language instruction, she recognized the methodological limitations of her study. Eleven students, not randomly chosen, could not offer a statistically significant basis for generalizations to other settings. Within the qualitative framework of her study, Sanchez stated that her findings were descriptive and warned her readers of making generalizations.

Donaldson and Kotter (1999) reported using MOO in tandem learning arrangements for eight German adults learning EFL and 13 North American college students learning German as a Foreign Language. According to the principles of tandem learning, cross-cultural partnerships formed and spent half the time working in each language, with each partner as an expert in cultural matters and the foreign language for the other partner. The project lasted 14 weeks, with weekly sessions of about two hours each session. (Often two North American students shared a German partner by dividing the time.) The partners were given projects to produce and present. The students used the logs of the MOO sessions for assessing their own progress and for consultations with the Instructors. The logs were also used, along with written questionnaires and the data from the consultations, as data for the final analysis of the project.

One of the major goals of the tandem project was to test if MOO was a suitable environment for successful language learning. The researchers concluded that MOO had led to greater interest and motivation among the students who appreciated the contact with an expert in the language and the culture. In addition, MOO was seen as a practical solution for communications with distant partners: It was less expensive than the

telephone and more immediate than asynchronous e-mail. The ability of the participants to control the fantasy-based MOO environment was also seen as an element that enhanced the learning experience during the project.

Despite the authors' enthusiastic conclusions about the tandem project and about using MOO as the medium for the project, Donaldson and Kotter (1999) also mentioned unforeseen technical problems. Some of the technically inexperienced participants consistently were less adept at logging on to the MOO site, finding their partners, and moving around within the MOO site than were their fellow students. This resulted in much less time for actual interaction in the target languages than had been anticipated.

Schwienhorst (1997, 1998a, 1998b) also reported using MOO for tandem learning of foreign languages. A group of 160 Irish college students collaborated with 160 German college students in the framework of four classes learning EFL or German as a Foreign Language. Each student received two partners to ensure that correspondence would continue despite the temporary or permanent absence of one partner. The distant partners worked over the academic year, in a MOO environment and via e-mail, to produce and present a project. The author reported great success with the tandem project and the use of MOO for its implementation. It should be noted, however, that the author's reports about this tandem MOO project must be considered anecdotal until quantitative or qualitative analysis is presented.

Finally, Kitao (1998) sent questionnaires to 20 nonnative English speakers who frequented schMOOze University, the MOO site chosen for the current dissertation. The respondents were from 11 countries and, for the most part, resided in their home country. Those outside their home country lived in the United States. The amount of time they spent at schMOOze University ranged from an hour a week to eight hours a day.

All the respondents from schMOOze University believed that chatting in the MOO environment improved their English proficiency. All but one of the respondents stated that their MOO experience had strengthened their confidence when using English. Among the reasons the respondents gave for participating in schMOOze University were: to chat in English, to play games in English, to improve their English, to get to know people from other countries, to learn about building or programming, to have fun, and to learn about other cultures.

Kitao (1999) recognized the methodological weakness of her study due to the sampling procedure. Recruiting respondents at the MOO site was an example of convenience sampling which could lead to sample bias (Gay, 1996). People who did not like the MOO environment would be unlikely to stay long enough to be recruited by the author. Those who were recruited happened to be at the MOO site when the author was searching for respondents. Thus, Kitao's (1999) findings could not be seen as valid or representative for a larger population of people interested in improving their English. Nevertheless, the findings could lead to hypotheses about why people chose to return to schMOOze University.

To date, these were the only MOO-specific teaching or research projects found in the literature about second/foreign language instruction. This was not surprising because MOO is a new educational tool, waiting for research to define its best use. Up until now, most high school second/foreign language classes, both in the United States and abroad, have not reached the technical possibilities of using the MOO environment. Now, as increasing numbers of high school second/foreign language classes gain access to the Internet, it seems obvious that MOO, as well as other Internet tools, should be evaluated in terms of facilitating second language and foreign language acquisition. No doubt, these research projects will analyze the interaction that occurs between interlocutors and issues of motivation and anxiety. Other issues will be the effect of gender, time on task, keyboard skills, prior knowledge of computers, and personality types on the effectiveness of MOO as a second/foreign language instructional procedure both at the college and high school level.

Summary of What is Known and Unknown about the Topic

On an empirical level, little is known about MOO as a second/foreign language instructional procedure at the college and high school level. In the cognitive domain, no thorough study has been done analyzing the interaction that occurs between interlocutors in the MOO environment, although there is evidence that students are capable of producing successful and meaningful output (Donaldson & Kotter, 1999; Pinto, 1996; Sanchez, 1996a; Schwienhorst, 1998a). In the affective domain, there is some empirical evidence that MOO motivates second language and foreign language students, but may

cause anxiety stemming from technical problems for students who don't have experience with computers (Donaldson & Kotter, 1999; Pinto, 1996; Sanchez, 1996a). Still lacking are empirical studies performed with statistically large samples. These studies must address students' abilities to interact successfully in the target language while in the MOO environment on one hand, and examine the anxiety and motivation levels of these students on the other hand.

The Contribution this Study Could Make to the Field

The MOO-specific literature has found support in the theories of Chomsky (1986), Vygotsky (1978), Krashen (1976 & 1985), Long (1983) and others, particularly constructivist writers. At times these theories were cited, but frequently the authors of the position papers used an informal style which did not require formal citations. A doctoral dissertation, explicitly synthesizing these theoretical works, position papers, and the scant MOO-specific empirical research on the one hand, and carrying out quantitative research in using MOO in foreign language instruction on the high school level on the other hand, could both advance knowledge and call for pedagogical action. Because the MOO environment is basically free of charge once a school had Internet connectivity, the evaluation of this instructional tool could be particularly important for high school foreign language classes suffering from limited budgets and technological inferiority vis-a-vis second language classes. Informing the teachers and administrators of the efficacy of the MOO environment (or lack of efficacy) would be a significant contribution to the

profession. The findings of such a doctoral dissertation would quickly find their way to the EFL community in Israel, via the publications of the Ministry of Education. Because Israel has been a leader in EFL teacher training, the information might well spread in a ripple effect to other foreign language settings. In addition, it would be reasonable to see the findings in some professional journal, directly reaching second/foreign language teachers outside of Israel.

Chapter III

Methodology

Research Methods Employed

This dissertation project was *true experimental research* (Gay, 1996) about Multi-user domain Object Oriented (MOO). Various position papers have claimed that this Internet communications program is a beneficial foreign language instructional procedure at the high school level (Sanchez, 1996a) and a beneficial procedure for older students (Donaldson & Kotter, 1999; Falsetti, 1995; Pinto, 1996; Sanchez, 1996a; Schwienhorst, 1998a). As reported in Chapter I of this dissertation, the specific research questions of this study were:

1. Are high school foreign language students motivated to use MOO to the extent that merits the adoption of this procedure?
2. If MOO is adopted as a foreign language procedure on the high school level, can the students indicate which of the preexisting procedures should be replaced by MOO?
3. Do gender, keyboard skills, or general computer anxiety influence the students' motivation to use MOO as a foreign language procedure at the high school level?

A *Pretest-Posttest Control Group Design* was used in this experiment (Gay, 1996). The participants were the total population ($\underline{N} = 62$) of the most advanced level of English as a Foreign Language (EFL) in the 11th grade of the Har V'Gai Regional School at Kibbutz

Dafna, Israel. The population was divided randomly and equally into three groups: two experimental classes and one control class. The experimental classes experienced MOO as one of many instructional procedures during the academic year while the control class did not use MOO during that year. Instead, the control group received a greater amount of other procedures which all EFL students, including the experimental students, routinely used in class at the Har V'Gai Regional School. It should be noted that none of the students in the 11th grade had ever experienced MOO as an in-class instructional procedure in any subject.

The Review of Literature suggested two possible areas of research to test the value of MOO as a foreign language instructional procedure: the cognitive domain and the affective domain. In the cognitive domain, the quality and quantity of interaction (including input, negotiation, and output) could be studied. However, due to technical considerations, described later in this chapter in a section related to limitations, such an approach was beyond the scope of this dissertation. With respect to the affective domain, the Review of Literature offered the constructs of anxiety and motivation in the foreign language classroom as fertile ground for empirical research concerning MOO. The data of such research was collected on questionnaires administered to the experimental and control groups before and after the treatment.

This project attempted to ascertain if there was any difference in general classroom anxiety levels and motivation levels between the experimental group and the control group. Also, an attempt was made to find significant relationships between

anxiety/motivation while using MOO on the one hand, and gender, keyboard skills, and general computer anxiety on the other. Moreover, given that all classroom time before this experiment was taken up by procedures other than MOO, the study attempted to discover which of these preexisting procedures the students would sacrifice, totally or partially, in order to accommodate the use of MOO. (While it was not intended that student opinion be the decisive factor in curriculum decisions, knowing what motivates the students and what creates anxiety could play a part in such decisions.)

Specific Procedures to be Employed

Description of the Experimental Population

As noted, the participants in the experiment were the entire population (N = 62) of the 11th grade EFL students at the Har V'Gai Regional School (Kibbutz Dafna, Israel) at the *Five Point Bagrut Level*. This was the highest level of English instruction as defined by the Israeli Ministry of Education and would be formally assessed during a national examination, usually taken at the end of the 12th grade.

The students studying at the Four Point, Three Point, and One Point levels were not part of the experiment. (There was no Two Point level.) In addition, a *remedial* Five Point class did not participate in the experiment for a number of reasons. First, it was deemed that they would not be on the same level as the regular Five Point students. Second, according to a decision of the English staff, the class would not be broken up, thus making randomization impossible. Finally, because this was a remedial class, the students

would not be studying exactly the same material as the regular classes. Therefore, only the regular Five Point Bagrut students participated in this experiment.

Description of the Experimental Sites

The Har V'Gai Regional School is a coeducational rural school, ranging from seventh to twelfth grade. In the 1998-1999 school year, there were approximately 1,000 students, coming from middle and upper-middle class Jewish settlements in the Upper Galilee and Golan Heights. There was an ethnic mix between Ashkenazim (with origins in Northern and Western Europe) and Sephardim (with origins in Southern Europe, North Africa, and the Near East), but no exact statistics existed about the percentage of each group in the school. There were also about 50 new immigrant students from the former Soviet Union, whose native language was Russian. The predominant language heard in the school was Hebrew. English language studies were mandatory and Arabic (Israel's second official language) was taught as an elective. The Russian speaking immigrants also had the option of continuing their Russian language studies. The English language *requirements*, as opposed to the other language *electives*, reflected the linguistic realities of the country: English was extremely important economically and culturally in Israel, more so than any other foreign language, Arabic or Russian.

All the English teachers working at the Har V'Gai Regional school during the 1998-1999 school year had been certified by the Ministry of Education and worked according to the syllabus written by the Ministry. As in all Israeli schools, the English teachers were periodically observed, in class, by visiting English Inspectors from the Ministry of

Education. According to Hadasi Label (personal communication, June 15, 1998), who administered Bagrut procedures at the school, English Bagrut examination averages of Five Point students had been close to the national average in the previous years. In 1997, the school average was 0.3 points below the national average; in 1996, 3.2 points above; in 1995, 3.5 points above; in 1994, 1.2 points above; and in 1993, 5.6 points below the national average.

During the 1998-1999 school year, the school was connected to the Internet by a frame relay. The Internet Lab, with 15 computers, was adjacent to the main reading room of the school library, which had another nine computers connected to the Internet. The school administration had already become aware of the educational potential of the Internet and was keen on integrating it into the daily curriculum.

The *virtual* experimental site was schMOOze University, which had been created in July 1994 by Julie Falsetti and Eric Schweitzer of Hunter College, City University of New York. SchMOOze was accessed via telnet://schmooze.hunter.cuny.edu:8888 at a server at Hunter College which kept it running 24 hours a day. The basic metaphor of schMOOze was a small college campus with dorms, a library, classrooms, a conference center, an administration building, a student union, an international culture center, an off-campus disco/bar, various malls, gardens, and other collegiate locations. The users who frequented schMOOze were mostly students and teachers of English as a second/foreign language, but there were many native English speakers, with no connection to language instruction, who visited schMOOze as well. According to the census of schMOOze, as of

November 13, 1998, there were a total of 592 permanent members of the community. This did not include the numerous guests who visited without registering. (Awaji, 1998; Falsetti, 1995; schMOOze, 1994).

The primary purpose of schMOOze University was to offer a sheltered environment for students of English to meet native speakers and non-native speakers. Through conversations about real life matters, or conversations about the fantasy environment offered by the MOO site, the students progressed in their acquisition of English. If the students logged in when there were not many other students available for a chat, the MOO fantasy offered an opportunity to read and write English in a game-like environment. This included interacting with existing MOO objects and building new ones for other characters to examine. The secondary purpose of schMOOze University was to offer a professional and social meeting place for teachers of English as a second/foreign language from all over the world (Awaji, 1998; Falsetti, 1995).

Steps Taken

At the end of the 10th grade (the year before the experiment), all the students at the Five and Four Point Bagrut Levels received consent forms for their parents to sign. The Four Point Bagrut Level were included for two reasons. First, some of the students might move up to the Five Point Level during the summer before the 11th grade. Second, if the students believed that the Four Point level was included in the project, perhaps the experimental nature of the MOO procedure would be less obvious, thus avoiding the Hawthorne Effect.

At the end of the 10th grade (the year before the experiment), the Five and Four Point students were asked to suggest three personal code names. Their 10th grade EFL teachers explained that these code names would be used for computer programs the following year, but MOO was not be mentioned specifically. Those participants who were later randomly assigned to the experimental group received character names based on their requests. If a certain character name was already taken, a similar name was requested.

Due to the novelty of the topic, there were no standardized tests available for examining affective elements of using MOO in foreign language instruction. As a result, questionnaires were constructed for this project at the end of the academic year prior to the experiment. As with all nonstandardized instruments, there were potential problems of validity and reliability (Gay, 1996). To deal with content validity, all the Five Point teachers on the Har V'Gai English staff examined the questionnaires. (One of these teachers was also an instructor of EFL methodology at the Oranim Teachers' College. Another was the Ministry of Education's National Counselor for CALL - Computer-Aided Language Learning.) After incorporating the comments of the teachers, the questionnaires were translated into Hebrew and given to a graduating Five Point 11th grade English class (in the year before the experiment) with MOO experience. The responses of this class served as a pilot study for the questionnaires and the general experiment. After completing the pilot-study questionnaire, there was an in-class discussion about the students' perceptions of the items on the questionnaire. Relevant comments by the students were incorporated into the questionnaire. At this point, a

Russian translation was made for the 15 Russian speaking immigrant students who might have had trouble with the Hebrew on the questionnaire.

During the summer before the experiment, the students who were in regular Five Point Bagrut classes in the 11th grade were divided randomly into two experimental classes and one control class. Teachers were assigned randomly to the three classes. An independent consultant (i.e., a teacher not from the English staff) performed the randomization, using Microsoft Excel (version 7).

The names, e-mail addresses, and requested character names (pseudonyms) of the students in the two experimental classes were sent to the administrators of the schMOOze University MOO site for registration. The administrators of schMOOze had agreed to assist with the project by registering the students en bloc and facilitating other procedural matters that might have arisen during the experimental period.

During the first English class of the experimental year, a preliminary questionnaire (the pretest) was given to the experimental and control classes. The questionnaire presented 12 commonly used EFL instructional procedures: doing intensive reading with exercises, doing extensive reading without exercises, doing grammar exercises, listening to frontal teacher explanations, taking quizzes and tests, listening to taped songs followed by exercises, listening to taped comprehension exercises, speaking English in a class discussion, giving frontal oral presentations in English, speaking English while in small groups, watching video (clips or full movies) followed by exercises, and doing writing

exercises in class. Using modified Likert scales, the students were to indicate their feelings of anxiety and motivation towards each of these procedures and towards English lessons in general. While anxiety were treated as a single construct, motivation was divided into the four subcategories suggested by Dornyei (1994): interest, relevance, expectancy (locus of control), and satisfaction. The students received Hebrew or Russian questionnaires, according to need. Written Hebrew and Russian explanations helped the students distinguish between the four subcategories. The students were able to query the teachers if the written explanations were not sufficient. The questionnaire also asked for the name of previous and current English teachers (for administrative purposes), as well as the participants' gender. Because these students had not used MOO previously in the school, it was assumed that MOO was unknown. Thus, there were no questions about MOO in the preliminary questionnaire. The English version of this questionnaire appears in Appendix B of this dissertation report.

The experimental students received the treatment (the use of MOO as a major EFL instructional procedure), at certain intervals, during the academic year. The experimental classes used MOO 12 times, each time for 45 minutes. Because there were only 15 stations in the school's Internet lab, the two experimental classes were divided into smaller groups to ensure that each student had a separate computer. Each group was to use the Internet lab the same number of times and within a few days of the other groups. Students who missed a regular session, were able to make up that session with another group. Thus, all the students had approximately the same amount of class time at schMOOze University, spaced out over the academic year. There was additional

noncomputerized material (reading comprehension exercises, discussions, etc.) to prepare the students to use MOO effectively, to register the students' opinions of their MOO experiences, and to integrate MOO into the curriculum (according to the recommendations of the literature). This off-line material, structured as a teacher's guide, appears in Appendixes D, E, and F of this dissertation report.

During the academic year, the control class used nonMOO procedures. The two experimental teachers and the one control teacher loosely coordinated the content of their lessons, according to the demands of the Ministry of Education. They did not attempt to scientifically control the nonMOO instruction in any of the three classes.

In the beginning of the academic year, the experimental students received an explanation about how they could use MOO by themselves at home or during free periods in school. (It should be noted that the school did not permit any other chat-like program, without specific permission of a teacher.) Although the students received no MOO homework, the teachers encouraged them to use MOO during their free time if they wished. In the Internet lab and in the library, the computers used the AvPlay MOO client, a program that facilitated using the MOO environment (Austin, 1995). The teachers arranged that SchMOOze University would automatically appear in the AvPlay *connect* option. According to the instructions for home use, the students were to use schMOOze University. The students were urged to use only their own character names while visiting schMOOze University during free time as well as during class. (Beyond these option settings, directions, and recommendations, it was not possible to prevent the students

from visiting other MOO sites during their private time. Nevertheless, it was assumed that most voluntary use of MOO would occur in the familiar environment of schMOOze University.)

On two different days at the end of the academic year, the participants received questionnaires. The first was basically the same as the preliminary questionnaire. The critical difference was the addition of MOO as a procedure for the experimental group. The question about MOO was placed in the middle of the list of questions. The control group did not receive the question about MOO because they had not experienced it as a procedure. Another addition was a new item about using the World Wide Web during English class. With the opening of the new Internet lab, the use of the World Wide Web became a normal part of EFL instruction at Har V'Gai Regional School. Both the control group and experimental groups had used the World Wide Web and were asked about it on the posttest.

On a subsequent day, only the experimental group received a second post treatment questionnaire. Using modified Likert scales, the students responded to questions about self-assessed keyboard skills, and self-assessed general computer anxiety. In addition, two open questions asked the students to respond freely about their MOO experiences. Once again, the modified Likert scales on both questionnaires, were in Hebrew, with Russian translations for the 15 Russian speaking immigrant students. The students responded to the open questions in English. (By the end of the 11th grade, Five Point Bagrut students

were expected to write short essays in comprehensible English. Those motivated to express optional opinions about MOO would do so.)

After the data were collected via the questionnaires, they underwent statistical analysis using the SPSS statistical program. The results and conclusions of this analysis appear in Chapters Four and Five of this dissertation.

Formats for Presenting Results

As reported in Chapter I of this dissertation, the experiment attempted to support, or reject, the following hypotheses about using MOO in the high school foreign language classroom:

1. The students will report less than average anxiety and more than average interest, relevance, expectancy, and satisfaction about using MOO in high school foreign language class in comparison to other instructional procedures used.

The statistical procedure for examining this hypothesis was the comparison of the means regarding MOO and the average of the means of all the other procedures. The two-tailed t-test for paired samples was the statistical tool used. The samples were *paired* because this was a comparison of two pieces of data generated by the same students (i.e., those in the group using MOO). The statistical analysis was performed five times, once each for: anxiety, interest, relevance, expectancy, and satisfaction.

2. Gender will not be significantly related to self-reported anxiety, interest, relevance, expectancy, and satisfaction while using MOO as a foreign language procedure at the high school level.

The statistical procedure for examining this hypothesis was the comparison of gender with the means regarding MOO. The two-tailed t-test for independent samples was the statistical tool. The samples were *independent* because the data were generated by two different groups: the male students and the female students. The statistical analysis was performed five times, once each for: anxiety, interest, relevance, expectancy, and satisfaction.

3. Self-reported keyboard skills will correlate negatively with self-reported anxiety and positively with self-reported interest, relevance, expectancy, and satisfaction while using MOO as a foreign language procedure at the high school level.

The statistical procedure for examining this hypothesis was the generation of correlation coefficients. The statistical analysis was performed five times, once each for: anxiety, interest, relevance, expectancy, and satisfaction.

4. Self-reported general computer anxiety will correlate positively with self-reported anxiety and negatively with self-reported interest, relevance, expectancy, and satisfaction while using MOO as a foreign language procedure at the high school level.

The statistical procedure for examining this hypothesis was the generation of correlation coefficients. The statistical analysis was performed five times, once each for: anxiety, interest, relevance, expectancy, and satisfaction.

5. The students using MOO in class will report lower levels of anxiety and higher levels of interest, relevance, expectancy, and satisfaction about foreign language instruction (in general) than students not using MOO in class.

The statistical procedure for examining this hypothesis was the comparison of means of the experimental group and means of the control group. The two-tailed t-test for independent samples was the statistical tool. The samples were *independent* because the data were generated by two different groups: experimental and control. The statistical analysis was performed five times, once each for: anxiety, interest, relevance, expectancy, and satisfaction. In additional, a two-tailed t-test for independent samples was used to ascertain if the teaching style of the individual teachers had influenced the findings in the two experimental classes. The samples were *independent* because the data were generated by the two different experimental classes.

6. In terms of anxiety and motivation, students will express clear opinions about which foreign language procedures should be displaced in order to include MOO in the curriculum.

Using the data from the experimental group, a descending list of means of all the procedures was generated for anxiety and the four motivational subconstructs. The means regarding the use of MOO in the experimental class were compared to the higher anxiety means and to the lower motivational means. Two-tailed t-tests for paired samples were used because the two sets of data were generated by the same population.

Projected Outcomes

According to the theoretical material presented in the Review of Literature, students using MOO as an instructional procedure in a foreign language classroom should report more motivation and less anxiety than students in a control class (i.e., those not using MOO). However, there were two factors that may have worked against this predicted outcome. It was assumed that self-reported keyboard skills would positively correlate with the students' motivational attitudes towards MOO and negatively correlate with the students' anxieties about using MOO. It was also assumed that the positive reactions towards MOO would decrease if the students suffer anxiety about computers in general. Thus, it was predicted that motivation to use MOO and feelings of anxiety about the procedure would be strongly influenced by general considerations of educational computation, as well as specific considerations about MOO itself. Furthermore, although there were no predictions about the relationship of gender to the attitudes towards MOO, it should be noted that any relationship between gender and general educational computation would also influence the relationship between gender and student perception of MOO.

In addition, it was assumed that MOO would prove to be more popular than some of the other instructional procedures. Taking examinations and giving oral presentations would probably head this list. Teachers would be able to use this list when considering future curricula. Although the teachers ultimately decide on instructional procedures, such decisions should be made with the knowledge of student preferences. Even a necessary procedure might be used less frequently if it creates high levels of anxiety, thus decreasing the over-all efficacy of the instruction.

Resource Requirements

As stated before, the Har V'Gai Regional School at Kibbutz Dafna, Israel was the experimental site for this research project. The school provided most of the required resources. The participants were the 11th grade high school EFL students at the Five Point Bagrut Examination level. (As noted before, the Bagrut is the Israeli national matriculation examination. In EFL there are various levels: Five Points, Four Points, Three Points, and One Point, where Five Points is the most advanced.) The staff reorganized the students into three classes, on a statistically random basis. Two classes served as experimental groups while one class was the control group. Experienced teachers taught the three classes.

Although the linguistic competency of the 12th grade students would have been more suitable for the study, these students were under the pressure of the Bagrut Examinations in many subjects. As a result, the school year was shorter and there would be frequent interruptions of the regular classes. This situation would have defeated any attempt at a major experiment with 12th grade students. Thus, the population for this experiment was all the regular Five Point 11th grade students.

As in previous EFL projects, the school fully cooperated in the current experiment. The school's recent migration to a networked environment with a high level of connectivity to the Internet aided the current research project in a number of ways. First, there were

enough Internet computers to make this project possible. Second, the administration was eager to receive a reasonable return for the school's investment in the network and supported any serious use of the Internet lab. In addition, the school could refer to the MOO research in its attempt to obtain "experimental school" status. Receiving this classification would bring substantial governmental funds to the school. Thus, the administration expressed its interest in the research project and gave top scheduling priority to the project, thus avoiding the potentially major problem of lack of access to the Internet lab. Third, the novelty of the Internet lab meant that there was minimum competition for use of the room in the beginning of the year. Because teachers need time to adopt new technologies, the current dissertation project enjoyed the status of being the first in the field in regard to the new Internet lab at the school. The local computer staff was anxious to operate the Internet lab, and promised full cooperation in regard to the project. The computer staff downloaded the AvPlay MOO client from the Internet and installed it, with the AvPlay icon appearing on the *desktop* of all computers in the lab. The English staff also promised full cooperation in the experiment, despite the problems of reorganizing the classes and extra work involved. Known for their creativity and flexibility, the Har V'Gai English teachers welcomed the experiment and learned how to use the MOO program.

The MOO site offered other needed resources. The administrators of schMOOze University expressed interest in the experiment and agreed to process the registration of the students en masse. The administrators also promised to deal with other administrative procedures as fast as possible, thus facilitating the students' activities. Finally, a local

statistician, using version 8.0 of SPSS software (SPSS, 1997), helped in the statistical procedures of the empirical study.

Questions of Validity and Reliability

According to Gay (1996), the use of a true experimental design would control for most sources of internal and external invalidity. This dissertation used a *Pretest-Posttest Control Group Design*, whose only potential weakness, according to Gay, was the possible interaction between the pretest and the posttest. This weakness would be neutralized by three factors: the nature of the pretest, the novelty of other controlled procedures, and the duration of the treatment. Because the students had not used MOO in any of their classes before the experimental period, MOO was not mentioned in the pretest. As a result, the students did not become aware of the exact nature of the experiment from taking the pretest. Although the students' parents signed prior permission for participation in an experiment in English class (thus alerting the students to some type of experimentation), the students experienced a number of novel procedures, some of which were standard in the 11th grade, some of which were novel because of the opening of the Internet lab. The Five Point Bagrut syllabus brought a number of new procedures to all the classes. At the same time, the new Internet lab facilitated the use of the World Wide Web for all the classes. In addition, the control class was told that *their* MOO experience would come towards the end of the year, because of scheduling considerations. Thus, it may not have been obvious to the students that using MOO was an experiment and that there was a significant difference between the procedures given to

the experimental group and the control group. Finally, the length of the treatment period (nine months) minimized the influence of the pretest on the posttest.

Although the use of a *Pretest-Posttest Control Group Design* with randomized groups controlled for most sources of internal and external invalidity, the nature of this project raised the problem of potential instrumentation (Gay, 1996). The novelty of the instructional procedure to be examined and the resultant need to design a questionnaire inevitably lead to caveats regarding the reliability of the experiment. Only similar experiments in the future will be fully able to establish the reliability of the current project. For the same reasons of novelty and of the use of a nonstandard instrument, there may be queries about validity. Questions about *content validity* were answered by the use of a panel of experts while constructing the questionnaire, but there were no solution for problems of *construct validity* and *concurrent validity*. Although the Review of Literature noted that *foreign language anxiety* had been used as a construct in research for many years (MacIntyre & Gardner, 1991), Dornyei's (1994) four subconstructs for *course-specific foreign language motivation* had not been thoroughly validated. Nevertheless, Dornyei's theoretical work offered the best framework for the proposed project. Thus *construct validity* will be assumed pending future validation. Questions about *concurrent validity* will also have to wait for future experimentation. Constructing and administering additional instruments for the sake of validation was beyond the scope of this project.

Summary

This dissertation was a true experimental project: randomly dividing a population into an experimental group and a control group, administering a pretest, administering the treatment, and then administering posttests. The central research questions and resulting hypotheses would examine the use of MOO as a high school foreign language classroom procedure. Although the theory of second/foreign language acquisition suggested research in both the cognitive and affective domains, institutional limitations to the study eliminated a meaningful examination of cognitive elements. Thus, the research focused on the affective elements of anxiety and motivation in the foreign language classroom. Anxiety was used as a single construct and motivation was divided into the following subconstructs: interest, relevance, expectancy, and satisfaction.

If the data supported the claim that MOO was a worthwhile procedure for high school foreign language classes, there should be some indication of which of the existing procedures should be decreased, or totally eliminated, to make room for MOO in the school schedule. In addition, if there were support for the claim that MOO was a worthwhile classroom procedure, teachers would be able to use the experimental procedures, reported in Appendixes D, E, and F, as classroom material. Nevertheless, given the caveats stemming from the limitations and delimitations of the project, all conclusions arising from this project should be taken as conditional, demanding further validation in future experiments both in the affective and cognitive domains.

Chapter IV

Results

Analysis and Findings

As reported in Chapters One and Three of this dissertation, the current experiment attempted to support, or reject, six hypotheses about using MOO in the high school foreign language classroom. The data, collected via questionnaires, were compiled using Excel - Version 7a (Microsoft, 1996) and then analyzed using SPSS (SPSS, 1999). Following Gay's (1996) suggestions for ensuring proper research techniques, all data were double checked after being keyed into the Excel file and spot checks were made on the results of various statistical procedures. In addition, a professional statistician with experience in educational research supervised the choice, execution, and analysis of all statistical procedures.

After an analysis of the pretest questionnaire results showed that the experimental group and the control group were essentially the same in regard to the dependent variables, the posttest questionnaire scores were used as the data base for the current research (Gay, 1996). The description, analysis, and results of the statistical procedures performed to examine the experimental data, described in Chapter III, are reported below.

Descriptive Data

This experiment included the total population (N = 62) of 16 and 17 year-old students studying at the Five Point English Bagrut (National Matriculation) level during the 11th grade at Har V'Gai Regional School (at Kibbutz Dafna, Israel) during the 1998/1999 school year. (The Five Point English Bagrut Examination is given to the most advanced students of English as a Foreign Language (EFL) in Israel, usually at the end of the 12th grade.) Included in this population were 15 recent immigrants from the former Soviet Union, classified in this project as *Russian speakers*. Of the 62 students in the total population, 53 actually participated in the project. The remaining nine either chose not to participate or dropped out of the project before the end. Of the participants, 18 students were male and 35 were female.

The original 62 students were divided randomly and equally into three groups: two experimental classes and one control class. In the experimental classes 13 male students and 25 female students fully participated in the experiment. Although all the students in the experimental classes used MOO as an EFL procedure, only those who agreed to participate in the project and completed the questionnaires were considered *participants*. In the control class, five male students and ten female students agreed to participate in the project and completed the questionnaires. Instead of receiving class time for MOO, the control group received a greater amount of other procedures which all EFL students, including the experimental students, routinely used in class at the Har V'Gai Regional School. None of the students in the 11th grade had ever experienced MOO as an in-class instructional procedure in any subject.

Figures 1 through 5 show the averages of the responses of the experimental group and the control group to the posttest questions about anxiety and motivational subconstructs (interest, relevance, expectancy, and satisfaction). Using modified Likert scales ranging from one to five, all the students reported their feelings about using 13 EFL procedures: intensive reading, extensive reading, grammar exercises, frontal teacher explanations, exams and quizzes, taped songs with related exercises, taped listening exercises, class discussions, frontal oral presentations, small group work, watching video and doing related exercises, writing exercises, and using the World Wide Web. In addition, the experimental group received questions about using MOO as an EFL procedure. The questions about MOO were placed in the middle of the list of procedures to avoid stressing its experimental nature.

To simplify the presentation of the findings, the averages in Figures 1 through 5 are listed according to the ascending order of the data from the experimental class. To further clarify the meaning of the data gathered using a modified Likert scale, averages from 1.0 to 2.49 were referred to as *low*, averages from 2.5 to 3.49 as *medium,* and averages from 3.5 to 5.0 as *high.*

Figure 1.

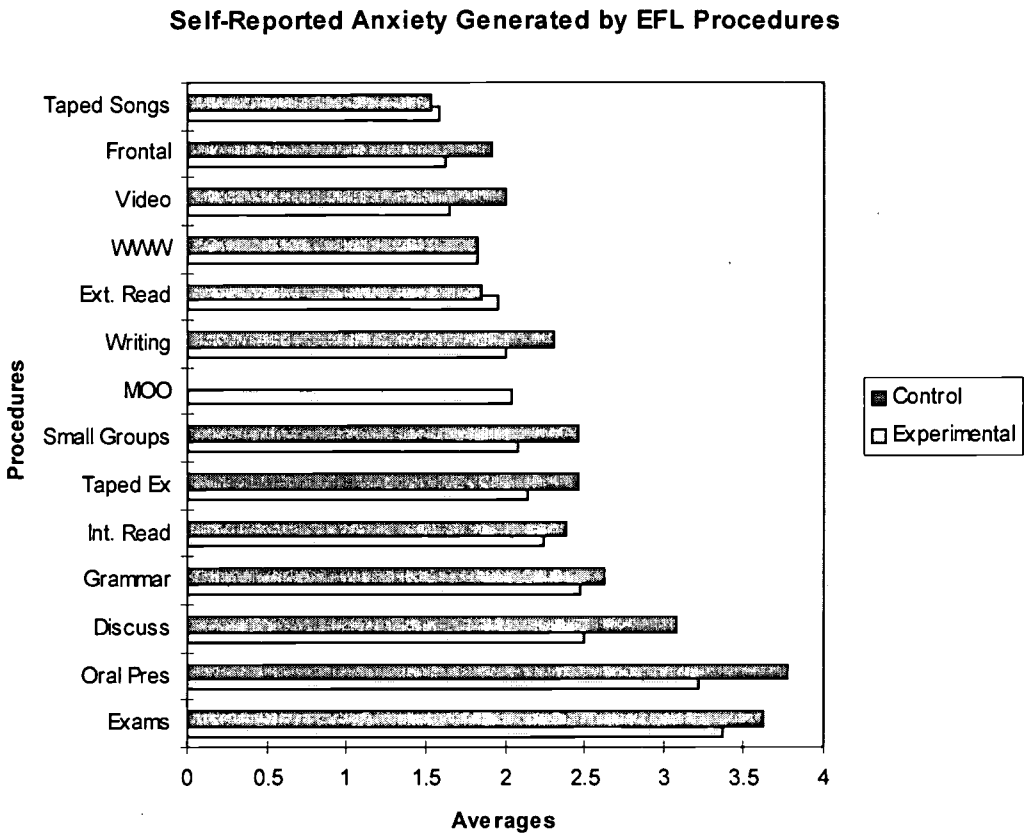

Self-Reported Anxiety Generated by EFL Procedures
Taped Songs
Frontal
Video
WWW
Ext. Read
Writing
MOO
Small Groups
Taped Ex
Int. Read
Grammar
Discuss
Oral Pres
Exams
Procedures
0
0.5
1
1.5
2
2.5
3
3.5
4
Averages
Control
Experimental

Figure 2.

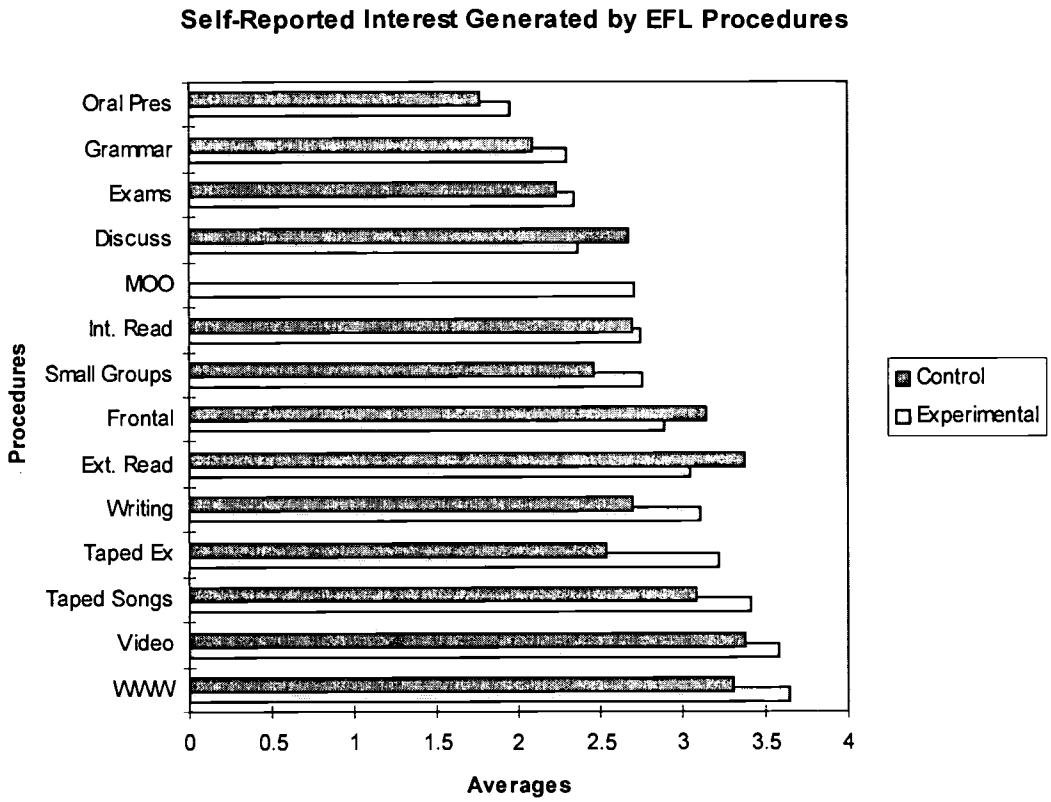

Self-Reported Interest Generated by EFL Procedures
Oral Pres
Grammar
Exams
Discuss
MOO
Int. Read
Small Groups
Frontal
Ext. Read
Writing
Taped Ex
Taped Songs
Video
WWW
Procedures
0
0.5
1
1.5
2
2.5
3
3.5
4
Averages
Control
Experimental

Figure 3.

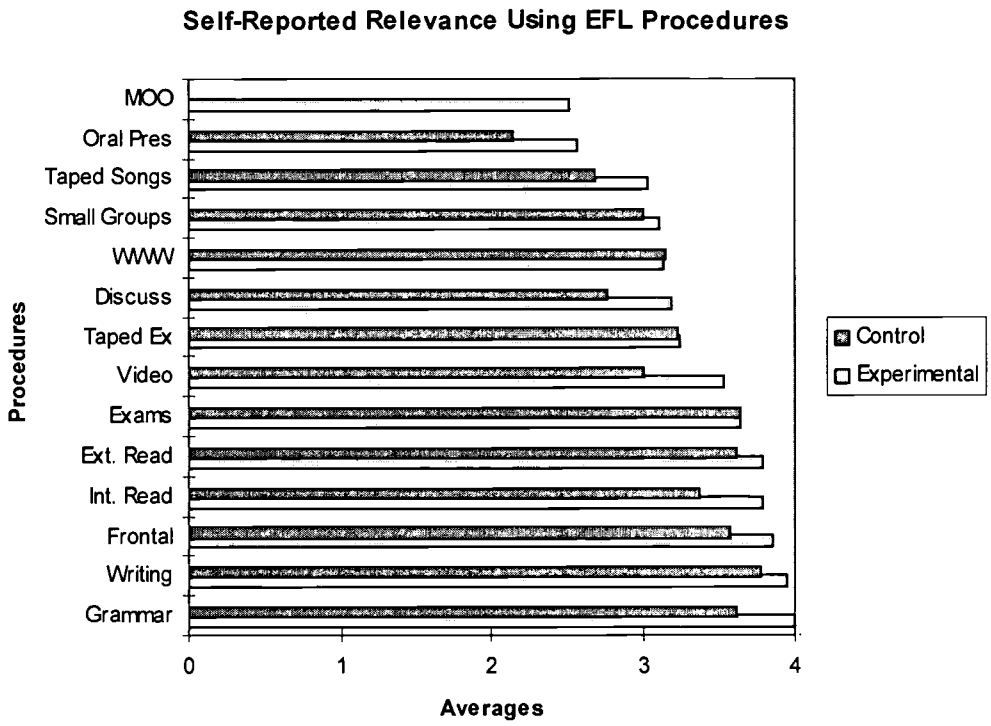

Self-Reported Relevance Using EFL Procedures
MOO
Oral Pres
Taped Songs
Small Groups
WWW
Discuss
Taped Ex
Video
Exams
Ext. Read
Int. Read
Frontal
Writing
Grammar
Procedures
0
1
2
3
4
Averages
Control
Experimental

Figure 4.

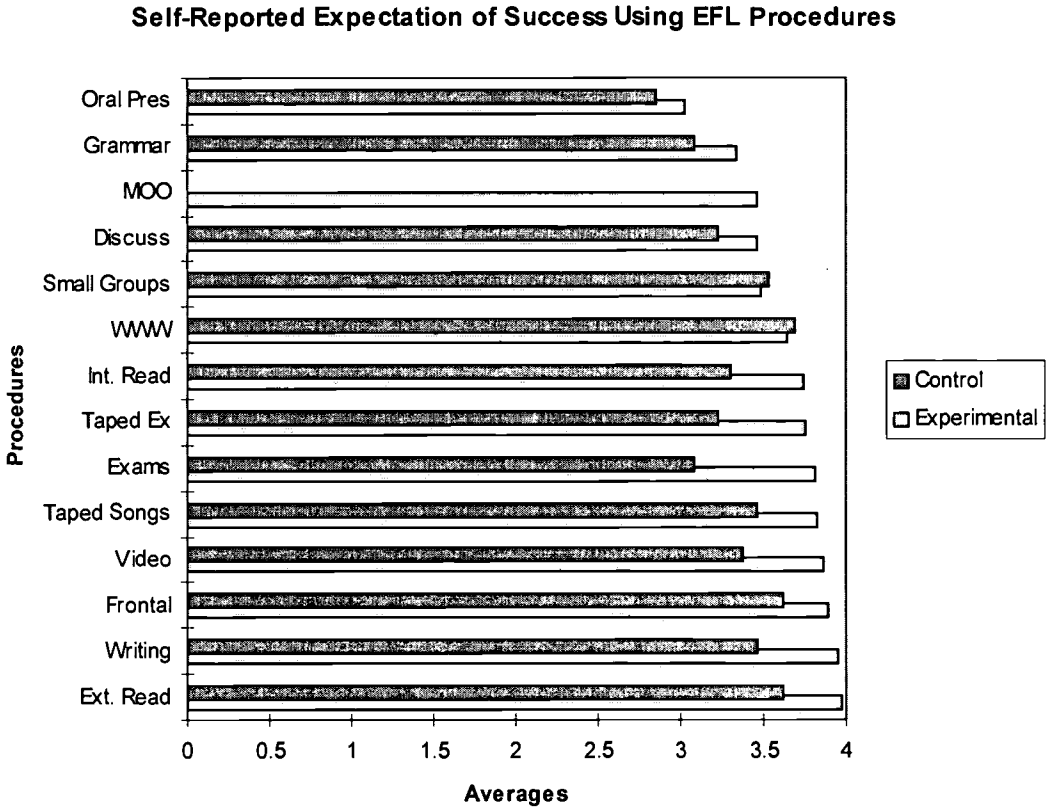
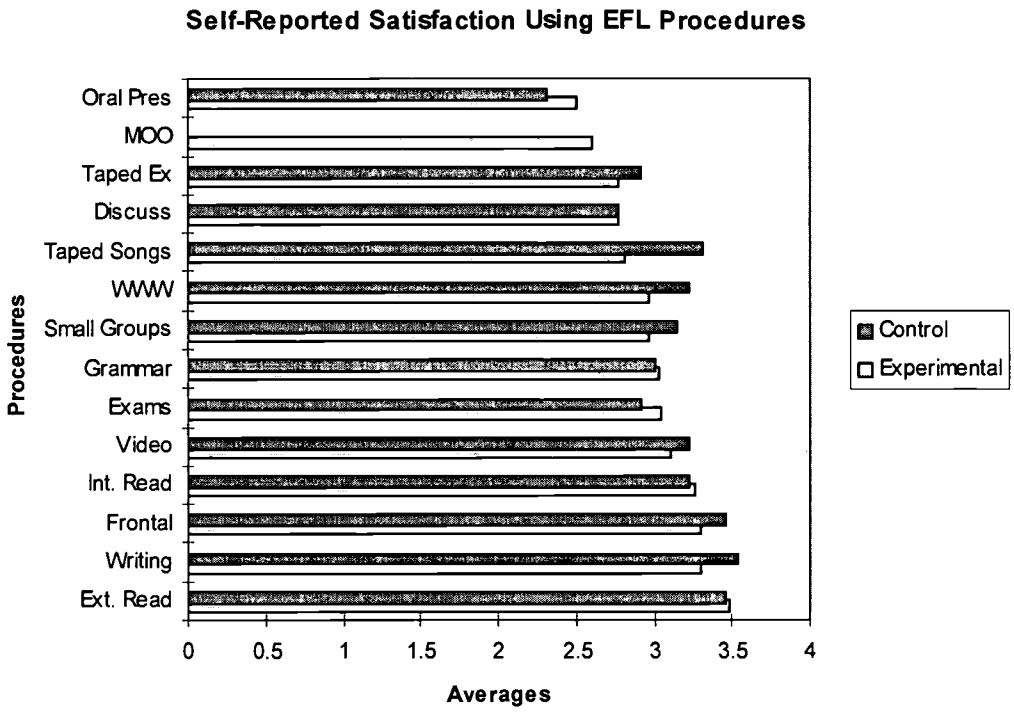

Self-Reported Expectation of Success Using EFL Procedures
Oral Pres
Grammar
MOO
Discuss
Small Groups
WWW
Int. Read
Taped Ex
Exams
Taped Songs
Video
Frontal
Writing
Ext. Read
Procedures
0
0.5
1
1.5
2
2.5
3
3.5
4
Averages
Control
Experimental

Figure 5.


Self-Reported Satisfaction Using EFL Procedures
Oral Pres
MOO
Taped Ex
Discuss
Taped Songs
WWW
Small Groups
Grammar
Exams
Video
Int. Read
Frontal
Writing
Ext. Read
Procedures
0
0.5
1
1.5
2
2.5
3
3.5
4
Averages
Control
Experimental

A more detailed listing of the descriptive data can be found in Appendix G of this dissertation report. However the information presented in Figures 1 through 5 should suffice as an introduction to the findings and as a base for subsequent analysis. The major piece of information in Appendix G that does not appear in Figures 1 through 5 is the standard deviation of each mean. Unfortunately, there is no way of including the standard deviations in the graphs without decreasing their clarity. However, this is not a serious problem in regard to the current data. The standard deviations of the means were both small and similar. The largest standard deviation was 1.63, the smallest was 0.51, but most were around 1.00.

Figures 1 through 5 show that, in absolute terms, the students in the experimental group rated using MOO with a low average score for anxiety, and medium average scores for interest, relevance, expectancy, and satisfaction. In comparative terms of ascending scores, MOO ranked seventh for anxiety, fifth for interest, first for relevance, third for expectancy, and second for satisfaction.

The data reported by the experimental group, which appear in Figures 1 through 5, are condensed in Table 1. This table summarizes how the experimental group reported anxiety, interest, relevance, expectancy, and satisfaction for MOO as an EFL procedure. Table 1 also shows the overall averages for the other 13 specific EFL procedures. In addition, Table 1 lists the ascending ordinal rank of the use of MOO among all 14 specific EFL procedures in terms of anxiety, interest, relevance, expectancy, and satisfaction.

Table 1

Anxiety and Motivational Subconstructs for MOO as an EFL Procedure and the Overall Averages for the 13 Other EFL Procedures (Experimental Group Only)

Construct	n	MOO in EFL Ascending Rank Among 14		13 Other EFL Procedures
Anxiety	38	7		
M			2.05	2.21
SD			1.21	0.57
Interest	38	5		
M			2.71	2.89
SD			1.63	0.65
Relevance	37	1		
M			2.51	3.45
SD			1.35	065
Expectancy	35	3		
M			3.46	3.67
SD			1.34	0.44
Satisfaction	36	2		
M			2.61	3.02
SD			1.36	0.90

In addition to the reporting about anxiety and motivation, the experimental students used modified Likert scales to report keyboard skills and general ease with the computer. (*General ease with the computer* is the inversion of the term *general computer anxiety*, which appears in the hypotheses.) The 38 experimental respondents reported a medium level of keyboard skills (M = 3.39, SD = 1.24) and a high level of general ease with the computer (M = 3.55, SD = 1.22).

Inferential Data

In the analysis of the results, an alpha level of .05 was used for all statistical tests, unless otherwise stated. Once again, when interpreting the results of the modified Likert scales, means from 1.0 to 2.49 have been called *low*, from 2.5 to 3.49 have been called *medium*, and from 3.5 to 5.0 have been called *high*.

Hypothesis One:

> The students will report less than average anxiety and more than average interest, relevance, expectancy, and satisfaction about using MOO in high school foreign language class in comparison to other instructional procedures used.

The statistical procedure for examining this hypothesis was the comparison of the means regarding MOO and the average of the means of all the other procedures. The two-tailed t-test for paired samples was the statistical tool used. The samples were *paired* because this was a comparison of two pieces of data generated by the same students (i.e., those in the group using MOO). The statistical analysis was performed five times, once each for: anxiety, interest, relevance, expectancy, and satisfaction.

The data reported on in Table 1 were used as a basis for the comparison of the experimental students' attitudes towards MOO and the overall average of their attitude towards the 13 other EFL procedures. This comparison appears as results of two-tailed t-tests in Table 2.

Table 2

Comparing Anxiety and Motivational Subconstructs for MOO and the Overall Averages for the 13 Other EFL Procedures (Experimental Group Only)

Construct	n	MOO in EFL	13 Other EFL Procedures	df	Significance (2-tailed)
Anxiety	38				
M		2.05	2.21		
SD		1.21	0.57	37	.42
Interest	38				
M		2.71	2.89		
SD		1.63	0.65	37	.52
Relevance	37				
M		2.51	3.45		
SD		1.35	065	36	.00
Expectancy	35				
M		3.46	3.67		
SD		1.34	0.44	34	.32
Satisfaction	36				
M		2.61	3.02		
SD		1.36	0.90	35	.05

As hypothesized, Table 2 shows that students reported that using MOO as an EFL procedure caused less anxiety ($\underline{M}$ = 2.05, $\underline{SD}$ = 1.21) than the average of the other 13 EFL procedures ($\underline{M}$ = 2.21, $\underline{SD}$ = 0.57), but this difference was not statistically significant. Contrary to the hypothesis, Table 2 shows that the experimental group did not report MOO more motivating than the average of the other 13 EFL procedures. In regard to interest and expectancy, the data were not statistically significant. In regard to relevance and satisfaction, the average MOO scores were significantly lower than the overall averages of the other EFL procedures. The students scored the relevance of MOO with $\underline{M}$ = 2.51, $\underline{SD}$ = 1.35 and the overall average relevance of the 13 other procedures with $\underline{M}$ = 3.45, $\underline{SD}$ = 0.65 ($\underline{p}$ = .00). The students scored the satisfaction of using MOO with $\underline{M}$ = 2.61, $\underline{SD}$ = 1.36 and the overall average satisfaction of the 13 other procedures with $\underline{M}$ = 3.02, $\underline{SD}$ = 0.90 ($\underline{p}$ = 05).

Hypothesis Two:

> Gender will not be significantly related to self-reported anxiety, interest, relevance, expectancy, and satisfaction while using MOO as a foreign language procedure at the high school level.

A two-tailed t-test for independent samples was performed for the 25 female students and 13 male students who participated in the experimental group and answered the questionnaires. The samples were *independent* because the data were generated by two different groups: the male students and the female students. The statistical analysis was performed five times, once each for: anxiety, interest, relevance, expectancy, and satisfaction.

As reported in Table 3, two of the tests showed no significant difference based on gender in the response to using MOO in terms of interest and relevance. On the other hand, three of the tests did show significant differences due to gender: anxiety, expectancy, and satisfaction.

Although both female and male students expressed a low level of anxiety about using MOO in the EFL high school class, female students ($\underline{M}$ = 2.36, $\underline{SD}$ = 1.29) were significantly more anxious ($\underline{p}$ = .03) about using MOO than were male students ($\underline{M}$ = 1.46, $\underline{SD}$ = 0.78).

Male students reported a high level of expected success when using MOO as an EFL procedure ($\underline{M}$ = 4.08, $\underline{SD}$ = 0.95) while female students reported a medium level of expected success ($\underline{M}$ = 3.09, $\underline{SD}$ = 1.41). The statistical significance of this difference was $\underline{p}$ = .02.

There was a significant difference ($\underline{p}$ = .04) of satisfaction while using MOO in EFL high school class, based on gender. Male students reported a medium level of satisfaction when using MOO as an EFL procedure ($\underline{M}$ = 3.25, $\underline{SD}$ = 1.48) while female students reported a low level of satisfaction ($\underline{M}$ = 2.2917, $\underline{SD}$ = 1.20).

These results about significant gender-based evaluations of using MOO stood in contrast with the lack of significant gender-based differences in regard to anxiety or any of the motivational subconstructs in English class as seen as a whole.

Table 3

Gender-Based Differences in Self-Reported Anxiety and Self-Reported Motivational Subconstructs while Using MOO in High School EFL

Construct	Gender	n	M	SD	df	Significance (2-tailed)
Anxiety						
	male	13	1.46	0.78		
	female	25	2.36	1.29	36	.03
Interest						
	male	13	3.23	1.64		
	female	25	2.44	1.58	36	.16
Relevance						
	male	13	2.62	1.19		
	female	24	2.46	1.44	35	.74
Expectancy						
	male	13	4.08	0.95		
	female	22	3.09	1.41	32.3	.02
Satisfaction						
	male	12	3.25	1.48		
	female	24	2.29	1.20	34	.04

Hypothesis Three:

> Self-reported keyboard skills will correlate negatively with self-reported anxiety and positively with self-reported interest, relevance, expectancy, and satisfaction while using MOO as a foreign language procedure at the high school level.

The statistical procedure for examining this hypothesis was the calculation of correlation coefficients. The statistical analysis was performed five times, once each for: anxiety, interest, relevance, expectancy, and satisfaction.

As hypothesized, Table 4 demonstrates that self-reported keyboard skills correlated negatively with self-reported anxiety and positively with self-reported interest, relevance, expectancy, and satisfaction. However, these correlations were statistically significant only for interest ($\underline{r} = .37$, $\underline{p} = .02$) and expectancy ($\underline{r} = .45$, $\underline{p} = .01$).

Table 4

Correlation Between Self-Reported Keyboard Skills and Self-Reported Anxiety and Self-Reported Motivational Subconstructs while Using MOO in High School EFL

Construct	n	r	Significance (2-tailed)
Anxiety	38	-.25	.13
Interest	38	.37	.02
Relevance	37	.24	.15
Expectancy	35	.45	.01
Satisfaction	36	.27	.12

Hypothesis Four:

> Self-reported general computer anxiety will correlate positively with self-reported anxiety and negatively with self-reported interest, relevance, expectancy, and satisfaction while using MOO as a foreign language procedure at the high school level.

In order to maintain consistency with other questions on the second questionnaire, *general computer anxiety* of the hypothesis was inverted and presented to the students as *general ease with computer*s. The statistical procedure for examining this hypothesis was the generation of correlation coefficients. The statistical analysis was performed five times, once each for: anxiety, interest, relevance, expectancy, and satisfaction while using MOO.

As hypothesized, Table 5 reports a negative correlation between self-reported general ease with the computer (i.e., inverted general anxiety about computers) and anxiety about using MOO in the high school EFL class. Nevertheless, this correlation was not statistically significant at the $p = .05$ level. On the other hand, Table 5 demonstrates that the hypothesized correlations between self-reported general ease with computers were statistically significant with all the motivational subconstructs: interest ($r = .47$, $p = .01$), relevance ($r = .35$, $p = .04$), expectancy ($r = .56$, $p = .00$), and satisfaction ($r = .34$, $p = .04$).

Table 5

Self-Reported General Ease with Computers Correlated with Self-Reported Anxiety and Self-Reported Motivational Subconstructs about Using MOO in High School EFL

Construct	n	r	Significance (2-tailed)
Anxiety	38	-.25	.09
Interest	38	.44	.01
Relevance	37	.35	.04
Expectancy	35	.56	.00
Satisfaction	36	.34	.04

Hypothesis Five:

> The students using MOO in class will report lower levels of anxiety and higher levels of interest, relevance, expectancy, and satisfaction about foreign language instruction (in general) than students not using MOO in class.

The statistical procedure for examining this hypothesis was the comparison of means of the experimental group and means of the control group. The two-tailed t-test for independent samples was the statistical tool. The samples were *independent* because the data were generated by two different groups: experimental and control. The statistical analysis was performed five times, once each for: anxiety, interest, relevance, expectancy, and satisfaction in regard to general English instruction.

In addition, two-tailed t-tests for independent samples were used to ascertain if the teaching style of the individual teachers had influenced the findings in the two experimental classes, in regard to same five variables. The samples were *independent* because the data were generated by the two different experimental classes.

There were no statistically significant differences between the two *experimental* classes in regard to general English instruction in any of the five variables of anxiety and motivation. Therefore, it was possible to include all the experimental students in one group and perform two-tailed t-tests.

Table 6 shows that, as hypothesized, in regard to general EFL instruction, the students using MOO reported less mean anxiety and greater mean motivation in the subconstructs of relevance, expectancy, and satisfaction than the students not using MOO. Despite this trend of positive attitudes about using MOO as an EFL procedure, only two of the findings were statistically significant. The experimental students reported greater relevance of general EFL instruction ($\underline{M}$ = 4.43, $\underline{SD}$ = 0.60) than the control students ($\underline{M}$ = 4.00, $\underline{SD}$ = 0.82), at a level of significance of $p = .05$. Similarly, the experimental students reported greater expectation of success in general EFL instruction ($\underline{M}$ = 4.24, $\underline{SD}$ = 0.63) than the control students ($\underline{M}$ = 3.62, $\underline{SD}$ = 0.87), at a level of significance of $p = .01$.

Table 6

Comparing Experimental Group's and Control Group's Self-Reported Anxiety and Self-Reported Motivational Subconstructs for General EFL Instruction

Construct and Groups	n	M	SD	df	Significance (2-tailed)
Anxiety					
Control	13	2.15	0.69		
Experimental	38	1.74	0.83	49	.11
Interest					
Control	13	3.69	0.95		
Experimental	38	3.68	0.93	49	.98
Relevance					
Control	13	4.00	0.82		
Experimental	37	4.43	0.60	48	.05
Expectancy					
Control	13	3.62	0.87		
Experimental	38	4.24	0.63	49	.01
Satisfaction					
Control	13	3.54	0.97		
Experimental	37	3.76	1.19	48	.56

Hypothesis Six:

> In terms of anxiety and motivation, students will express clear opinions about which foreign language procedures should be displaced in order to include MOO in the curriculum.

Using the data that generated Figures 1 through 5, a list was presented for anxiety using MOO and all the procedures that produced *greater* reports of anxiety than MOO. Similar lists were made for MOO and the procedures that produced *smaller* reports of interest, relevance, expectancy, and satisfaction. The means regarding the use of MOO were then compared to each of the other means on the lists. Two-tailed t-tests for paired samples were used because the two sets of data were generated by the same population.

Figure 1 shows that the experimental students reported that seven EFL procedures produced more anxiety than using MOO ($\underline{M}$ = 2.08, $\underline{SD}$ = 1.09). Two of these were at a significantly higher level: presenting frontal oral presentations ($\underline{M}$ = 3.22, $\underline{SD}$ = 1.25) at a level of $\underline{p}$ = .00 and taking exams and quizzes ($\underline{M}$ = 3.37, $\underline{SD}$ = 1.15), also at a level of $\underline{p}$ = .00.

Figure 2 shows that the experimental students reported more interest in using MOO ($\underline{M}$ = 2.71, $\underline{SD}$ = 1.63) than in using four other EFL procedures. One of these comparisons was at a significantly higher level: presenting frontal oral presentations ($\underline{M}$ = 1.95, $\underline{SD}$ = 1.08) at a level of $\underline{p}$ = .02.

Comparisons between using MOO and less motivating EFL procedures, according to the students' responses found in Figure 4 (expectancy) and Figure 5 (satisfaction) produced

no significant differences. Figure 3 showed that the students judged MOO as the least relevant procedure among the 14, so no comparisons were necessary.

Summary of Results

A number of the findings supported the research hypotheses at statistically significant levels. In terms of general EFL studies, students using MOO reported higher scores for relevance and expectations for success than students not using MOO. Self-reported keyboard skills correlated positively with interest and expectations for success while using MOO. In addition, general computer anxiety correlated negatively with interest, relevance, expectations for success, and satisfaction in regard to MOO as an EFL procedure.

Other findings supported the research hypotheses, although not at statistically significant levels. Students who used MOO reported lower mean anxiety and higher mean satisfaction in regard to general EFL instruction than students who did not use MOO. Moreover, students reported that MOO caused less anxiety than the overall average of the other 13 EFL procedures on the questionnaire. There was a lack of gender-based difference in student responses about using MOO in regard to interest and relevance. Students indicated a negative correlation between self-reported keyboard skills and anxiety when using MOO and positive correlations between self-reported keyboard skills and relevance and satisfaction when using MOO. In addition, there was a positive correlation between general computer anxiety and anxiety about MOO as an EFL

procedure. Although these findings are not at a statistically significant level, their general direction, supporting the hypotheses is noteworthy. In addition, some of these findings might have reached significant levels had the population of the survey been larger.

Contrary to the expected outcome, students scored MOO as less motivating than the overall average of the other 13 procedures in regard to interest, relevance, expectations for success, and satisfaction. In regard to interest and expectancy, the data were not statistically significant. In regard to relevance and satisfaction, the average MOO scores were significantly lower than the overall averages of the other procedures. Also contrary to the predicted outcome, there were significant differences due to gender in regard to anxiety, expectations for success, and satisfaction. Male students consistently reported a more positive attitude about using MOO: less anxiety, greater expectations for success, and a greater feeling of satisfaction.

The data collected with the questionnaires indicated, at a statistically significant level, that the experimental students expressed less anxiety using MOO than giving frontal oral English presentations and taking exams and quizzes. The data also indicated that the students found MOO statistically more interesting than giving frontal oral presentations. There were no other statistically significant indications that the students would prefer MOO to any specific EFL procedure.

Chapter V

Conclusions, Implications, Recommendations, and Summary

Conclusions

Despite the less-than-expected enthusiasm about MOO as an EFL procedure in the experimental class, the use of MOO seemed to have a positive influence on the students' view of EFL instruction in general. In the experimental classes there was less anxiety and more feelings of relevance, expectations of success, and satisfaction than in the control class (that did not use MOO). Although the direction of attitudes about general EFL instruction was more positive (less anxiety and more motivation) in the experimental classes, the differences were significant only in two areas: relevance and satisfaction.

Thus, it would appear that the current study cannot offer unequivocal support for adopting or rejecting MOO as a procedure in high school foreign language classes. Of course, it could be argued that the general teaching style, and not the specific choice of procedures, influenced the attitudes of the students. On the other hand, the very choice of procedures may have influenced the teaching style, thus creating a cyclical phenomenon. As interesting as this issue may be, exploring the relationship between general teaching style and specific procedures was not the focus of this project.

The students did not unequivocally indicate procedures that MOO could displace, totally or partially. Nevertheless, in certain areas, frontal oral presentations and examinations were suggested as candidates for time reallocation if MOO were to be implemented as an EFL procedure.

The importance of the findings about gender-based responses is reinforced by the fact that gender *did not* play a significant role in evaluating anxiety and motivation during general English instruction. Had there been a corresponding gender-based response in the general EFL classroom then the findings could have been seen as part of a larger phenomenon. The contrast between the two sets of data reinforces the reported male preference for MOO in terms of anxiety, satisfaction, and expectation of success.

A pattern of more positive attitudes towards MOO seems to emerge for students with computer proficiency, indicated by strong keyboard skills and low general computer anxiety. In particular, computer proficiency correlates with interest in MOO and the expectation of success with MOO. In addition, low general computer anxiety (without the accompanying strong keyboard skills) correlates with expressions of relevance and satisfaction while using MOO in EFL instruction.

The students' less-than-expected enthusiasm about MOO does not correspond to the positive open-ended evaluations given by the two classroom teachers. It should be noted that the students were directed by the modified Likert scale questionnaires to affective aspects of using MOO while the teachers' open-ended responses tended to focus on

cognitive aspects. Nevertheless, the comments of the teachers are important to the overall understanding of this experiment with MOO as a foreign language procedure.

In separate interviews given after the experiment, both teachers noted the large amount and high quality of input that was offered the students both during the online MOO sessions and in the offline reading comprehension passages about MOO. The teachers also mentioned the meaningful output that students had to produce while functioning in the MOO environment. In short, the teachers saw the use of MOO as a worthwhile foreign language procedure, particularly because the reading comprehension exercises integrated the online experience with classroom routine. Above all, the teachers appreciated the opportunity for their students to meet and communicate in English with people from all over the world.

Caveats to the Reported Findings

Although in certain areas the hypothesized positive attitudes towards MOO were reported, in general, the experimental students expressed less enthusiasm for using MOO as an EFL procedure than had been predicted. Perhaps MOO was indeed less valuable, in terms of lowering anxiety and raising motivation, than had been predicted based on the literature.

On the other hand, there may be various explanations for the lower-than-expected results. One possibility is that the experimental design was confounded by its own attempts to control for history as a threat to internal validity (Gay, 1996). The ratio of Internet

computers per student in the experimental site led to the creation of three groups that used MOO in the Internet Lab, each time for 45 minutes, twelve times during the experiment. In an attempt to control for extraneous factors, the three groups proceeded round-robin, to provide all the students with a uniform experience both in the Internet Lab and outside of it.

As in the past, the 1998/1999 academic year was burdened by class-wide events (trips, seminars, etc.), scheduled religious holidays, electrical failures, adverse climate (e.g., snow on the roads), and unscheduled political events (e.g., katusha rocket attacks from across the border). All these events postponed planned visits by the 11th grade students to the Internet Lab. As a result, the overall time needed for the experiment was eight months (from September first to April 30th). Although such a time span decreased the possibility of the novelty effect, it did increase the dangers of other reactive arrangements (Gay, 1996). Indeed, a number of students complained of the lack of continuity caused by long intervals between MOO sessions. Many of the students spent time relearning basic commands each time they returned to the MOO environment. It was obvious to the teachers that such students felt frustration rather than motivation in their use of MOO.

Another possibility was the age factor. In the emotionally turbulent period of adolescence, many high school students may not be able to participate in fantasy in the same way as children and adults. If this is true, then the virtual world of MOO that worked for children (Bruckman, 1997) and for adults (Donaldson & Kotter, 1999; Pinto, 1996; Schwienhorst, 1998a, 1998b) may not be a suitable learning environment for these adolescents. Indeed,

some of the students in the current project criticized the use of fantasy. Nevertheless, Sanchez's (1996a) success with a *non-randomized* class of adolescents suggested that certain high school students would respond favorably to using MOO as an EFL procedure.

Finally, it should be noted that the small number of experimental participants ($\underline{N} = 38$) in this study may have led to many of the non-significant results. In a number of statistical procedures the direction of the findings was according to the hypotheses, but the level of significance fell just short of $\underline{p} = .05$. A larger population with the same data structure may well have led to stronger significance.

Implications

The current dissertation was quantitative research that attempted to advance the knowledge about using MOO for the purposes of foreign language teaching in general, and for high school EFL instruction in particular. Due to the limitations of this research project, whatever implications that are presented here deal only with the affective nature of using MOO in the foreign language classroom. Conclusions and implications about the cognitive nature of using MOO as a foreign language procedure await future research.

An example of this affective/cognitive dichotomy is found in the students' opinions about reallocating class time to the various EFL procedures. To the extent that the experimental students' attitudes can be generalized beyond the specific population of the current study,

high school foreign language teachers should reconsider their use of frontal oral presentations and examinations as instructional procedures - whether or not they decide to use MOO as an alternative procedure. Decreasing, or eliminating, frontal oral presentations and examinations would probably lead to better affective experiences for the students, thus increasing the chances for language acquisition. Nevertheless, some of the many functions of exams and quizzes are purely cognitive. It is assumed that few teachers would want to totally relinquish these traditional tools for assessing the students' cognitive progress.

The current research supports the hypothesis that there is a correlation between general computer competence on the one hand and lower anxiety and greater motivation while using MOO as a high school EFL procedure on the other hand. In addition, the results partially support the hypothesis that using MOO as an EFL procedure improves motivation in the high school EFL class in general. Thus, foreign language teachers who have computer competent students, should seriously consider breaking down the walls of their classes and allowing their students to communicate with other students, all over the world, via Internet-based communications programs such as MOO.

Another implication stemming from this study was its support for Meunier's (1997) position that there are gender-dependent responses to various types of computer-based educational programs and, in particular, to computer mediated communications (CMC). Specifically, the current data suggested that male high school students hold more positive attitudes towards using MOO than their female counterparts.

The current data, as well as Meunier's (1997) research, did not concur with Warschauer's (1996b) findings of no significant gender-based differences in attitudes towards the use of computer mediated communications in studying English as a Second/Foreign Language. It should be noted, however, that the current project focused on high school students using MOO while Meunier and Warschauer examined college students using various forms of computer mediated communications (e-mail, chat, etc.). Thus, the current data cannot be seen as unequivocal support for Meunier's position in the face of Warschauer's findings.

Nevertheless, if Meunier's (1997) conclusions, partially supported by the current data, were correct, educators must be mindful of computer mediated communications procedures that discriminate against students on the basis of gender. The option of *accepting* or even *respecting* gender-based differences in a pluralistic society is not a democratic option as computer skills become increasing necessary for economic and academic success.

The picture emerging from the current data of differentiated responses to MOO, based on gender, keyboard skills, and general computer anxiety should be of no surprise. While using MOO as an EFL procedure, Pinto (1996) and Sanchez (1996a) noted student anxiety stemming from lack of general computer experience. In addition, after examining the use of computer mediated communications procedures with second/foreign language students showing different learning styles (as categorized by the Myer-Briggs Type

Indicator), Meunier (1997) cautioned that these procedures received a mixed reaction from some types of learners in the classroom. Given the data and the literature, it would be reasonable to hypothesize that the types of learning styles that draw certain students towards the computer also create positive perceptions about using MOO and other computer mediated communications procedures.

An additional implication of the current research stems from the project's apparent inability to foster integrative language learning motivation (Dornyei, 1990; Gardner,1988; Gardner & MacIntyre, 1991). The literature had suggested that frequent visits to the MOO site would lead to cyber-friendships, participation in the MOO fantasy, and a sense of membership and ownership in that cyber-community (Turkle, 1995, 1998). In such a community, relatively isolated foreign language students would feel at ease negotiating interactions with native speakers and more fluent non-native speakers, a crucial process for second/foreign language acquisition (Krashen, 1997; Long, 1983; Pica,1994; Selinker, 1972; Swain, 1985). In addition, feelings of membership and ownership in the cyber-community could well lead to students' desire to linguistically integrate with other members of that cyber-community. Dornyei (1990) claimed that this type of integrative language learning motivation is necessary for achieving advanced language acquisition.

Unfortunately, given the weakness of the current experimental design (as explained in the section entitled *Caveats to the Reported Findings*), the infrequent visits to the MOO site

apparently did not facilitate the feelings of membership, ownership, or the integrative motivation. The obvious implication is the need for more compact MOO learning experiences: fewer MOO sessions, each lasting longer, spread out over a shorter overall time period. This need for more compact MOO experiences is relevant for both researchers and teachers in the field.

Recommendations

Possibly the most significant recommendation for further affective research about using MOO as a high school EFL procedure is the need for a more *compact* experimental time framework. In order to approximate the current experiment, while changing its overall length, students should visit the MOO site during 12 academic hours, divided into double sessions (90 minutes each), over a period of six weeks. A portion of the regular classroom time during these six weeks should be dedicated to integrating MOO into the general curriculum, via reading comprehension passages about MOO and discussions about the students' experiences at the MOO site.

A teacher not interested in replicating, or modifying, the experiment could use a different number of sessions. Nevertheless, because learning the basic MOO commands does take time, it is important to recognize the need for a minimum number of hours to make the experience worthwhile. Perhaps 3 to 5 double periods are needed to allow the students and the teachers to appreciate the nature of the MOO environment.

SchMOOze University is the recommended site, both for the sake of replication of the current experimental conditions and for the probability of finding a reasonable number of other ESL/EFL students and teachers online at any time during the school year. If schMOOze is used as the MOO site, one week between MOO sessions is recommended to allow the administrators of the MOO site to respond to the various requests that the students send via asynchronous communications.

An additional recommendation is organizing research with a larger number of participants. Although the size of the current research can be considered valid because it studied the entire population of 5 Point Bagrut (National Matriculation) students in the 11th grade of the experimental site (Gay, 1996), a larger number of participants may have rendered more significant results. In addition, larger studies would increase the ability to address the validity of previous smaller studies (Pinto,1996; Sanchez, 1996a).

Another recommendation, stemming from the findings of the current project, would be testing MOO with groups of high school foreign language students who express a higher level of computer proficiency (e.g., better keyboard skills, less general computer anxiety, etc.) than the general student population. Granted, such a selection of experimental students would not be a random selection of a particular age group and thus would create validation problems about generalizing its findings. Nevertheless, schools may want to evaluate the formation of such non-randomized groups.

A final recommendation for future research, stemming from the limitations of the current project, is to address the cognitive domain of using MOO as a foreign language procedure. In such research the actual interaction and negotiation of meaning among the experimental students and other participants in a MOO site would be recorded and analyzed.

Ultimately, it could be asked if there is justification for future research about MOO as a foreign language instructional procedure. After all, MOO has a primarily textual, command-line interface which seems anachronistic in the era of the GUI (graphic user interface) and in light of attempts to evolve beyond the current WIMP (windows, icons, menus, pointer) model of the GUI (Genter & Nielson, 1996). Nevertheless, there is continued interest among foreign language teachers about using MOO in their work (Davies, Shield, & Weininger, 1998a, 1998b; Donaldson & Kotter, 1998, 1999; Hall, 1998; Kitao, 1998; Schwienhorst, 1997, 1998a, 1998b). Although some virtual reality applications now offer graphics enhancement to MOO sites (Schwienhorst, 1998b), many foreign language teachers prefer their students to concentrate on the linguistic aspects of text rather than the non-linguistic interference of purely decorative graphics. The images in the graphics-enhanced chat rooms often have nothing to do with the content of the discussions (Donaldson & Kotter, 1999; Schwienhorst, 1998b).

Another aspect that has maintained teacher interest in MOO has been its technological simplicity and robustness. Beyond a MOO client, which can be downloaded from the Internet free of charge, there are no additional software or hardware requirements. There

is no need for peripheral equipment beyond the basic computer configuration of screen, keyboard, and processor. In addition, compared to other computer mediated communications programs, MOO is extremely reliable (Schwienhorst, 1998b). Finally, the minimal bandwidth requirements of MOO make it accessible to schools in developing nations, with older computers, slower modems, and minimal national Internet infrastructures (Schwienhorst, 1998b; United Nations Development Programme, 1999). Indeed, MOO may be a partial solution to the isolation of the foreign language learners in such nations.

These reasons provide adequate justification for further research about MOO as a foreign language procedure. It is hoped that the conclusions and recommendations of the current research project will improve both the quality of future research and the practical use of MOO in the foreign language classroom.

Summary

The current research project stemmed from the enthusiastic claims about MOO, the literature that supported the use of MOO as a foreign language procedure, and the paucity of empirical data in this area. In particular, the research attempted to support, or reject, the claims that MOO would be a suitable learning environment for students of English as a Foreign Language (EFL) at the high school level.

Because of institutional limitations, the project could not address the cognitive domain, which requires recording and analyzing interaction among the students and other people in the MOO site. Unfortunately, there was no way to obtain prior written consent from potential interlocutors (a prerequisite for such a study done within the framework of Nova Southeastern University) who entered the MOO site as *guests* and whose identities were concealed by pseudonyms. As a result, the current research focused on the affective elements of anxiety and motivation in the foreign language classroom. Anxiety was used as a single construct while motivation was divided into subconstructs: interest, relevance, expectancy, and satisfaction (Dornyei, 1994).

The project observed the entire population (N = 62) of 11th grade students studying at the Five Point Bagrut level in one particular Israeli school. (The Bagrut is the National Matriculation examination. Five Points is its highest level.) This population was randomly divided into experimental and control groups, a pretest was given, the treatment was administered, and posttests were completed. The experimental treatment was a series of 12 semi-guided visits to schMOOze University, a MOO site for students and teachers of English as a Second/Foreign Language. Each session lasted 45 minutes. The control class used *more of the same* EFL procedures that all students, including the experimental students, received in the school.

The central research questions and the hypotheses of the project dealt with the merits of adopting MOO as a procedure in foreign language instruction, with the identification of existing procedures that could be displaced in the process of including MOO in the

curriculum, and with the differences in students' attitudes towards MOO stemming from gender, keyboard skills, and general computer anxiety.

Contrary to the hypotheses, the students did not report significantly less-than-average anxiety and significantly more-than-average motivation when they compared MOO to 13 other EFL procedures. In fact, the students scored MOO significantly lower than average in terms of the subconstructs of relevance and satisfaction.

Despite this unenthusiastic response to MOO as a specific EFL procedure, using MOO seems to have produced a positive influence on the environment in the EFL class in general. As hypothesized, students using MOO reported lower mean anxiety and higher means in three motivational subconstructs, in regard to general EFL instruction, than did the students not using MOO. However, only two of the tests resulted in statistically significant differences: relevance and expectations for success.

The data indicated that MOO produced significantly less anxiety than frontal oral presentations and exams. The students also indicated that MOO was significantly more interesting than giving frontal oral presentations.

The findings demonstrated some positive student attitudes towards using MOO as an EFL procedure, particularly for male students and for students who felt proficient with computers. Nevertheless, these findings did not match the enthusiasm of various position papers about MOO in second/foreign language instruction (Davies, Shield, & Weininger,

1998a, 1998b; Falsetti, 1995; Frizler, 1995; Hall, 1998; Sanchez, 1995, 1996b; Schwienhorst, 1997, 1998a, 1998b; Turbee, 1995a, 1995b, 1966, 1997). The less-than-expected enthusiasm may have stemmed from the extended treatment period. Various factors (scheduling problems, electrical failures, political events, and adverse weather conditions) caused infrequent visits to the MOO site, forcing many students to spend their time relearning basic MOO commands rather than advancing to what could have been more interesting experiences. An alternative experimental design was suggested: having fewer (six), but longer (90 minutes), MOO sessions, covering a shorter overall time period. Another suggested cause of the less-than-expected enthusiasm for MOO was the age of the participants: adolescence might not be the proper time to use the MOO fantasy for school. Finally, it was suggested that a larger number of participants might have led to more statistically significant results.

Appendix A

Consent Form Sent to Parents of Participants in Experiment
(Translated into Hebrew and printed on Har V'Gai Regional School paper)

June 1, 1998

Dear Parents:

The Har V'Gai Regional School has decided to organize a research project to evaluate various instructional procedures in 11th grade English classes during the up-coming academic year. We hope that this research will aid the English staff in improving English instruction in future years.

In the course of their normal studies, the students will be asked to participate in various activities that have been used in the past at the "5 Point Bagrut" level of the 11th grade. At the beginning and end of the year the students will be asked to fill out questionnaires about their opinions about many of these instructional procedures. The entire project will take place during regular school time, with no additional time requirements, or additional work requirements, for the students.

Students names will be on the forms only to match up the initial questionnaires with the final questionnaires. All identifying information will be removed and no data will be reported that identifies individual students.

Participation in this research project is totally voluntary. Only students who agree to, and whose parents/guardians agree, will be able to fill out the questionnaires. Any student may leave the project at any time during the academic year. There are no penalties for not participating or leaving the project.

This research project will be organized by James Backer (Kibbutz Gadot, 06/6939338), a doctoral student of Nova Southeastern University (Fort Lauderdale, Florida, USA). Mr. Backer will be happy to answer any questions the students or parents/guardians have about the research project. Mr. Backer's research advisor is Professor Trudy Abramson (SCIS Nova Southeastern University, 3100 SW 9th Avenue, Fort Lauderdale, Florida, USA 33315, tel: 954-262-2070).

We request that you fill out the consent form, below, as required by Nova Southeastern University. We thank you, in advance, for your cooperation.

Sincerely,

Eli Bliech
Pedagogical Director
The Har V'Gai Regional School
Kibbutz Dafna

Shraga Shatil, Principal
High School
The Har V'Gai Regional School
Kibbutz Dafna

Wendy Segal, Chairperson
English Staff
The Har V'Gai Regional School
Kibbutz Dafna

The parent/guardian is asked to fill out the form below and send it to Eli Bliech, Pedagogical Director, The Har V'Gai Regional School, Kibbutz Dafna, D.N. Upper Galilee 12235.

****

I hereby agree to the participation of _____(name of 11th grade student) in the research project that Har V'Gai Regional School is organizing for the up-coming school year.

_____ _____

(signature of parent/guardian) (date)

Appendix B

Questionnaire 1
(Translated into Hebrew and Russian)

This was the basis of both the pretest and the posttest. In the prettest, there was no questions about using MOO (question number 8 in each section) or about using the World Wide Web (question number 14 in each section). In the post test, all participants were asked about using the World Wide Web and the experimental group was asked about using MOO.

Family Name:_____ First Name:_____

Gender: Male / Female

Name of English Teacher:_____

Name of English Teacher last year:_____

During the school year, your teachers ask you to do many different activities while in English class. The English staff is interested in your opinions about these activities. Do the activities cause you feelings of anxiety (being insecure, uncomfortable, or unhappy about being in class)? Are the activities interesting? Are they relevant to you? While you are doing them, do they make you feel that you are "in control" of your learning and that you are succeeding in the activity? After you finish the activity, are you satisfied that your time was well spent?

Please answer the following questions as best as you can. Please do not discuss the questions with your friends while you are filling out the questionnaire. If you have a question, please ask your teacher, not other students.

Thank you very much for taking part in this survey.

ANXIETY

Do these activities make you feel insecure, uncomfortable, and/or unhappy? Do you worry about your ability to do these activities? Would you rather do something else? On the scale, 1 represents the LEAST anxiety and 5 represents the MOST anxiety.

1. To what extent are you anxious about spending class time **reading English passages** and then answering questions about them?	1 - 2 - 3 - 4 - 5
2. To what extent are you anxious about spending class time **reading books** that you choose from the English library?	1 - 2 - 3 - 4 - 5
3. To what extent are you anxious about spending class time doing English **grammar** exercises?	1 - 2 - 3 - 4 - 5
4. To what extent are you anxious about spending time **listening to the teacher** explain things while standing in front of the class?	1 - 2 - 3 - 4 - 5
5. To what extent are you anxious about **taking quizzes and tests** in English class?	1 - 2 - 3 - 4 - 5
6. To what extent are you anxious about spending class time listening to English prerecorded **songs on the tape recorder** and then doing exercises about them?	1 - 2 - 3 - 4 - 5
7. To what extent are you anxious about spending class time doing **listening comprehension exercises from the tape recorder**?	1 - 2 - 3 - 4 - 5
8. To what extent are you anxious about spending class time doing **MOO** on the computer?	1 - 2 - 3 - 4 - 5
9. To what extent are you anxious about **speaking English to the whole class while sitting in your chair**?	1 - 2 - 3 - 4 - 5
10. To what extent are you anxious about **speaking English to the whole class while standing in front of the class**?	1 - 2 - 3 - 4 - 5
11. To what extent are you anxious about **speaking English in small groups** during class?	1 - 2 - 3 - 4 - 5
12. To what extent are you anxious about spending class time studying English material prerecorded on **video** (TV, movies, etc.) and then doing exercises about the video material?	1 - 2 - 3 - 4 - 5
13. To what extent are you anxious about spending class time **writing** things in English?	1 - 2 - 3 - 4 - 5
14. To what extent are you anxious about **using the World Wide Web** (web pages) during English class?	1 - 2 - 3 - 4 - 5
15. To what extent are you anxious about **English lessons**, in general?	1 - 2 - 3 - 4 - 5

INTEREST

How interesting are each of these activities? How much do they arouse your curiosity? How much fun are they? How much do you enjoy doing them during English class? On the scale, 1 represents the LEAST interesting and 5 represents the MOST interesting.

1. How interesting is spending class time **reading English passages** and then answering questions about them?	1 - 2 - 3 - 4 - 5
2. How interesting is spending class time **reading books** that you choose from the English library?	1 - 2 - 3 - 4 - 5
3. How interesting is spending class time doing English **grammar** exercises?	1 - 2 - 3 - 4 - 5
4. How interesting is spending time **listening to the teacher** explain things while standing in front of the class?	1 - 2 - 3 - 4 - 5
5. How interesting is **taking quizzes and tests** in English class?	1 - 2 - 3 - 4 - 5
6. How interesting is spending class time listening to English prerecorded **songs on the tape recorder** and then doing exercises about them?	1 - 2 - 3 - 4 - 5
7. How interesting is spending class time doing **listening comprehension exercises from the tape recorder**?	1 - 2 - 3 - 4 - 5
8. How interesting is spending class time doing **MOO** on the computer?	1 - 2 - 3 - 4 - 5
9. How interesting is **speaking English to the whole class while sitting in your chair**?	1 - 2 - 3 - 4 - 5
10. How interesting is **speaking English to the whole class while standing in front of the class**?	1 - 2 - 3 - 4 - 5
11. How interesting is **speaking English in small groups** during class?	1 - 2 - 3 - 4 - 5
12. How interesting is spending class time studying English material prerecorded on **video** (TV, movies, etc.) and then doing exercises about the video material?	1 - 2 - 3 - 4 - 5
13. How interesting is spending class time **writing** things in English?	1 - 2 - 3 - 4 - 5
14. How interesting is **using the World Wide Web** (web pages) during English class?	1 - 2 - 3 - 4 - 5
15. How interesting are **English lessons**, in general?	1 - 2 - 3 - 4 - 5

RELEVANCE

How relevant are each of these activities for you? How much do they give you of "the important stuff"? How much do they help you in, and out, of school? On the scale, 1 represents the LEAST relevant and 5 represents the MOST relevant.

1. How relevant is spending class time **reading English passages** and then answering questions about them?	1 - 2 - 3 - 4 - 5
2. How relevant is spending class time **reading books** that you choose from the English library?	1 - 2 - 3 - 4 - 5
3. How relevant is spending class time doing English **grammar** exercises?	1 - 2 - 3 - 4 - 5
4. How relevant is spending time **listening to the teacher** explain things while standing in front of the class?	1 - 2 - 3 - 4 - 5
5. How relevant is **taking quizzes and tests** in English class?	1 - 2 - 3 - 4 - 5
6. How relevant is spending class time listening to English prerecorded **songs on the tape recorder** and then doing exercises about them?	1 - 2 - 3 - 4 - 5
7. How relevant is spending class time doing **listening comprehension exercises from the tape recorder**?	1 - 2 - 3 - 4 - 5
8. How relevant is spending class time doing **MOO** on the computer?	1 - 2 - 3 - 4 - 5
9. How relevant is **speaking English to the whole class while sitting in your chair**?	1 - 2 - 3 - 4 - 5
10. How relevant is **speaking English to the whole class while standing in front of the class**?	1 - 2 - 3 - 4 - 5
11. How relevant is **speaking English in small groups** during class?	1 - 2 - 3 - 4 - 5
12. How relevant is spending class time studying English material prerecorded on **video** (TV, movies, etc.) and then doing exercises about the video material?	1 - 2 - 3 - 4 - 5
13. How relevant is spending class time **writing** things in English?	1 - 2 - 3 - 4 - 5
14. How relevant is **using the World Wide Web** (web pages) during English class?	1 - 2 - 3 - 4 - 5
15. How relevant are **English lessons**, in general?	1 - 2 - 3 - 4 - 5

EXPECTANCY

How well do you expect to succeed doing each of these activities? How much do you feel "in control" of what you are doing? What grade do expect to get by doing it? On the scale, 1 represents the LEAST expected success and 5 represents the MOST expected success.

1. How well do you expect to succeed when spending class time **reading English passages** and then answering questions about them?	1 - 2 - 3 - 4 - 5
2. How well do you expect to succeed when spending class time **reading books** that you choose from the English library?	1 - 2 - 3 - 4 - 5
3. How well do you expect to succeed when spending class time doing English **grammar** exercises?	1 - 2 - 3 - 4 - 5
4. How well do you expect to succeed when spending time **listening to the teacher** explain things while standing in front of the class?	1 - 2 - 3 - 4 - 5
5. How well do you expect to succeed when **taking quizzes and tests** in English class?	1 - 2 - 3 - 4 - 5
6. How well do you expect to succeed when spending class time listening to English prerecorded **songs on the tape recorder** and then doing exercises about them?	1 - 2 - 3 - 4 - 5
7. How well do you expect to succeed when spending class time doing **listening comprehension exercises from the tape recorder**?	1 - 2 - 3 - 4 - 5
8. How well do you expect to succeed when spending class time doing **MOO** on the computer?	1 - 2 - 3 - 4 - 5
9. How well do you expect to succeed when **speaking English to the whole class while sitting in your chair**?	1 - 2 - 3 - 4 - 5
10. How well do you expect to succeed when **speaking English to the whole class while standing in front of the class**?	1 - 2 - 3 - 4 - 5
11. How well do you expect to succeed when **speaking English in small groups** during class?	1 - 2 - 3 - 4 - 5
12. How well do you expect to succeed when spending class time studying English material prerecorded on **video** (TV, movies, etc.) and then doing exercises about the video material?	1 - 2 - 3 - 4 - 5
13. How well do you expect to succeed when spending class time **writing** things in English?	1 - 2 - 3 - 4 - 5
14. How well do you expect to succeed when **using the World Wide Web** (web pages) during English class?	1 - 2 - 3 - 4 - 5
15. How well do you expect to succeed in **English lessons**, in general?	1 - 2 - 3 - 4 - 5

SATISFACTION

How much educational satisfaction do you get doing these activities? How much was it worth the effort? How much do you really feel that you learned English? On the scale, 1 represents the LEAST satisfaction and 5 represents the MOST satisfaction.

1. How much satisfaction do you get from spending class time **reading English passages** and then answering questions about them?	1 - 2 - 3 - 4 - 5
2. How much satisfaction do you get from spending class time **reading books** that you choose from the English library?	1 - 2 - 3 - 4 - 5
3. How much satisfaction do you get from spending class time doing English **grammar** exercises?	1 - 2 - 3 - 4 - 5
4. How much satisfaction do you get from spending time **listening to the teacher** explain things while standing in front of the class?	1 - 2 - 3 - 4 - 5
5. How much satisfaction do you from get **taking quizzes and tests** in English class?	1 - 2 - 3 - 4 - 5
6. How much satisfaction do you get from spending class time listening to English prerecorded **songs on the tape recorder** and then doing exercises about them?	1 - 2 - 3 - 4 - 5
7. How much satisfaction do you get from spending class time doing **listening comprehension exercises from the tape recorder**?	1 - 2 - 3 - 4 - 5
8. How much satisfaction do you get from spending class time doing **MOO** on the computer?	1 - 2 - 3 - 4 - 5
9. How much satisfaction do you get from **speaking English to the whole class while sitting in your chair**?	1 - 2 - 3 - 4 - 5
10. How much satisfaction do you get from **speaking English to the whole class while standing in front of the class**?	1 - 2 - 3 - 4 - 5
11. How much satisfaction do you get from **speaking English in small groups** during class?	1 - 2 - 3 - 4 - 5
12. How much satisfaction do you get from spending class time studying English material prerecorded on **video** (TV, movies, etc.) and then doing exercises about the video material?	1 - 2 - 3 - 4 - 5
13. How much satisfaction do you get from spending class time **writing** things in English?	1 - 2 - 3 - 4 - 5
14. How much satisfaction do you get from **using the World Wide Web** (web pages) during English class?	1 - 2 - 3 - 4 - 5
15. How much satisfaction do you get from **English lessons**, in general?	1 - 2 - 3 - 4 - 5

Appendix C

QUESTIONNAIRE 2

Given to the experimental group, after the posttest version of questionnaire 1
(Translated to Hebrew and Russian)

First Name: _____ Family Name:_____

Name of English teacher:_____

PART 1:

Please answer these questions by circling one, and only one, of the numbers.
1 is THE LEAST and 5 is THE MOST.

1) How well can you use the computer keyboard for typing English?	1 - 2 - 3 - 4 - 5
2) To what extent do you feel comfortable about using computers, in general?	1 - 2 - 3 - 4 - 5

PART 2: Please answer these questions **in ENGLISH**. Write as much, or as little, as you want. You don't have to write anything, if you don't want to.

1. What were the **best things**, in your opinion, about visiting schMOOze during English class?

_____

_____

_____

2. What were the **worst things**, in your opinion, about visiting schMOOze during English class?

_____

_____

_____

Appendix D

Classroom Procedures for Using MOO in EFL

The following is a general teacher's guide for using schMOOze in the EFL class, reflecting the basic experimental conditions of the current research project and the recommendations stemming from the conclusions of the project. The main recommendation for changing the experimental design was to have the students spend 90 minute sessions at the MOO site, once a week, for 6 consecutive weeks (rather than 12 sessions lasting 45 minutes each, spread over a longer period of time).

Although a number of specific work pages are presented in Appendix E of this dissertation, these should be seen as a base on which each teacher can develop a class's MOO experience. Because each student will react differently to MOO, the material should be as flexible as possible, allowing alternative activities and allowing students to use MOO at their own pace and according to their own learning styles.

In addition, because MOO sites are dynamic, many of the specific procedures used during the experiment will no longer be available or will be irrelevant. Instead, there will be other procedures to consider giving to the students. Therefore, it is obligatory that the teacher becomes familiar with schMOOze (or any MOO site) before bringing a class to it.

For all of these reasons, the following teacher's guide will give detailed instructions for the first few lessons, both in-class and at the MOO site. Later lessons are presented in very general form. It is assumed that the teacher will gain enough experience, based on preliminary visits to the MOO site and the first lessons presented here, to develop appropriate detailed lessons for his/her particular class.

Preparation for the First Visit to the MOO Site

Before the students are brought to the MOO site, it is recommended that they be prepared for the experience. This can be done in the form of reading comprehension passages and in-class discussions. (A copy of such a reading comprehension exercise is found in Appendix E of this dissertation.) Not only will this prepare the students to function more efficiently in the MOO site, it will also help to integrate the use of MOO into the normal classroom procedures. The reading comprehension passages can be given as in-class work or as homework.

After giving an introductory reading comprehension passage about schMOOze, but before bringing the class to the site, it would be wise to have the students prepare their character descriptions in class. These characters can reflect their real selves, or they can be totally fictional characters. (For later purposes, it should be remembered that the administrators of schMOOze require character descriptions that present a basically visual image of the character.) Creating a character will help the students prepare themselves for the fantasy element of MOO. It will also be a constructive exercise in creative writing. In addition,

having a dry-run in class will foresee many of the technical questions the students will have and avoid many technical mistakes. The writing exercise can be preceded by a short discussion about choosing fictional characters.

The teacher should collect the character descriptions and make sure they are correct in grammar and spelling. The teacher should bring the character descriptions to the students' first visit to schMOOze and return them to the students at the beginning of the session. This will ensure that all students have the corrected pages.

Based on these character descriptions, the students are ready to request character names and passwords at schMOOze. This can be done before the first visit to the site, via e-mail. (Some of the students will already have e-mail. For those who don't, either the school will provide e-mail accounts or the students can receive free e-mail accounts from Yahoo, Hotmail, or some other Internet company.)

The students should send an e-mail message to Ms. Julie Falsetti at **jfalsett@shiva.hunter.cuny.edu** and ask for a permanent character at schMOOze. They should suggest a name and two or three alternatives, just in case the first choice is already taken.

The teacher might want to have the students prepare their messages to Ms. Falsetti first in class and then copy it to the e-mail forms later. This would be a good in-class writing exercise, stressing the genre of e-mail messages.

Ms. Falsetti will reply, via e-mail, giving each student a name and a password. The students should be aware that passwords are case-sensitive. The students should show Ms. Falsetti's reply message to the teacher, who will record the character names and passwords. (If there is ever trouble with a password, the student can visit as a guest, and contact Ms. Falsetti by regular e-mail requesting a new password for the character name.)

Meanwhile, before the first class visit to schMOOze, the teacher should prepare the Internet Lab (usually with the aid of a computer teacher). Probably the easiest way to do this is to prepare a master AvPlay (or some other MOO client) set-up diskette for use with all the computers. AvPlay can be downloaded from the Internet free of charge. (In addition, this diskette can also be legally copied for the students' use at home.)

The master diskette can be prepared and used in the following way:

1. Download AvPlay from the Internet at:

http://www.avalon-rpg.com/clientsw.html/avplay.html

2. Save the zip file on a floppy disk
3. Unzip the file on the floppy disk. (Now the floppy disk should have the set-up and other needed files, ready to use.)
4. Insert the diskette into the computer and select the set-up program (Follow the instructions during the set-up procedure. If anytime the set-up process offers a choice, choose "continue" or "ignore".)
5. Duplicate the diskette, as is.

After setup, it is recommended to place the AvPlay icon on the desktop. This will facilitate the students' access to the program. To further aid the students, the teacher should access schMOOze University at least once, to enter its telnet address into the drop-down menu of the MOO client. To do this, the teacher should:

1. Choose AvPlay icon from on the desktop or from the programs list.
2. Choose CONNECT should be chosen from the menu bar.
3. Choose CONNECT from the drop-down menu, causing a dialog box with two empty fields to appear.
4. Type **schmooze.hunter.cuny.edu** into the left field, type **8888** in the right field, and click on the **OK** button.

If the address was typed correctly, the user will be connected to schMOOze. AvPlay will remember the address in the future. (If a mistake is made while typing, the information can be reentered. It is recommended to make the correction a number of times so that the menu will show many correct choices as opposed to the one incorrect choice.)

In order to facilitate the students' use of AvPlay, it is also recommended that the teacher choose OPTIONS from the command bar and deactivate all the options which are associated with AvPlay adventure game (Avalon Interactive, Tool Bar, Compass Bar, and Verb Options). On the other hand, it is recommended to activate the Local ECHO option, which will present all student output on the screen.. In addition, it is highly recommended that the teacher:

1. Choose OPTIONS from the command bar, getting a drop-down menu.
2. Choose SETTINGS from the drop-down menu, getting a dialogue box.
3. Find the sections entitled "Command Line Font, Colours And Options" in the dialogue box.
4. In the field marked "Max. length", type 1000 and click on the OK button.

This procedure ensures that students do not run out of typing space when visiting the MOO site.

AvPlay is the recommended MOO client for beginning classes because it directs the student to the desired MOO sites via a drop-down menu, without offering alternative MOO sites to visit. In addition, it is small, easy to download, fairly easy to install, and easy to use. The students merely have to click on the AvPlay icon on the desk top, click on CONNECT to get the drop-down menu, and then click on schMOOze. When the students reach more advanced MOOing, they may want to experiment with other MOO clients. (Teachers should be advised that some of these MOO clients offer connections to MOO sites that should not be used in an educational setting.)

First Visit of the Class to the MOO Site

During the first visit to schMOOze, the goals of the session will be to set the students' character descriptions, set the gender of their character, and learn the following

commands: **look, say, page, @who**, and **@join**. (A copy of the work page used by the experimental group for their first visit to schMOOze is found in Appendix E of this dissertation.) The students should visit schMOOze once or twice with the primary intention of meeting new people from around the world. These basic commands will give the students the necessary tools to begin their MOO experience. Some students will be confused by MOO procedures at first and must be encouraged by the teacher or other students.

Like in any learning activity, some students will finish before others. It is suggested that supplementary activities be prepared for the faster students. (A copy of a supplementary activity page is found in Appendix E of this dissertation.)
These activities are not "busy work" assignments. The teacher should bring these activity pages to every class visit to schMOOze. They will be particularly important if there aren't many other characters for the students to converse with.

After visiting schMOOze once or twice in class, students can be offered the opportunity of visiting the site on their own time. Copies of the master AvPlay set-up diskette can be prepared and given to the students, legally and free of charge.

Second Visit of the Class to the MOO Site

At the beginning of the second visit to schMOOze, the students should make their way to the lobby of the student dormitory and read the notice about getting a room. They should

then send a MOOmail message requesting a room in the dorm to Gregor. This does two things. First, it strengthens the students' entry into the fantasy of the virtual world by arranging a private domain for each student. Second, it begins to teach the students about asynchronous communications in MOO.

The rest of the second visit to the MOO site should be dedicated to meeting people from other places in the world or exploring the MOO site, with or without the supplementary activity pages.

In-Class Activity After the Second Visit to the MOO Site

In class, the teacher should have the students prepare their room descriptions according to their personal taste. These room descriptions can be of real interior spaces, real outdoor places, or they can be locations representing totally fantasy. Because many students will not know what to write, it would be beneficial to have an in-class discussion about virtual homes, virtual communities, and maintaining the fantasy stemming from the character description. The subsequent writing task of describing the room can be checked by the teacher. It is important for the students to write interesting and correct descriptions. Those who will go on to be builders will need correct room descriptions. Once again, the teacher should collect the descriptions and hand them back, with suggested corrections, at the beginning of the next MOO session.

Third Visit of the Class to the MOO Site

By the third visit to schMOOze, the students should have gotten a message from Gregor giving them a room or a reason why they didn't get a room. The teacher, as well as the student, should write down the room number in case the student forgets it in the future. The teacher should give the room descriptions back to those students who received a room. These students can proceed to claim their room and decorate it according to their prepared text.

There are two probable reasons for some students not yet having a room by their third visit to schMOOze: they haven't successfully sent Gregor a MOOmail request for a room, or Gregor was not satisfied with the quality of their character descriptions. The students without rooms must spend time rectifying the situation so they can get rooms.

After the Third Visit to the MOO Site

After a few visits to schMOOze, students should begin to feel at home while chatting in a MOO. At this point, they should confront the theme of netiquette. This could be done as a class discussion about appropriate behavior on the Internet.

At this stage, the teacher should have brought the class to a functional level in the MOO site. Most of the students should have characters and rooms, both of which can be described in a way that allows the students to adopt and maintain a creative fantasy in prose. (However, some students will have not have yet reached this stage and will have to spend time catching up.) The teacher will now decide if the remaining MOO sessions will be exploratory sessions or collaborative building sessions, or a mixture of both. Exploratory sessions can be done by individuals or groups of MOO characters. The teacher will set a number of fairly limited goals, like finding the art gallery and choosing the best picture. Collaborative building sessions, on the other hand, are larger projects in which students build (or at least describe) new rooms and objects, based on a theme. For example, in various MOO sites teachers have asked their students to create a Virtual Hell (based on Dante's works), a Virtual Versailles, and a Virtual Kibbutz. Of course, once a collaborative project is finished, the students can return to smaller exploratory exercises, thus mixing collaborative building and exploration.

If a teacher chooses a collaborative building project, the entire class should brainstorm the topic, which should relate to some major phenomenon of their life or to their studies. During the brainstorming session, a list should be made of the elements of the topic. Then each student should receive a page on which to compose a description of one of the elements. These hand-written descriptions can be then corrected, by teachers or peers, before the students type their descriptions using a word processor. (The students should be aware that the goal is to present their work to people in other parts of the world.) The

teacher will then collect the word processor files and integrate them into the virtual representation of the phenomenon. To do this, the teacher must reach the rank of builder in the MOO site, or work closely with a builder.

When the virtual phenomenon has been created, invite the students to inspect their collaborative creation. They should search for items that should be improved or added. In addition, they should search for the most creative items presented.

Appendix E

Examples of In-Class Material Given to Experimental Group

Example One (reading comprehension given before first visit):

WELCOME TO SCHMOOZE UNIVERSITY Name:_____

SchMOOze University is a ***textual*** virtual-reality community where you will be able to meet people from all over the world. Because schMOOze is ***textual***, it will be like stepping into a novel and becoming one of the characters. You will be able to chat with the other characters about anything you want, finding out how they live and what they think is important in life. They will probably ask you the same type of questions. The more you visit SchMOOze University, the greater the probability of meeting the same people and becoming good friends with them. **Always visit SchMOOze using your registered character name, so your friends will recognize you!**

Even if there are no people to talk to when you visit SchMOOze University (occasionally this happens), there are many things you can do on the campus. There is a Student Union with a game room and a swimming pool. Just think, you swim in a virtual swimming pool! And if there are others in the pool, you can play water-basket. There is also a graffiti wall where you can write your thoughts and read what others have written. There are other things to do on campus as well. There is an art gallery with real pictures, a large public garden with virtual flowers, and lots of other buildings to explore. Off campus, there is a disco-bar called MOOrrey's. Even if you are too young to drink alcohol, you can get some food and soft drinks. There is a dance floor and a disc jockey, and even a few karaoke rooms where you can sing the lyrics of your favorite songs. Remember, schMOOze is a ***textual*** virtual world, so you will be reading and writing while you are doing these things in your "mind's eye".

To go to SchMOOze University, you need to be connected to the Internet, have a telnet program, and a MOO client. The telnet program allows you to get to other computers in the world. (SchMOOze happens to be inside a computer in Hunter College in New York City.) The MOO client allows you to write your input in one area of the screen while things are going on in another area of the screen. AvPlay is a good MOO client for beginners. You click on CONNECT and then choose SchMOOze from the drop-down menu. If the computer has never been to SchMOOze before, then you have to choose CONNECT on the drop-down menu and type in: schmooze.hunter.cuny.edu in the left box and 8888 in the right box. Be very careful to type in the right name!

When you get to SchMOOze, read the instructions and you will understand what to do. At first you have to choose a name and then describe yourself. This means you can be anything you want! You can change your appearance, and even your sex, if you want. Or

you can be yourself. Once you have a name and a description, you can start touring the campus and meeting the people. To move around, look for the "obvious exits" listed in the description of your current location. You usually can type one of the compass points (north, south, east, west), some other direction (out, in, up, down, etc.), or the name of a building (Library, Conference Center, Dormitory, etc.). If you get lost, you can type "map" to see where you are. If you need help, you can type "help here". If you don't know what to do with a certain object, type "help <name of object>", for example, "help baseball".

The computer will tell you if someone comes into your current location. It will also tell you who is in a location you come into. There will be a sentence like this: "You see Sally, Tanja, and Markus". To get this information, you can always type "look here".

To speak to someone in your current location, you type "say <your message>", for example, "say Hello, everybody. Where are you from?" (Don't forget to type the word SAY) You can look at the people by typing "look at <person>" , for example, "look at Markus". Then you will see the description that the person gave him or herself. You can send a message to someone in a different location by typing "page <name of person><message>", for example, "page Yoshi Can I come and visit with you?"

But how do you know who is on campus? Easy. Just type @who and you will get a list of all the people who are now connected to SchMOOze University. The people who have been idle (i.e., doing nothing) for less than 5 minutes are the best people to page. They are probably waiting for you to contact them!

But remember to be polite! Even if you are in a virtual reality place, these are real people. One important thing is NOT to barge into a private room without someone's permission. First page someone to ask if you can visit with him or her. When you are invited, then type @join <person>, for example, @join Yoshi . If you are not polite, "the wizards" (the people who run SchMOOze) will come and throw you out of SchMOOze.

So have fun, but be polite. It might be a little hard at first, but most people really like visiting SchMOOze University when they learn what to do. Don't be shy! If you don't know what to do, ask someone in SchMOOze to help you. Everyone was a beginner once, so everyone is usually willing to help.

QUESTIONS:

1. Who can you meet at SchMOOze University? How can you become good friends with these people?
2. The Student Union has many things in it. Which three things are mentioned in the passage?
3. Does the art gallery have real or virtual pictures? Does the public garden have real or virtual flowers?
4. Where is the disco-bar? What things can you do there?
5. What does telnet do? What does a MOO client do?

6. Where is SchMOOze University, really?
7. What do you look for to know where you can go?
8. If you get lost, what can you do?
9. If you don't know what to do, what can you do?
10. What can you do to find out who is in your current location and what the obvious exits are?
11. What must you remember to type before communicating with some one in your current location?
12. What two things must you remember to type before communicating with some one in a different location?
13. How do you know who is visiting SchMOOze University when you are?
14. What must you do before visiting someone in a private room?
15. What are the administrators of SchMOOze University called?

Example Two:

DESCRIPTION OF CHARACTERS NAME:_____

Visiting a MOO site is like jumping into the pages of a novel, becoming a character in that novel, and helping other characters to create the plot of the novel. One of the things you will be able to do is to look at the other characters, locations, and things. If you want to look at a character named Tom, you type: **Look at Tom** and you will read a description of Tom. If Tom looks at you, he will see a description of you. Who writes the description of you that Tom (and everybody else in the world) can read? You do!
To do this, you type:

@describe me as You see _____<ENTER>

You must type: **@describe me as** because that tells the MOO program that you are describing yourself. It's a good thing to type: **You see** because you are helping everyone else in the world see you. Please remember the capital **Y** in **You**. In the blank space, finish the description. Write a sentence, or sentences, in good English. (Remember spelling, grammar, and punctuation!) You can write *anything* you want, but try to make your description as ***visual*** as possible. You can describe your real self or some fictional character. Here are some examples:

@describe me as You see a young woman. She is tall and has long blond hair. She likes to play and watch basketball games with her friends.

@describe me as You see an old man walking with a cane. He is mostly bald, but has a little white hair over his ears.

@describe me as You see an terrible monster with three eyes. Its skin is dark green. When it opens its mouth, fires comes out.

It is really important to give yourself an interesting and ***visual*** description. First of all, it lets other people know about the character that you created. It gives them something to talk about with you. Another reason is that you have to have an interesting and ***visual*** description (in correct English) to get your own room. You may not know it now, but having your own room is ***very cool***. You can create any type of a place you want. Then you can invite people for private conversations in your room.

Let's try to think of a description that starts: ***You see ...*** and has about 20 to 25 words in it. Remember, be really careful with the spelling and the grammar! (Write your new description below.) ***And be as visual as possible. Describe what someone would see!***

After your teacher checks your description, we'll go to schMOOze and type:

@describe me as *You see* _____

_____

_____

_____

You have to decide whether your character is a male, a female, or neuter. (If your description needs an "it", then skip this section.) After you type your description, type either:

@gender male <Enter> or **@gender female** <Enter>

Now look at yourself by typing: **Look at me**
Are you happy with your character? If not, go back and change it!

Questions:

1. In a MOO site, who decides what will happen to the characters?

   _____

2. What would you write to see a character named "Sally"?

   _____

3. In the examples, what sport did the blonde woman like? _____

4. In the examples, how many eyes did the monster have? _____

5. Where can you invite people for private conversations? _____

_____

6. What do you type to make your character a male? _____

Example Three:

DESCRIPTION OF ROOMS NAME:_____

Well, now most of you have rooms of your own. Every time you connect to schMOOze, you go straight to your room instead of hanging around that crowded Entrance Gate. It was very noisy at the Gate (the screen filled up with text very quickly) and it was hard to have a quiet conversation.

Perhaps you have visited other people in schMOOze in their own rooms. Did you look at their rooms? (You can do this by typing: **Look here**) People can decorate their rooms anyway they want. They can create fantasy castles or caves full of monsters - *anything* they want.

Now, let's get ready to decorate your room just like you want to, according to your own taste. Just type:

@describe here as You are in _____<ENTER>

You must type: **@describe here as** because that tells the MOO program that you are describing the current room (your room). It's a good thing to type: **You are in** because you are helping everyone else in the world see your room. Please remember the capital **Y** in **You**. In the blank space, finish the description. Write a sentence, or sentences, with a total of about 20 to 30 words. (Remember spelling, grammar, and punctuation!)You can write *anything* you want! You can describe a real room or some crazy, fantastic room. Here are some examples:

@describe here as You are in a cold, dimly lit cave. The only light in the cave is from a small fire. The other light comes from the opening of the cave. You suddenly realize that you have been transported back to the "stone age". <ENTER>

@describe here as You are in the studio of a great artist. There are paintings all around you. Some are finished, but most are in the process of being painted. <ENTER>

@describe here as You are on the banks of the Dan River. There are students lying on the grass, in the shade of the trees, next to the running water. <ENTER>

Let's try to think of a description that starts: ***You are in ...*** and has about 20 to 30 words in it. Remember, be really careful with the spelling and the grammar! (Write your new description below.)

After your teacher checks your description, you'll go to schMOOze and type:

@describe here as *You are in* _____

_____

_____

_____

Now look at your room by typing: **Look here** Are you happy with your character? If not, go back and change it! If you are happy, invite someone else from schMOOze to look at it.

Questions:

1. In a MOO site, who decides what the private rooms look like? _____

   _____

2. If you are visiting someone's room, how would you "see" it? _____

   _____

3. In the examples, what are the two sources of light in the cave? _____

   _____

4. In the examples, what were the students doing? Where were they?

   _____

Appendix F

Examples of Material Given to Experimental Group

During Internet Lab Sessions

Example One (First Visit to schMOOze):

Character Description & Chat Name:_____

There are things you **MUST** do this lesson. After that, you have a choice.

What you **MUST** do **RIGHT AWAY**:

1. You must CONNECT to SchMOOze University. Click on the AvPlay icon on the desktop.

2. Then click on CONNECT up at the top of the screen. You will get a drop down menu, find **schmooze.hunter.cuny.edu** and click on it. Soon you will see a cow standing underneath an arched gate. Welcome to SchMOOze University!

3. Now you have to enter SchMOOze. At the bottom of the screen, type:

connect <your schMOOze name> <your secret schMOOze password> <ENTER>

(By the way, you never have to type the < > symbols !!!!)

4. The first time you come to SchMOOze with your permanent character you must describe yourself so other people can see you. You can choose to be ANYTHING you want, but remember, this is how people will see you. (You can have a funny description if you want, but always be polite! Kids from more conservative societies and teachers will see your description.)

   Remember, it is important to have a good, ***visual*** description. The spelling and the punctuation must be correct. (The wizards won't let you have a room in the Dorm unless your description is OK.) If you make a mistake, or if you want to change your description later, type:

   @describe me as <description><ENTER>

   (Remember, don't type the < > symbols !!!!)

Here at two examples:

@describe me as You see a young woman. She is slim and has long blond hair tied with a green ribbon. She likes hiking and sailing.
@describe me as You see an terrible monster with three eyes. Unless you speak to this monster nicely, it might eat you!

Now you need a gender (female, male, or neuter). If your description needs male or female, then type ONE of the next three choices:

@gender male <ENTER>
or
@gender female <ENTER>
or
@gender neuter <ENTER>

Now look at yourself. Type: **look at me** <ENTER>

You can look at someone else in the same room by typing:
look at <character name><ENTER> .

5. Is your password pretty hard to remember? Well, give yourself a password that you can remember, like your dog's name. (Capital letters are important!) Type:

   @password <oldpassword> <newpassword> <ENTER>

Don't forget your new password (remember, capital letters are important), and NEVER tell your secret password to anyone (except your teacher)! You are responsible for what your character does in schMOOze, so don't let anyone take over your character!

You might want to tell your teacher your password NOW, just in case you forget it next time!

Your FREE CHOICE:

1. Let's meet someone! But how do you know who is connected right now, and where they are? Easy. Just type: **@who** and you get a list of who's at schMOOze right now, how long they have been connected, how long they have been idling (not doing anything), and where they are in schMOOze. Do you see yourself at the top of the list? Do you see where you are?

You can send a message to someone who is in a ***different location*** by typing:

PAGE <character name> <message> <ENTER> .

Why don't you try paging someone and asking if you can join them? For instance, Yoshi is in schMOOze right now, and I wanted to talk with him, I could type:

PAGE Yoshi May I join you? <ENTER> .

If Yoshi has time to talk, he will invite me to join him. Then I type:

@join Yoshi

In a few seconds, I will join Yoshi and be able to talk to him. Remember, never join someone until that person gives you permission. BE POLITE !

When I am in the same place as Yoshi, I can talk to him by typing:

SAY <message>

Don't forget to write ***SAY*** . Everyone in that location will "hear" what I say. And how do we know who is in the same location? Well, type: **Look here** and there will be a list of characters and things that you see in the current location.

2. If you don't want to talk to anyone just right now, or if there is no one else in schMOOze right now (which happens sometimes), then you can do one of the "orientation activities" that the teacher will give you.

Example Two (orientation activity):

SchMOOze Orientation Activity 1 Name:_____

1. Go to the Student Union. If you get lost, use the map. (type: map) If you still have problems, page someone for help. When you see the Student Union, type: "Student" to enter the building.
2. Go to the cafeteria and meet Ed, the waiter. Order some food, something to drink, and dessert. Then sit down at a table and eat the food! If you have problems, remember to type: help here.
3. If you have time, go to the swimming pool in the basement of the Student Union. Remember to change your clothes in the locker room! Have a swim and enjoy the water.

EVEN MORE IMPORT: If you meet someone, talk to him or her. Find out where he/she lives and what he/she does (a student or something else?). If he or she is from another country, ask something about life in that country.

Don't worry if you don't finish the activities. Talking to someone is more important! You can do the activity some other time.

YOUR REPORT:

1. I ate and drank the following things:_____
2. I got to the swimming pool and went swimming: Yes No (please circle)
3. I met the following people:

- Name: _____ Country:_____
  Something about that person:

  _____

  _____

- Name: _____ Country:_____
  Something about that person:

  _____

  _____

- Name: _____ Country:_____
  Something about that person:

  _____

  _____

Example Three (second visit to schMOOze):

MOOmail and Requesting a Room Name:_____

There are things you **MUST** do this lesson. After that, you have a choice.

What you **MUST** do **RIGHT AWAY**:

1. You MUST learn how to send MOOmail (email in the MOO site). Actually, it's pretty easy. First you type: @send <name of receiver><ENTER> . Then the computer will then ask what the subject is. You type: <topic><ENTER> . Then you start typing the body of the message. REMEMBER, before each section of message, you must type the word SAY. At the end the message, type: send <ENTER> and your message will be sent. If the recipient isn't in schMOOze now, he will get the message the next time he connects. For example:

@send Godzilla <ENTER> (The computer now writes: subject)
Weather in Japan <ENTER>
say I hear that there were some big storms in Japan last week. <ENTER>
say Did they call off school because of the weather? <ENTER>
send <ENTER> Don't worry, MOOmail will tell Godzilla who sent the message.

Go ahead, try sending some MOOmail. Ask other students what their character names (NOT their secret passwords) are and then send them MOOmail. Make sure that someone sends you MOOmail so you can practice picking up your mail. To see if you have mail, type: @mail . If you have mail, each message will have a number. To read message number 3, you type: @read 3 . After you read a message and want to get rid of it, type: @rmmail <number> . Your mail will be there as long as you don't throw it out.

2. Now you are ready to request a room in the Dormitory, but where is the Dorm? Well, pull down the map by typing: map <ENTER> . That's pretty simple. (You might have to use the scroll buttons to see the entire map.) Do you see the Dorm on the east side of the campus? There should be an X on the map to show you where you are now. Well, lets walk over there. If you are still at the entrance gates, do the following:

type: north <ENTER> and come to the Arch
type: north <ENTER> and come to the South Mall
type: north <ENTER> and come to the Central Mall
type: east <ENTER> and come to the East Mall
type: Dorm <ENTER> and enter the Dormitory
Read the description of the Dormitory carefully. You will find instructions about how to request a room. Please do that right now.

Your FREE CHOICE:

Now you can choose to talk to someone or do an "orientation activity" that the teacher will give you. But how do you talk to someone? If you are in the same room, you type: say <message><ENTER> . (Don't forget the word SAY.) Everyone in the room will "hear" what you say. If you want to talk to someone in a different room (or someone privately in the current room), Type: page <character name><message><ENTER> .

But how do you know who is connected right now, and where there are, exactly? Easy. Just type: @who and you get a list of who's at schMOOze right now, how long they have been connected, how long they have been idling (not doing anything), and where they are.

Page some of the people who haven't been idling very long, and try to get into a conversation. Where are they from? What do they do? What is their country like? How often do they come to SchMOOze? Do they like it? Etc. etc. etc. Ask the person if you can join them. If they say you can, type: @join <character name><ENTER>.

Speaking to someone in the same room is easier (less typing) than paging someone. Also, maybe you can learn something about the new schMOOze location you will visit. Ask the person!

Example Four (third visit to schMOOze):

MOO - C - Room & MOOmail Name:_____

There are things you **MUST** do this lesson. After that, you have a choice of many things.

What you **MUST** do **RIGHT AWAY**:

1. First, type **@mail** <ENTER> to see if you have any mail.

2. If you have mail, it will be presented as a numbered list. You will see who sent you mail and what the subject is. The really important mail your looking for is from Gregor. To read a MOOmail message, type: **@read** <number><ENTER>

3. If Gregor gave you a room, that's great! Please tell your teacher RIGHT NOW what room number you got. Remember your room number! Well, let's go over to the Dorm and look at your room. Type: **map** <Enter>

   You will see the schMOOze campus map. You can walk around this campus by typing: **north, south, east, west, the name of a building, in, out, up, down**, etc.

   To know exactly the walking directions in any location, type: **look here** The part that says "Obvious Exits" is the list of directions you can type.

   Anyway, look at the map and walk over to the Dorm. Go in and then climb **UP** the stairs to the correct floor. (The elevator is a bit tricky, so we'll save that for later.) Then type the number of your room to go in. Go into the room. The light might be off, so type **HELP HERE** to figure how to switch the light on. Look around, not much here, but we will change next time!

The first thing to do is make your room "home". This means every time you connect to SchMOOze, you will go directly to your home. And any time you want, you can type: **HOME** and you will be transported to your room (just like in Star Trek!). To set your home, you have to be in your room and then type: **@sethome** . Do that right now! Welcome home!

Your Choice:

4. You talk to people now. Remember these commands:

@who	to find out who's in schMOOze now.
page <name> <message>	for someone in another location

say <message>	for someone in the same location
@join <name>	to join someone, after you get permission

Or you can get an Orientation Activity from the teacher.

Example Five (to be given to students who excel in their performance of MOOing):

ADVANCED MOOing (messages) Name:_____

This is a hard lesson, but a very important one. If you want to build stuff (and that's *very* cool), you have to prove to Mehi (one of the main wizards of schMOOze) that you know "set messages". You will use your room to do this.

Messages are the announcements that you (and other people) see when someone ***does*** something like arrive, leave, pick something up, or drop something. The messages for your room are the announcements when people enter and leave.

First, type: @audit <ENTER>. You should get a short list of all the things you own including your room, your room's number , out, and you. For example:

Objects owned by Barryp (from #0 to #3353):

#829 Barryp	[Barryp's Room]
#1735 out	Barryp's Room->*The Tenth Floor
#1734 1015	*The Tenth Floor->Barryp's Room
#1733 Barryp's Room	

FOR AWHILE, LET'S USE BARRYP'S STUFF ***AS AN EXAMPLE***, BUT WHEN YOU TYPE THINGS, USE THE NUMBERS OF YOUR OWN STUFF.

Barryp now owns 4 things (each with a number so the MOO can identify it): himself (#829), his room (#1734), the entrance to his room from the tenth floor hall (#1734), and the exit from his room to the tenth floor hall (#1735). This is a little tricky: 1015 (#1734) is ***not*** really Barryp's room, although it looks that way when you walk around the MOO. 1015 (#1734) is the ***entrance to*** Barryp's room from the tenth floor. In the same way, OUT (#1735) is the ***exit from*** Barryp's room to the tenth floor. By the way, the brackets next to "#829 Barryp" show that Barryp is in his room right now.

Barryp is interested in setting the messages for the ***entrance*** (#1734) to his room. Barryp types: @messages #1734 <ENTER> and sees:

@messages #1734
@nogo #1734 isn't set.
@onogo #1734 isn't set.
@arrive #1734 isn't set.
@oarrive #1734 isn't set.

@oleave #1734 isn't set.
@leave #1734 isn't set.

What's all that about? Don't worry, it's not that hard! Let's image two rooms, Room A and Room B, with a door between them. Flemmex, Yoshi, and Archy are in Room A. Godzilla and Lesley are in Room B. Now, what happens when Archy ***leaves*** Room A, goes through the door (#1734), and ***arrives*** in Room B?

First, Flemmex and Yoshi (the ***other*** people in Room A, **o** = **o**ther) see the @**o**leave message that has been set in the door that Archy is using to ***leave***. Archy sees the @leave message, set in the door, because he's the one ***leaving*** Room A.

On the other side of the door, Archy ***arrives*** in Room B. Godzilla and Lesley (the ***other*** people in Room B, **o** = **o**ther) see the @**o**arrive message that has been set in the door Archy is using to ***arrive***. Archy sees the @arrive message, set in the door, because he's the one ***arriving*** in Room B.

What if, for some reason, Archy tries to use a door, but can't? (Maybe the door is locked.) Then the ***other*** people in Room A see the @**o**nogo message (nogo = no go) and Archy sees the @nogo message. The people in Room B don't see anything, because Archy never arrived in Room B.

So, the @leave and @**o**leave messages are seen in the place that a person ***leaves*** and the @arrive and @**o**arrive messages are seen in the place that a person ***arrives***. The @nogo and @**o**nogo messages are seen when the door doesn't work. All these ***messages are set into the passage between*** the two places.

Now, Barryp will set the messages for the ***entrance*** to your his from the hallway. Watch and then you do the same, USING YOUR NUMBERS. (Have you done @audit for yourself? Have you written down the #number of the ***entrance*** to your room? If not, do it now.) Be careful of the quotation marks and the word "is"; they are important.

Think about how you ***leave*** a place. Write it, using "You" at the beginning of the sentence. For example, Barryp wrote:

@leave #1734 is "You open the door and leave the room."

Now write the same thing for ANOTHER person to see. This time don't use any pronoun, but put an "s" on all verbs. Barryp wrote:

@**o**leave #1734 is "open**s** the door and leave**s** the room. "

Now think about how you ***arrive*** in a new place. Write it, using "you" in the description. For example, Barryp wrote:

@arrive #1734 is "You walk into the room and look around."

For someone else watching this, Barryp wrote:

@**o**arrive #1734 is "walks into the room and looks around."

What happens if the door is locked? Remember, no go = nogo. Barryp wrote:

@nogo #1734 is "You try to open the door, but you can't."
@**o**nogo #1734 is "tries to open the door, but can't."

The messages that Barryp wrote were not very interesting. The wizards want you to be creative. If you want to be builder, you have to write creative messages. For example, if you described your room as the banks of the Dan River, "leaving" the hallway might say something about seeing the river in the distance and "arriving" might say something about going right next to the water.

Logically, you use the same door to go in and out of a room, but the computer is too dumb to understand this. You also have to tell the computer about the ***exit*** (OUT) from your room to the hallway. For Barryp, OUT is #1735. When he types @messages #1735 he sees:

@messages #1735
@nogo #1735 isn't set.
@onogo #1735 isn't set.
@arrive #1735 isn't set.
@oarrive #1735 isn't set.
@oleave #1735 isn't set.
@leave #1735 isn't set.

What about you? Do an @audit and @messages for your OUT. Write down the #number of OUT. You'll need it!

Now think about ***leaving*** your room and ***arriving*** in the hallway. Set the messages just like you did before. Remember, the word "is" and the quotations marks are important.

When you are done with the entrance and the exit of your room. Try them out! If you are pleased with what you see, invite someone to @join you and then watch that person go in and out. Watch from the hallway and watch from inside the room. What does your friend think about your messages?

When you are really pleased with description and messages, you can send a MOOmail message to Mehi, one of the wizards of SchMOOze. Do you remember how to send a MOOmail message? Ask her to check your room. Ask her if you can become a builder now.

If you have any time left, you can meet people or explore the MOO site.

APPENDIX G

Tables of All Descriptive Data from Posttest Questionnaires

Table 7. Averages of Self-Reported **Anxiety** About Using EFL Procedures

EFL procedure (Ordinal rank of exp. group)	Exp. Group n	Control Group n	Total Pop. n
Exams and quizzes	38	13	51
M	3.37	3.62	3.43
SD	1.15	1.26	1.17
Frontal presentations to class	37	13	50
M	3.22	3.77	3.36
SD	1.25	1.09	1.22
Class discussions in English	36	13	49
M	2.50	3.08	2.65
SD	1.28	1.38	1.32
Grammar exercises	38	13	51
M	2.47	2.62	2.51
SD	1.01	1.04	1.01
Intensive reading exercises	38	13	51
M	2.24	2.38	2.27
SD	1.08	1.33	1.13
Taped texts and exercises	37	13	50
M	2.14	2.46	2.22
SD	1.11	1.13	1.11
Small group work in English	37	13	50
M	2.08	2.46	2.18
SD	1.09	0.88	1.04
MOO sessions[a]	**38**	--	--
M	**2.05**	--	--
SD	**1.21**	--	--
English writing assignments	38	13	51
M	2.00	2.31	2.08
SD	1.19	1.11	1.16
Extensive reading	38	13	51
M	1.95	1.85	1.92
SD	0.96	0.99	0.96
Using the Internet	36	12	48
M	1.83	1.83	1.83
SD	1.13	1.34	1.17
Video material and exercises	37	11	48
M	1.65	2.00	1.73
SD	0.89	0.89	0.89
Frontal lessons	38	13	51
M	1.63	1.92	1.71
SD	0.85	0.76	0.83
Taped songs and exercises	37	13	50
M	1.59	1.54	1.58
SD	1.07	1.13	1.07

Note. Averages were calculated using a scale from one to five, one being the least anxiety and five being the greatest anxiety.

[a]Dashes indicate data not collected from the control group.

Table 8. Averages of Self-Reported **Interest** in Using EFL Procedures

EFL procedure (Ordinal rank of exp. group)	Exp. Group n		Control Group n		Total Pop. n	
Using the Internet	37		13		50	
M		3.65		3.31		3.56
SD		1.46		1.32		1.42
Video material and exercises	37		13		50	
M		3.59		3.38		3.54
SD		1.14		1.19		1.15
Taped songs and exercises	37		13		50	
M		3.41		3.08		3.32
SD		1.21		1.32		1.24
Taped texts and exercises	37		13		50	
M		3.22		2.54		3.04
SD		1.00		1.27		1.11
Writing Assignments	38		13		51	
M		3.11		2.69		3.00
SD		1.11		1.03		1.10
Extensive reading	38		13		51	
M		3.05		3.38		3.14
SD		1.18		1.26		1.20
Frontal lessons	38		13		51	
M		2.89		3.15		2.96
SD		1.01		0.69		0.94
Small Group Work in English	37		13		50	
M		2.76		2.46		2.68
SD		1.09		1.27		1.13
Intensive reading exercises	38		13		51	
M		2.74		2.69		2.73
SD		1.13		0.85		1.06
MOO sessions[a]	**38**		--		--	
M		**2.71**		--		--
SD		**1.63**		--		--
Class Discussions in English	36		12		48	
M		2.36		2.67		2.44
SD		1.13		0.98		1.09
Exams and quizzes	38		13		51	
M		2.34		2.23		2.31
SD		1.12		0.93		1.07
Grammar exercises	38		13		51	
M		2.29		2.08		2.24
SD		1.16		0.76		1.07
Frontal presentations to class	37		13		50	
M		1.95		1.77		1.90
SD		1.08		0.93		1.04

Note. Averages were calculated using a scale from one to five, one being the least interest and five being the greatest interest.

[a]Dashes indicate data not collected from the control group.

Table 9. Averages of Self-Reported **Relevance** of Using EFL Procedures

EFL procedure (Ordinal rank of exp. group)	Exp. Group		Control Group		Total Pop.	
	n		n		n	
Grammar exercises	37		13		50	
M		4.00		3.62		3.90
SD		1.13		0.87		1.07
Writing assignments	37		13		50	
M		3.95		3.77		3.90
SD		0.94		0.93		0.93
Frontal lessons	37		12		49	
M		3.86		3.58		3.76
SD		0.95		1.16		1.00
Intensive reading exercises	38		13		51	
M		3.79		3.38		3.69
SD		0.93		0.51		0.86
Extensive reading	38		13		51	
M		3.79		3.62		3.75
SD		1.14		1.12		1.13
Exams and quizzes	36		11		47	
M		3.64		3.64		3.64
SD		1.17		1.03		1.13
Video material and exercises	37		13		50	
M		3.54		3.00		3.40
SD		1.17		1.08		1.16
Taped texts and exercises	37		13		50	
M		3.24		3.23		3.24
SD		1.28		0.83		1.17
Class discussions in English	37		13		50	
M		3.19		2.77		3.08
SD		1.10		0.93		1.07
Using the Internet	37		13		50	
M		3.14		3.15		3.14
SD		1.44		0.99		1.33
Small group work in English	37		13		50	
M		3.11		3.00		3.08
SD		1.13		1.29		1.16
Taped songs and exercises	37		13		50	
M		3.03		2.69		2.94
SD		1.14		0.85		1.08
Frontal Presentations to Class	37		13		50	
M		2.57		2.15		2.46
SD		1.39		0.80		1.27
MOO sessions[a]	37		--		--	
M		2.51		--		--
SD		1.35		--		--

Note. Averages were calculated using a scale from one to five, one being the least relevance and five being the greatest relevance.

[a]Dashes indicate data not collected from the control group.

Table 10. Averages of Self-Reported **Expectancy** towards Using EFL Procedures

EFL procedure (Ordinal rank of exp. group)	Exp. Group n		Control Group n		Total Pop. n	
Extensive reading	38		13		51	
M		3.97		3.62		3.88
SD		0.88		1.19		0.97
Writing assignments	38		13		51	
M		3.95		3.46		3.82
SD		0.93		1.05		0.97
Frontal lessons	38		13		51	
M		3.89		3.62		3.82
SD		0.98		0.87		0.95
Video material and exercises	37		13		50	
M		3.86		3.38		3.74
SD		0.92		1.04		0.96
Taped songs and exercises	35		13		48	
M		3.83		3.46		3.73
SD		0.95		0.88		0.94
Exams and quizzes	38		13		51	
M		3.82		3.08		3.63
SD		0.95		1.12		1.04
Taped texts and exercises	37		13		50	
M		3.76		3.23		3.62
SD		0.98		1.17		1.05
Intensive reading exercises	38		13		51	
M		3.74		3.31		3.63
SD		0.55		1.18		0.78
Using the Internet	37		13		50	
M		3.65		3.69		3.66
SD		1.36		1.25		1.32
Small group work	37		13		50	
M		3.49		3.54		3.50
SD		1.10		0.97		1.05
Class discussions in English	37		13		50	
M		3.46		3.23		3.40
SD		0.90		1.01		0.93
MOO sessions[a]	**35**		--		--	
M		**3.46**		--		--
SD		**1.34**		--		--
Grammar exercises	38		13		51	
M		3.34		3.08		3.27
SD		0.94		0.95		0.94
Frontal presentations to class	37		13		50	
M		3.03		2.85		2.98
SD		1.24		1.34		1.25

Note. Averages were calculated using a scale from one to five, one being the least expectancy and five being the greatest expectancy.

[a]Dashes indicate data not collected from the control group.

Table 11. Averages of Self-Reported **Satisfaction** from Using EFL Procedures

EFL procedure (Ordinal rank of exp. Group)	Exp. Group n		Control Group n		Total Pop. n	
Extensive reading	37		13		50	
M		3.49		3.46		3.48
SD		1.24		1.33		1.25
Writing assignments	37		13		50	
M		3.30		3.54		3.36
SD		1.31		1.27		1.29
Frontal lessons	37		13		50	
M		3.30		3.46		3.34
SD		1.27		0.88		1.17
Intensive reading exercises	37		13		50	
M		3.27		3.23		3.26
SD		1.28		1.01		1.21
Video material and exercises	36		13		49	
M		3.11		3.23		3.14
SD		1.12		1.24		1.14
Exams and quizzes	37		13		50	
M		3.05		2.92		3.02
SD		1.39		1.26		1.35
Grammar exercises	37		13		50	
M		3.03		3.00		3.02
SD		1.44		0.82		1.30
Small group work in English	36		13		49	
M		2.97		3.15		3.02
SD		1.21		0.99		1.15
Using the Internet	36		13		49	
M		2.97		3.23		3.04
SD		1.65		1.36		1.57
Taped songs and exercises	36		13		49	
M		2.81		3.31		2.94
SD		1.39		0.95		1.30
Class discussions in English	36		13		49	
M		2.78		2.77		2.78
SD		1.31		1.09		1.25
Taped texts and exercises	36		12		48	
M		2.78		2.92		2.81
SD		1.27		1.00		1.20
MOO sessions[a]	**36**		--		--	
M		**2.61**		--		--
SD		**1.36**		--		--
Frontal presentations to class	36		13		36	
M		2.50		2.31		2.61
SD		1.13		1.18		1.36

Note. Averages were calculated using a scale from one to five, one being the least satisfaction and five being the greatest satisfaction.

[a]Dashes indicate data not collected from the control group.

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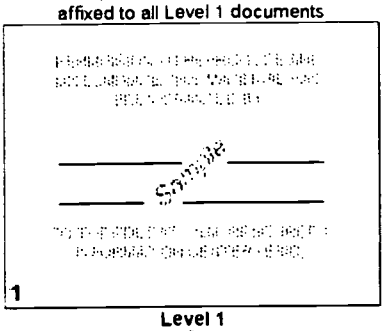

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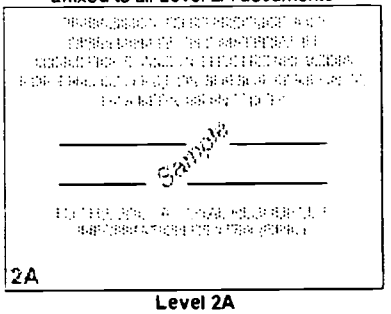

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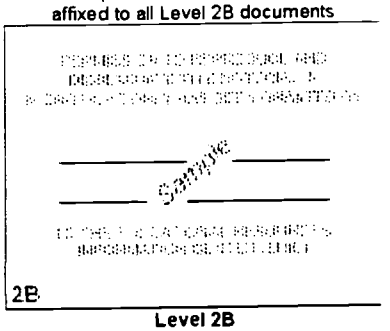

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