Constructing a Model for an Interactive Web-based English and Greek Language Program

By

Maria Papageorgiou

California State University, Monterey Bay

December 2001

Action Thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts in Education
Constructing a Model for an Interactive Web-based English and Greek Language Program

By

Maria Papageorgiou

APPROVED BY THE DEAN OF THE CENTER FOR COLLABORATIVE EDUCATION AND PROFESSIONAL STUDIES

[Signatures and dates]

DOROTHY W. LLOYD, ED.D. DATE

THESIS ADVISOR, BOB HUGHES, ED.D. DATE

THESIS COMMITTEE MEMBER, PATRICIA A. WHANG, PH.D. DATE
ABSTRACT

For this project-based thesis a model for an interactive web-based educational program was constructed through the use of computer technology. The purpose of this project is to teach both English and Greek languages simultaneously, so that bilingual acquisition is realized for 1st and 2nd grade Greek students in the areas of reading and writing. Being non-commercial and web-based, educators and parents will have free access to the program both in and out of the classroom. The program was developed through a review of literature supporting constructivism and situated cognition. Two native Greek elementary students product tested the model, thus substantiating its age-appropriateness and interactivity. Future development of the program will focus on assessment and additional curricular components for educators. Hopefully this model will inspire other educators to create their own technologically based teaching material catered for their classroom needs.
ACKNOWLEDGEMENTS

They say that you should stick to what you know and to tread down familiar paths. I did what I have always done, ignored advice. I embarked on a journey that was at times overwhelmingly frustrating and exasperatingly challenging. Yet, there were friendly co-travelers along the way, who lent their knowledge, support and sensitivity. Therefore, I would like to initially thank: Dr. Christine Sleeter who made the journey possible; Dr. Bob Hughes for his sound, knowledgeable and practical advice and guidance that kept me steadfast to my vision; Dr. Patricia A. Whang for her patient guidance in the shaping of this thesis, and for being there every week; Geri Philley who put a technological novice like me on the technological road, and Joseph Maxwell for finding the time to help out.

On a personal level, a huge thank you to: my husband, Petros Khitorakis for his unfailing and unflagging support and love through it all; my daughter Sophia Anastasia for being an active toddler and for making it "easier" and my parents and sister who maybe on the other side of the globe but who always lent a sympathetic and encouraging ear.
TABLE OF CONTENTS

ABSTRACT ..................................................................................................................... 3

ACKNOWLEDGEMENTS............................................................................................... 4

CHAPTER ONE .................................................................................................................. 6

    Introduction ............................................................................................................. 6
    The Purpose ........................................................................................................... 7
    Choosing a Technological approach to EFL ......................................................... 9
    A web-based instructional interactive program? .................................................. 11
    Delimitations ......................................................................................................... 12
    Overview of Thesis ............................................................................................... 13

CHAPTER TWO: LITERATURE REVIEW ..................................................................... 14

    Situated Cognition and Constructivism ................................................................. 15
    Constructivism and Technology .......................................................................... 19
    Technology and EFL .......................................................................................... 21
    Web-based Learning Environments and EFL Methodology .............................. 23
    Instructional Design ............................................................................................ 25

CHAPTER THREE: METHOD AND DESIGN ............................................................. 26

    The Instructional Design Process ......................................................................... 27
    Tools of the Trade ................................................................................................. 34
    Product Testing .................................................................................................... 36

CHAPTER FOUR: RESULTS OF DESIGN .................................................................... 37

CHAPTER FIVE: DISCUSSION .................................................................................... 38

    Conclusion ............................................................................................................. 39
    Recommendation ................................................................................................. 40

REFERENCES .................................................................................................................. 42
CHAPTER ONE

Introduction

Children of the European Union need to be bilingual in order to meet the cultural, economic and political needs of the future. European culture fosters language learning. Children in Greece will have to become Latin-based language speakers, such as English, which is distinct from their mother tongue. An instructional language program that will ease students into such a language, and so be able to bridge a possible gap through an interactive, technological medium, therefore allowing both languages to be equally developed, will establish a learner-friendly foundation and help reduce foreign language acquisition resistance. By the same token, Greek students will also be ‘introduced’ to their own language through the program, as users will be given the option of clicking onto Greek lessons. Most importantly, students and schools will have limitless access to this program through the Internet.

While the Internet is considered an invaluable educational research tool for many school subjects such as Geography or History or when teaching Computer Studies, its use in teaching English as a Foreign Language (EFL) has not been thoroughly explored. When attempting to research the utilization of the Internet with EFL teaching, one is inundated with commercial links to various educational organizations selling English courses on-line, software or selling test preparation courses, for instance, for TOEFL or for the Cambridge and Michigan Proficiency exams. It seems that learning English is a massive revenue-making machine. Universities like Cambridge, Oxford or the University of Michigan, instructional English language publishing giants like Macmillan or Heinemann or other educators set up web pages to promote their books on the subject, all trying to grab a piece of this income-generating pie.
The Purpose

The purpose for a web-based interactive instructional program is that it provides access freely to both educators/parents and students alike. The program can be accessed either from the classroom or home, without any cost to the user if he or she has logged on to the Internet. Understandably, under the guidance of their instructor or parent, young students can learn to utilize the benefits of the Internet as an educational tool. More and more classrooms are using the Internet for this purpose and EFL is a developing area with vast potential. It has the capability to connect classrooms within a community and country or across borders by means of joint assignments, research and conferencing.

To take advantage of this potential, I will construct a model for an interactive web-based educational program through the use of computer technology. Improved language learning can best be achieved through visual stimuli, which encourages interactivity thus combining and promoting motor and analytical skills. Also, interaction through entertaining activities supported with animation should enhance learning and develop improved language transition, for instance, English to Greek or Greek to English.

Simple activities such as identifying individual letters and words, matching text with image and completing cloze (completing gapped texts) passages, done through a game-like environment can foster a positive approach to foreign language learning and home-language learning alike.

For the purpose of this project both languages are taught simultaneously so that dual language (bilingual) acquisition is realized. An instance of a bilingual program that is being practiced is that in California, in The United States where Spanish and English are scholastically taught. For most students, Spanish is the language spoken at home while English
is their second language. If we were to apply this to the Greek experience, Greek is the language of home and State, while English is the language that students will encounter in European social or commercial interactions as well as in computer-based interactions.

Fundamentally, this project is intended to help Greek elementary-level students to acquire English and Greek language skills in the area of reading and writing through an instructional, interactive language program. The author’s own eight-year teaching experience in Greece has shown that any resistance to foreign language learning could be diminished if it is taught at an early stage where those basic scholastic skills are being taught. Moreover, the author’s aforementioned teaching experience has also helped to identify language areas that could be better developed and so will be incorporated into the program. McDonough (2001) states, “foreign language teachers need not depend on publishing companies to come up with just the right software for their courses” (p. 5). More specifically, educators are now equipped with the technological resources to create teaching material catered for their classroom needs. Hence, with the resources now available, I, as an educator can better serve my students in the areas that have hindered English language acquisition due to the considerable differences of the two languages. Subsequently, an enjoyable, age-appropriate, interactive program with the Greek student in mind will add to the field of teaching EFL (English as a Foreign Language) seeing as most multimedia programs address a wider, international audience.

The objective of this project-based thesis is to:

- Enable simultaneous language acquisition of both English and Greek for early elementary Greek students in the areas of reading and writing only.
- Through an exploration of comparative programs either on the market or in the Internet, it is made apparent that such programs are limited, targeting the
International student and not the Greek student exclusively. Therefore, it is up to
the educator to explore new pedagogical horizons through technology in order to
enhance instruction. Having the relative teaching experience in Greece and
identifying the barriers that Greek students have to overcome, I will design a model
for a language program that specifically caters for their needs.

The interactivity of the program will promote an enjoyable, age-appropriate
environment where language instruction and acquisition is facilitated.

Being web-based, it is my hope that both educators and parents will freely access
the program either to be used in the classroom or at home.

The program and the associated literature will contribute to an area that is still
developing, that is to say, web-based EFL instruction.

Most importantly, this program can also become an ongoing project that I will
improve and revise in the future.

Choosing a technological approach to EFL

Before embarking on this project, I conducted research to investigate the area of EFL
and to establish whether a need existed for this type of program. As stated earlier, the
programs available were: a) commercial, requiring the purchase of the program and b) aimed
at an international audience where English was taught without the utilization of the first
language. Based on my research of relevant literature on the topic of EFL, I concluded that
this area of discipline was definitely in a developing stage. The literature was broken into EFL
that was technologically assisted from a Constructivist viewpoint, literature that pertained
only to technology and literature that approached EFL linguistically.
An assumption that emerges after careful examination of the literature is that technology can facilitate learning if it incorporates, "activity, concept, and culture…learning must involve all three" (Brown & Duguid, 1989, p.3). Brown and Duguid continue that, "understanding is developed through continued, situated use." Hence, language learning that is computer-assisted can be accomplished through activity, where the student interacts with the language program; works around a concept that is introduced by the teacher/guide; and within the cultural and social environment of the culture of the language that is being studied.

**Situated cognition** as a teaching model for language learning proposes “authentic activities to promote learning and understanding” (Hendricks, 2001). Brown and Duguid (1989) also describe the **situated** classroom as one in which the teacher utilizes examples, instruction and scaffolding to help students work out authentic problems.

The concept of scaffolding also brings us to the **constructivist** learning model. Essentially, “**constructivist** teachers encourage and accept student autonomy and initiative...[these] cause students’ pursuit of connections among concepts” (Lunenberg, 1998, p.4). Moreover, students are empowered with the responsibility of their own learning and problem solving.

Technology can afford students opportunities to construct their knowledge through, “play and experimentation [which] are self-structured and self-motivated processes of learning.” (Strommen, 1992, p.2). From such opportunities students may learn to manipulate activities, as well as the skills required to solve problems, access information, and exercise learner control (Lunenberg, 1998).
The ultimate purpose of this project is to provide a non-commercial educational program, written by an educator who is targeting a specific audience. The program aims to promote interactivity by means of: a) clicking, dragging or matching various graphic images that will require the user to identify various language elements, b) interactivity between student and instructor/parent in using the program together and c) the ability to provide feedback on the benefits or drawbacks of using the program thus allowing revision and improvement. The above forms of interaction allow for a more interesting and engaging mode of learning that will require the user to employ both computer and mental skills. The program is aimed at early elementary students who may not have been previously exposed to language or computers prior to use. Looking at basic EFL teaching components, for instance the alphabet, and observing the methodology used in teaching such a component; for example repetition, linking the letter to a word and the word to an image and so forth, served as a framework in the design of the program. The teaching of the English segment also provides a challenge, as young users will have to learn a new type of alphabet since the Greek alphabet presents physical differences. Moreover, the program will seek to engage the attention of a young student in a game-like way.

A web-based instructional interactive program?

As aforementioned, the project that I have embarked on is a web-based instructional program to introduce English and Greek to elementary students. A web-based classroom is one where students and teachers perform learning-related tasks in a World Wide Web environment that they have created. The aim of the program is instructional, hence the materials that will be taught include basic grammar components such as the alphabet, words, parts of speech and
basic sentence structure. The targeted users of the program are elementary students, specifically, pre-school and first grade students. In addition, the interactive nature of the program will enable interaction between students and educators. Examples of such interactivity are: clicking and dragging of letters and feedback features. Other aspects considered are high levels of use of the program, users’ satisfaction and recognition of the program’s benefits.

Delimitations

The commercial construction of any interactive instructional computer program usually requires teams skilled in instructional and graphic design, programmers and so on. For an educator, especially an EFL one, who is contemplating going down the technological path, the task is daunting.

Having stated the above, one can understand that such a project requires a vast amount of time and a fair amount of expertise. Therefore, this project was intended to have reached a stage of completion where satisfactory foundations would have been laid for continual work to be done in the future. At this point in time it is expected that a working model of the alphabet page will have been completed.

Let us take into account that two languages, both English and Greek, will be introduced simultaneously to early elementary Greek students. Grammatical elements, namely, the alphabet, words, parts of speech and basic sentence construction, will be taught in an interactive age-appropriate way with the use of games generated by graphics.

Upon my return to Greece, I will continue working on the program in order to complete the Greek segments and even develop the program to a more intermediate stage with respect to vocabulary and grammar. A phonetic component could also be developed to
introduce speaking along with reading and writing. Moreover, being a work in progress, the program will be constantly developed according to users’ feedback and classroom needs.

**Overview of Action Thesis**

As alluded to earlier, in Chapter Two I review literature of Constructivist and of Situated Cognition learning models that provided the grounding theory for my project. Moreover, the literature review will include three areas: a) literature pertaining to web-based learning environments, b) instructional design, and c) EFL methodology. In Chapter Three I outline the methods and procedures that assisted me in developing my model program, providing: an explanation of my choice of software; an overview of my design and storyboards; and, finally, a description of the actual development of the program. In Chapter Four, I present my observation of the model program after being product tested and my site address for the program, which can be accessed via the Internet. Chapter Five includes my suggestions for further development of the program, as well as my final observation for encouraging educators to take the technological experience.
CHAPTER TWO: LITERATURE REVIEW

"Tell me and I forget, teach me and I remember, involve me and I learn."

(Old Chinese dictum)

The integration of technology and instruction has become a major educational objective for most countries in the world, striving to arm their students with the technological knowledge that is vital for the new millennium. Those students who have access to electronic technology are able to especially benefit with access to unlimited resources and databases beyond their classroom.

Technologically-assisted education has allowed businesses to dynamically enter the field of education through toys, multimedia and computer software that promise to teach (McDonough, 2001, Beckett & McGivern, 1999). Therefore, the traditional approach to pedagogy, of learning by rote or the student being the passive recipient of knowledge is changing. As any elementary school teacher or parent can testify, through guided or independent play a child seems to become more involved in the process of learning. “Both play and experimentation … encourage children to reflect on their ideas in ways generally not promoted by current school curricula (Strommen, 1992, p. 2)”. Moreover, this process is further enhanced and learning is better facilitated if opportunities for peer collaboration are provided.

The following review of literature will attempt to present pedagogical assumptions relating to computer-assisted learning in the area of language and foreign language instruction. The overriding theme of the importance of activity, creativity, interaction in conjunction with guided teaching is prevalent within a physical and global classroom. The aforementioned elements are integral concepts to the educational theories of Situated
Cognition and Constructivism. A short description of these will follow in order to better substantiate how best they serve pedagogically to computer-assisted learning.

Situated Cognition and Constructivism

Brown and Duguid (1989) view traditional methods of teaching as ineffective and go on to explain these inadequacies as such:

The breach between learning and use, which is captured by the folk categories “know what” and “know how” may well be a product of the structure and practices of our educational system...The primary concern of schools often seems to be the transfer [of knowledge]...which comprises abstract, decontextualized formal concepts. (Brown & Duguid, 1989, p.1).

Hence, traditional instruction is based on the assumption that students are taught concepts that are specific in use and situation-free, they should experience little difficulty in relating these concepts to the world outside their classroom. “Thus, much of what is learned in school may apply only to the ersatz activity, if it was learned through such activity”. (Brown & Duguid, 1989, p.5). For instance, students learning difficult mathematical concepts may know how to execute the set problems within the context of their classroom but may not be able to apply these concepts to real world transactions and contexts.

What Brown and Duguid (1989) propose is situated cognition whereby, “situations might be said to co-produce knowledge through activity. Learning and cognition, it is now possible to argue, are fundamentally situated,” (p.1). Learning is better facilitated through activities, which are enriched with multifaceted social interactions. More specifically, in a situated classroom, the teacher employs modeling, scaffolding and fading to explain authentic
problems. Concepts are presented to students in a familiar activity, thus allowing the student to build upon their own knowledge, that is to say, scaffolding. Therefore, the task at hand is modeled by the teacher without discounting the students' own heuristic methods. The teacher, subsequently, withdraws or fades into the background while enabling the students to continue their work independently (Brown & Duguid, 1989). An example given that illustrates this is one of a fourth grade teacher who teaches multiplication to her students using an object, for example coins, that her students share an understanding of. Therefore she begins a task that is familiar to her students to allow scaffolding to assist them in this unfamiliar task. Her students are encouraged to share stories of coins and then are introduced to the more abstract concepts of algorithms. She then presents the concepts of multiplication and algorithms and then allows her students to use their own heuristics creatively. The students' solution to the problems set is arrived at through individual creativity and through a shared vocabulary within the community of the classroom, much like a community of mathematicians. Enculturation, therefore, takes place as the students are allowed investigative creativity and the use of tools that the mathematical culture uses.

This leads to the notion of enculturation, integral to the theory of situated cognition. Brown and Duguid define enculturation as a process of learning, applying it to the way apprentices learn a craft or how students learn. For example, individuals from infancy to adulthood study and adopt the beliefs and manners of their social environment. This social interaction is viewed as complex and arises only when individuals are allowed to observe other members of a culture and replicate these observed behaviors (Hendricks, 2001). They propose that the process by which people in their everyday lives and in their particular craft resolve problems should be used in teaching, much like an apprentice (that is,
cognitive apprenticeship) who engages in real activities which in turn result in authentic learning. In addition, individuals from infancy to adulthood study and adopt the belief and manners of their social environment. Therefore, “activity, concept, and culture...learning must involve all three.” (Brown & Duguid, 1989, p.3).

In a computer-assisted learning environment, language should not be restricted to uninspired grammar drills or learning vocabulary from dictionaries. Through activity, a concept can be exemplified; through interaction, be it between computer and student or among students working together on a computer or across the Internet, the process of enculturation takes place. Notably, within his/her social and cultural situation, the student adopts that culture but also the culture that the language instruction is targeting (Hendricks, 2001). The Internet enables this transfer of authentic culture through authentic activity. Namely, the student is exposed to the culture of the target language through Internet interaction. The computer assisted language instruction is, in itself, an authentic activity that allows the student to utilize his/her own heuristics. Most importantly, “understanding is developed through continued, situated use”. (Brown & Duguid, 1989, p.2).

Many of the aforementioned concepts found in situated cognition, are shared by the constructivist theory. The thrust of the constructivist learning model is that students are responsible for their own learning while actively constructing their own knowledge. As with situated cognition, students are not passive participants in the learning process but a dynamic force that constructs knowledge individually or collectively.

Each learner has a repertoire of conceptions and skills with which she or he must construct knowledge to solve problems presented by the environment. The role of
teacher and other learners is to provide the setting, pose the challenges, and offer the support that will encourage cognitive construction. (Lunenberg, 1998, p.3).

It is noteworthy that as with situated cognition, the student environment is paramount to his/her development as well as the method of instruction. The teacher employs modeling for explanation of the concept to be developed as well as guiding student activity that will, subsequently, “transform student group discussions into meaningful communication about subject matter” (Lunenberg, 1998, p.3).

Constructivist pedagogy augments the aforementioned concepts of modeling, scaffolding and fading by establishing the importance of the following five principles: 1) presenting problems of emerging significance to learners; 2) structuring learning around major concepts; 3) inviting and respecting points of view; 4) modifying curriculum to address students’ assumptions; and 5) assessing student learning in the context of teaching. (Brooks & Brooks, 1993 as cited in Lunenberg, 1998).

Consequently, being a constructivist teacher is an effective alternative to being a traditional instructor, namely, one who lectures straight from the textbook and does not allow student participation in the learning process. Hence a constructivist is one who has shifted from being the unquestionable authority on knowledge to facilitator of learning. Understanding and problematizing about concepts become more important than learning ‘by heart’.

Rather than simply absorbing ideas spoken at them by teachers, or somehow internalizing them through endless, repeated rote practice, constructivist theory posits that children actually invent their ideas. (Strommen, 1992, p.2).
Therefore, based on this theoretical perspective the educator should guide discussion around new concepts, provide ample time for student feedback on the problem posed, and offer the opportunity for responses given to be modified after individual or collaborative reflection (Stables, 1997). Furthermore, responses are respected and accepted in a safe and challenging environment where cognitive growth can occur. Words such as “classify”, “predict” and “create” promote cognitive activities that encourage the understanding of new subject matter. (Lunenberg, 1998).

Constructivism and technology

*Constructivism and technology may be key organizing concepts for all educational reform.*

*(Lunenberg & Ornstein, 1996 as cited in Lunenberg, 1998, p.3)*

An assumption that is made after reviewing Constructivist literature is that technology can play a dynamic role in learning. The application of technology in pedagogical theories, such as Situated Cognition and Constructivism is both powerful and effective. As aforementioned, computer-assisted learning allows students to construct their knowledge through, “play and experimentation [which] are self-structured and self-motivated processes of learning (Strommen, 1992, p.2). Thus, from opportunities to “play” students can learn to manipulate activities, as well as the skills required to solve problems, access information and exercise learner control (Lunenberg, 1998; Stables, 1997).

The Internet affords the opportunity for authentic activities; namely, students can directly communicate with others when practicing language, explore a concept, or problem
solve. Classrooms can embark on projects dealing with real and culturally-driven issues and develop these through access to a wide range of databases. These projects can be published and accessed by their community or a wider global community (Berg, 1998; Means & Olsen, 1994). Moreover, given that the Internet is also an immediate medium for classroom presentation of work, accessed by wide-reaching audiences as a result of which, "students...become not only consumers of content but in fact generate the content" (Singhal, 1997, p.4). The teacher serves as guide, tutor and mentor, being present when questions arise or obstacles met but always allowing the project to be the students’ vehicle (Stables, 1997). This instructional approach is not only engaging but also unrestricted in ways of use and limitless in possibilities.

McDonough (2001) calls technological capability a “dream come true” for foreign language teachers who need not depend on publishers for the right books or software. The teacher can exercise more control over curricula with the desktop computer where geographical distances are bridged between native and foreign speakers of the language studied through electronic mail and teleconferencing, as well the amount of material available on the Internet through relevant web sites. The University of California at Berkeley sponsors Computer-Assisted Language Learning (CALL) that supplies teachers with invaluable references and web sites for resources. Technological capability becomes equally challenging for the teacher, who must attain the necessary skills to explore these new pedagogical avenues. It is an "exciting" time for language instruction.
Technology and EFL

Undoubtedly, one of the most fundamental pedagogical principles of language learning is one that stresses the study of language in a cultural context, as both language and culture are inseparable and interdependent. Understanding and appreciation of the target language enhances understanding of that said language. Accordingly, the Internet is an invaluable resource to both teachers and students. It is a springboard for linguistic, cultural, political, geographical, historical and economic information of the country whose language is being studied.

In practical and real terms, through audio and visual mediums, as well as text, foreign language students draw from a linguistic environment that is rich (Burns, 1996) whereby: 1) through sound students can model correct pronunciation of letters and words 2) through the visual medium, video or graphic, more complex concepts can be explained and demonstrated and 3) through text, reading and writing can be modeled and practiced (Al-Seghayer, 2001). Most importantly, all three elements can be seen in the realistic, cultural context of the target language, especially when implemented through the context of the Internet by means of: teleconferencing, the exchange of electronic mail and, not withstanding, the exploration of cultural presentations such as daily newspapers and magazines (Stock, 1993).

Additionally, searching the Web (or browsing) develops logical skills as well as leading to incidental learning. The presentation of information is not linear, thus allowing users' thinking skills to be developed through exploration.

Finally, the World Wide Web provides an important forum for language teachers to discuss and exchange ideas through electronic bulletin boards, as well as access to references that provide foreign language teaching resources.
Summarily, computer-assisted language activities performed through the Internet provide opportunities for: incidental and experiential learning, enhanced interaction, individualization and improved student accomplishment and universal humanistic understanding through collaborative projects (Prapphal, 1991).

Yet, the onus of incorporating this teaching approach falls on the teacher who must acquire multiple skills. These skills are usually acquired after school hours, along with the preparation and management of curricula material. Therefore, teachers must also rely on language software which, on occasion, could be unrealistic in cultural content or inadequate for the needs of a particular student group: either not taking into account the culture of the native speaker; the intricacies of the mother tongue and how this could interfere in language transfer to the target language; or even the absence of consultation with educators.

Software design is a complex process that involves more than following a lot of technical guidelines...the process is value laden...dilemmas are caused by a conflict of cultural norms, beliefs, and values that people bring to a situation...(Beckett & McGivern, 1999, p.1).

Software developers must consider the cultural aspects they will be presenting and whether these aspects will be incomprehensible to the culture of which it plans to distribute. For instance, the composition of a Western family, consisting of either parents or a single parent family, not withstanding gay parenthood, may be an unknown concept to societies where polygamous or fundamentalist cultures are present. Even aspects of gender, which could include inter-gender student collaboration, may not be permitted to some marketed audiences.
...design communities are often unconscious of the assumptions, ideas, and beliefs that constrain the design process, not to mention the economic and political realities involved (Beckett & McGivern, 1999, p.5).

The remaining section of the literature review will include two areas: a) EFL methodology and literature pertaining to web-based learning environments and b) instructional design. The overriding theme of the relevant literature is that technology can be used as an effective and powerful learning tool (Means & Olson, 1994; Mioduser, Nachmias, Lahav, & Oren, 2000; Zhao, Englert, Jones, & Ferdig, 2000; Beckett & McGivern, 1999; Waters, 1999; Hanna, Glowacki-Dudka, & Coceciu-Runlee, 2000; McCormack & Jones, 1998; Horton, 2000; Robbins & Markland, 1999; Astleitner & Leutner, 2000).

Web-based Learning Environments and EFL Methodology

New challenges have opened up to teachers through the use of technology in the classroom. Not only has the role of the educator evolved but also new skills have had to be attained in order to meet these challenges. While the role of the teacher cannot and should not be diminished, technology can be a constructive instructional medium (Means & Olson, 1994). Educators have adopted the capabilities of technology in order to create new Web-based learning environments. The benefits that technology has to offer are: a support for complex manipulation of information, a communication facilitator, an instructional delivery medium as well as a pedagogical tool (Mioduser et. al., 2000). Zhao and colleagues (2000) explore the reciprocity between technology and literacy and proposed three factors which affected the implementation of literacy instruction and learning, namely: a) the limitations and
benefits of the technology b) the educational objectives and existing theories about effective methods, and c) the social framework in which the technology is employed.

The project under discussion focused on various factors that could facilitate more effective language learning. Traditional approaches to teaching a foreign language have been instructive rather than involving the student, with emphasis on the formal teaching of a language, such as grammar and lexis, rather than its communicative aspect (Kailani, 1995). More specifically, Kailani (1995) proposes, "interplay between language and communicative work...from tightly controlled activities which are frequently teacher-centered, to less controlled relaxed activities (p. 4)". A web-based instructional program is able to fuse both aspects of grammar and lexis with communicative skills through a student-centered environment that would allow the student to work individually, with a teacher or parent or as part of a student cooperative learning exercise in the classroom. Proponents for a culture-oriented classroom offer that, “Language cannot be separated from the culture in which it is deeply embedded” (Zaid, 1999, p.3). The instructional model that is proposed here will teach English as a foreign language and Greek-to-Greek elementary students. It is presumed that these students will not have had exposure to the formal teaching of language and so reading and writing will be focused on. Manning (2000) briefly describes methods in which elementary students can be taught part of speech and exercises that facilitate learning.

Being web-based, the element of culture can also be explored, as the Internet becomes a “window to the world” where aspects of the language taught can be seen in their cultural context.
Instructional Design

The software and material available has enabled educators to take the design of Web-based courses and programs into their own hands. Computer software such as Dreamweaver, to name one, has enabled even 'technologically challenged' educators to build their own course for Web use. The advantages for Web-based courses are that students are now primed for this manner of instruction as well as allowing them independence (Waters, 1999).

However, the willing teacher has to be aware of every stage of the design process: financial support, planning, designing, production, testing, marketing and (Beckett & McGivern, 1999). The latter article describes the problems and dilemmas that arose when an EFL educator group teamed up with a professional designer group to develop an EFL software program. "Multiple perspectives can contribute a great deal to the design of software intended for multicultural learners, but only if those perspectives are invited, heard, critically appraised, and incorporated into the design process where necessary" (Beckett & McGivern, 1999). Steps that need to be taken for the construction of a web-based program include: analysis, planning and design, the development of content, distribution of information, the creation of a site, utilization of that site and site assessment (McCormack & Jones, 1998; Horton, 2000; Hanna et.al., 2000; Lowery, 2000).

In addition, it is imperative that for a successful web-based learning environment that the school and students have access to computers and the software to support it, as well as the computer skills to access the information. When the aforementioned factors are satisfied effective instruction can take place (Robbins & Markland, 1999).
CHAPTER THREE: METHOD AND DESIGN

A Web-based design was chosen as the medium for the program as it seemed more appropriate for the needs of the target audience. As aforementioned, the target audience for this interactive instructional program is Greek early elementary students, namely, six to eight year olds. Utilizing the Internet as a pedagogical tool affords teachers and parents unlimited access to the program itself, as well as to the various links for EFL resources within and beyond Greece. It should be noted that it is assumed that most Greek elementary schools are equipped with computers in their schools. Therefore, the design chosen would allow for this access as well as becoming the medium for Internet exploration, future writing projects through electronic mail with other participating schools within Greece or abroad, the publishing of school newspapers, and conferencing. Notwithstanding, a secondary benefit of this program is that it provides an opportunity for computer skills to be either acquired or developed by the student. Hence, the educational potential is limitless. Nevertheless, the program is aimed at young students so the activities chosen by teachers or parents should be guided and age-appropriate.

The ultimate purpose of this program was to provide a non-commercial educational program, written by an educator who was targeting a specific audience. The completed program aims to promote interactivity by means of: a) clicking, dragging or matching various graphic images that require the user to identify various language elements, b) interactivity between student and instructor/parent in using the program together, and when developed c) the ability to provide feedback on the benefits or drawbacks of using the program thus allowing revision and improvement. The above forms of interaction allow for a more interesting and engaging mode of learning that require the user to employ both computer and
mental skills. One should remember that the program is aimed at early elementary students who may not have been previously exposed to language or computers prior to use. Moreover, the program seeks to engage the attention of a young student in a game-like way.

An extensive exploration of the Internet was executed for resources pertaining to interactive educational programs for Greek early elementary students that would be freely available on the Web. The search resulted in commercial links for software purchase, as well as English lessons on-line. Neither of these, however, targets a specific Greek audience. Consequently, it was surmised that a need for such a program existed and such a concept needed to be developed.

The Instructional Design Process

In the development of any computer program, an explicit and solid instructional design model must be followed that outlines and realizes the objectives and functions of the proposed program. The Dick and Carey Systems Approach Model for Designing Instruction describes procedures for utilizing the output of a needs assessment to commence the instructional design process. A series of steps is presented all of which receive input from the preceding steps and will provide output for the subsequent steps. This systems approach model encompasses design, development, implementation, and evaluation of instruction. Components of the systems approach model are: a) identify an instructional goal, b) conduct an instructional analysis, c) identify entry behaviors and characteristics, d) write performance objectives, c) develop criterion-referenced test items, f) develop an instructional strategy, g) develop and/or select instruction, h) design and conduct the formative evaluation, i) revise instruction and j) conduct summative evaluation. My current application of the first four
stages of the above model has assisted me in systematizing my ideas and in laying the foundations for the model of my instructional Web-based project.

Let me illustrate my application of the above model during the construction and design of my language program. It should be noted that the model applied encompassed my vision of how I would like my project to be when it is completed. In other words, the project as represented in this thesis, will undergo continuous development.

a) **Identifying an instructional goal.** Referring to The Dick and Carey Systems Approach Model for Designing Instruction, I began by identifying the instructional goals of this project-based thesis. First, the construction of a computer-based language program that should enable simultaneous language acquisition of both English and Greek to early elementary Greek students in the areas of reading and writing. Second, the program should be web-based to allow access to teachers, students, and parents in and out of the classroom. Finally, the program should be interactive to promote an age-appropriate environment for better facilitation of learning.

Therefore, with the above in mind, I began drawing up storyboards of how my initial Web page and the ensuing pages would look like (see Figures 1 and 2).
b) **Conduct an instructional analysis.** After identifying the above instructional goals, I had to determine what type of learning is required of the student. The aim here is to identify the subordinate skills or procedural steps that need to be learned to learn a particular process. Let us remember that the program model will be dealing with the alphabet page, therefore the
students should be able to identify letters and words. With my completion of the program they
will gain an understanding of sentence construction and replicate their own.

Figure 3. Original storyboard for the alphabet component and its instructional goals
and one of the interactive actions.
Hence, the additional learning required from the student would be from a technological perspective. The student should be able to gain skill in clicking, dragging, navigating back and forth within the program, and using the keyboard for typing. In addition, the student will learn how to use the links supplied to explore references on the Internet that have language-based games or resources to assist in projects that the teacher would present to support the teaching component. Hence, each page on the storyboard was further detailed with images I would employ and the key actions of that page. For instance, the completed alphabet page would include specific images and actions for the instruction of that grammatical
element: the action of a pop up dialogue box that would provide the instructions for completion of the page, image rollover whereby the user discovers a highlighted image to identify the word as represented by the image, the clicking and dragging action to write up that word correctly in the appropriate box, and phonetic representation of each letter and word. Moreover, looking at basic EFL teaching components, for instance the alphabet, and observing the methodology used in teaching such a component (e.g. repetition, linking the letter to a word and the word to an image) served as a framework in the design of the program.

![Figure 5. Pop-up images of words representing the respective letter.](image)

c) **Identify entry behaviors and characteristics.** This stage takes into consideration the specific skills that students must have prior to instruction, that is to say, what they must be able to do in order to begin. Furthermore, we also identify specific characteristics important to consider in the design of instructional activities. Therefore, let us remember that the program is aimed at early Greek elementary students who are beginning their formal language education. Hence, they may not have been exposed to formal language teaching. The teaching
of the English segment also provides a challenge. Young Greek users will have to learn a new
type of alphabet since the Greek alphabet presents physical differences (see Figure 4).
Additionally, some preparation is required on behalf of the teacher in teaching the basic skills
required for using the computer (see Figure 2) as well as the aspects of language that are
covered in the program.

d) **Write performance objectives.** This stage outlines what learners will be able to do
when instruction is completed and the skills that will have been acquired during this
instruction. In this case, I would like my students to be able to successfully navigate the
program in order to gain from the teaching material. Let me reiterate by saying that the
completed program would cover the following teaching components: the alphabet, reading,
writing, replication of individual letters and words. Hence, the success of the program is
achieved when students can navigate the program and follow the instructions independently,
identify the letters and sounds of both English and Greek alphabets and be able to read and
write simple words and sentences in both languages. Moreover, they should be able to match
image with the words representing an individual letter and be able to write the word through the
drag and drop activity (see Figure 5). Finally, to also adequately replicate and produce the
sound for the particular letter, word or sentence in English and Greek. This brings us into the
following stages of the model that deal with criteria for successful performance.

In sum, the planning and design stages were comprehensive. Stages e) through j) are
based on the above objectives and require the development of assessment items, feedback,
follow-through activities, development of instructional and testing manuals for teachers and
formal, independent evaluation. These stages will be conducted and developed once the
project has been completed and has been introduced to a formal classroom environment. Once
the program has been formally taught and used in the classroom, teacher and student feedback, evaluation and assessment will take place in order to revise the program, if needed, as well as to develop the assessment and instructional tools that will be required by the teachers.

Tools of the Trade

The next stage entailed the purchase and actual learning of a Web-authoring program (i.e., Dreamweaver Ultra Dev 4) and a graphics and animation program (i.e., Flash 4). Furthermore, the purchase of a scanner enabled drawn images to be transferred to the computer where they were subsequently modified with the use of Photoshop 5.5, an image management program, and then transferred to the program file.

Dreamweaver Ultra Dev 4, by Macromedia Inc., was chosen as the Web-authoring tool because of its ability to successfully incorporate other graphic, animation, and multimedia programs. It is also the software choice for professional, as well as amateur, Web site developers. Furthermore, it is aimed for the complete novice; thus, the actual construction and maintenance of the Web site does not require complex computer skills such as knowledge of HTML or Java Script.

Flash 4, by Macromedia Inc., was utilized as it enables the creation of graphics, animation, and movies. Moreover, it is one of the most popular software programs for graphic animation at present because it allows even the complete beginner to create animated graphics. The aforementioned program also allows for interactive graphics, which are integral to my project. For instance, the drag- and- drop activity and pop-up images (see Figures 4 and
5) were created using this program. Furthermore, Flash movies can be easily incorporated into the Dreamweaver program.

Photoshop 5.5, by Adobe Inc., is an advanced image management program that allows for better image modification, editing, enhancement, color and tonal changes. The program also allows for animation. Images that are drawn are edited using this program (see Figure 6) and inserted into Dreamweaver Ultra Dev 4 and Flash 4.

![Image](image.jpg)

Figure 6. Hand-drawn image scanned into Photoshop and then edited.

Suffice it to say, learning to use these computer programs on one’s own presents a challenge. It is also during this stage that ideas are revised and/or excluded as one measures one’s capabilities. The process of learning is continual as one revises and learns as one goes
along. The next stage was the actual construction, which involved the establishing of a Web site and the transferring of what was on paper to the screen. It is this stage that was the most demanding and that required meticulous care.

Hence, the planning and design stage was comprehensive. In addition, as mentioned above, the actual process of learning and applying the software was extremely time-consuming. Hence, a decision was reached that a model would be developed rather than a whole program.

The model itself fulfills the objective of learning the alphabet in both English and Greek. Interactive functions such as clicking and dragging are executed through their creation in Flash 4. Flash movies are also utilized through two animated characters that present letters in English and Greek respectively. Moreover, through a Flash movie the first three letters of the English and Greek alphabet are represented with an image, whereas the first three letters of the English alphabet are represented phonetically. One should bear in mind that at early elementary stage students may not be able to read as yet.

**Product Testing**

The program model was product-tested by two Greek students of early elementary age. I allowed both students to use the program while observing their responses to the interface, their ability to follow instructions, as well as their level of involvement.

As aforementioned, upon my return to Greece the program model will be given to various colleagues to be used in the classrooms, thus feedback and subsequent modifications will take place to allow for the further development of the program.
CHAPTER FOUR: RESULTS OF DESIGN

The program model was product-tested by two Greek students of early elementary age. Both these students are, as mentioned, of Greek nationality where English is their second language. Their introduction to formal academic instruction coincided with their presentation of this program. Since I had not inserted instructions in the program I supplied them with the necessary instructions for the two language activities, namely, dragging and dropping of letters to compose the words “apple”, “boat” and “cat” in English and the words “pear”, “boat” and “cat” in Greek. These words had been introduced in the other activity where they pressed the first three letters of the Greek and English alphabet and the letter-represented images popped up. The English drag and drop segment had the words sounded out whereas the Greek segment had to rely on memory or my saying the words. I observed that both students exhibited enjoyment of the program. This was surmised after their repeated requests to do the activities again with me supplying the instructions. I also observed that they were able to navigate the whole program easily without my assistance. They also expressed their pleasure with the colors selected for the interface in addition to the two characters.

A CD-ROM copy of the program model has been submitted to the California State University of Monterey Bay library archives, as well as the university hosting the site: http://student.csunb/nr/papageorgiou/world/
CHAPTER FIVE: DISCUSSION

Language is often referred to as a living organism that is constantly transformed by cultural, social, political and technological changes. Language is never static and its evolution through the ages can be seen in literature or even when watching old movies. Language began as a set of sounds and symbols, as in Ancient Egypt, and was developed and learnt for purposes of colonization and trade, as in Ancient Greece. Throughout history it took on various roles; such as a social role indicating social prestige and class as with French or even a political and religious role as with Latin in Medieval Europe, or the use of its high or low linguistic form as in the Byzantium.

Thus, the acquisition of a particular language has served many purposes and these reasons have remained relatively unchanged. With globalization, English has become the lingua franca, much to the chagrin of many who see their language as being undermined. Regardless, the importance of learning English and being a proficient speaker has become as important as learning the mother tongue. Nowhere is this more apparent than in Europe where with the European Union children are asked to learn English as well as their mother tongue.

Bearing the above in mind, a Greek EFL educator must overcome the hurdles of teaching a Latin-based language to a student population whose alphabet, both in letter symbols and phonetics, is so different. Yet, like their ancestors, Greek children bring eagerness to learning another language that is supported by a culture that exalts multilingual skills. Thus, the purpose of this project-based thesis was to develop a model of a program that would introduce English and Greek to Greek elementary students, thus allowing both languages to be taught concurrently so that bilingual acquisition is facilitated. This instruction would be performed through an enjoyable, web-based, interactive, age-appropriate program
that would be freely accessed either from the classroom or home. The ultimate goal for this program is that it will reach a stage where the following teaching components will be developed: the alphabet, reading, writing, listening and replication of individual sounds and phrases. The interactivity of the program will involve simple age-appropriate activities such as teaching of individual letters and words, matching text with images and the construction of simple phrases.

Conclusion

The process of creating a computer-assisted program that would be educational in nature was a long and demanding process. As stated in my delimitations in Chapter One, the commercial construction of any software program requires a team of professional programmers, along with graphic designers, educational consultants and so on. Therefore, the completion of my computer program would have taken a very long time for an amateur such as myself. Hence, I confined myself to the construction and design of a model that would impart some idea of the direction I would like the program to take. The alphabet section of my program, which includes a demonstration of both English and Greek simple interactive activities, will be expanded to include phonetic representations of all letters and interactivity with all letters. Unfortunately, due to the limitation of time, basic components such as instructions or hints are not given within the program. Yet, as I have stated, even these seemingly small technological insertions require a longer period of time to develop. My goal was to include all teaching components of a language. Yet, this goal would have run beyond the scope and time limit set for this thesis, and beyond my present capabilities.
Recommendation

My hope is that my modest attempt into the technological world of web authoring and program design would lead to a long commitment that will allow me to complete the program as expertise, knowledge and skill are acquired along the way. I also hope to inspire other educators to broaden their technological skills. In this way they will be able to explore the many resources and reference opportunities on the Internet. Moreover, educators who are discontent with the software available to them could feel empowered to create something for their own classroom needs.

Significantly, the construction of any such program requires the all-important factor of time, a factor that a working teacher would not have unless computer design becomes a full-time, professional occupation. This is why the Internet has become an invaluable tool for the teacher, and especially the EFL educator, who can utilize the resources available on the World Wide Web to enrich his/her classroom syllabus. Notwithstanding, the Internet becomes a forum for teachers and an international classroom where on-line collaboration of projects, communication and cultural understanding take place.

My choice to go down the technological path definitely broadened my pedagogical horizons. Acquiring these new skills will lead me to advance these skills and to maximize the wonderful opportunities available for teachers to create tailored course material for their students.

On a personal note, my scholarship in the MA program afforded me the opportunity to inform, confirm and re-shape my thinking about teaching practices. Moreover, by exposing myself to a new learning environment, namely, computer-assisted education, I feel that I am better equipped for teaching in the new millennium. Most importantly, the MA program
offered at CSUMB has also allowed me to view education from many multicultural perspectives, and hear teachers’ stories that I would not have otherwise heard. I aspire to be a teacher that will have a global perspective and one who will infuse this perspective into her ongoing project to better enhance English and Greek language learning for Greek students. Finally, I trust that I will bring my new cultural perspective to the Greek classroom that I know can only enrich my teaching.
REFERENCES


