A CASE STUDY: STUDENTS' ATTITUDES TOWARDS COMPUTER ASSISTED LEARNING, COMPUTER ASSISTED LANGUAGE LEARNING AND FOREIGN LANGUAGE LEARNING

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ABSTRACT

A CASE STUDY: STUDENTS' ATTITUDES TOWARDS COMPUTER ASSISTED LEARNING, COMPUTER ASSISTED LANGUAGE LEARNING AND FOREIGN LANGUAGE LEARNING

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Being one of the most epoch making invention of the 21st century, computers have fundamentally altered every aspect of people's lives, including the education domain. Thus, for decades, computer-assisted language learning has received considerable amount of attention among researchers and language teachers by serving interactive, multi-sensory, and autonomous learning opportunities. In this respect, innumerable large or small-scale projects blazed a trail for other teachers to follow.

The present study, therefore, is primarily concerned with the students' attitudes towards computer-assisted language learning. Its main purpose is to investigate what the students' attitudes are towards computer- assisted language learning (CALL) by also taking their attitude towards computer assisted learning (CAL) and foreign language learning (FLL) into consideration. Finally, factors affecting students' attitudes and the

relationships among computer assisted learning, computer assisted language learning and foreign language learning are also explored within the scope of the study. The findings demonstrate that most of the students have positive attitudes towards computer assisted learning, computer assisted language learning and foreign language learning. Age, grade, gender, years of studying English and prior CALL experience affect students' attitudes. Moreover, students attitudes towards computer assisted language learning, computer- assisted language learning, and foreign language learning are, indeed, interrelated.

Keywords: Computer- assisted language learning, computer assisted learning, foreign language learning, attitude, motivation

ÖZ

DURUM İNCELEMSİ: ÖĞRENCİLERİN BİLGİSAYAR DESTEKLİ EĞİTİME, BİLGİSAYAR DESTEKLİ DİL EĞİTİMİNE VE YABANCI DİL ÖĞRENİMİNE TUTUMLARI

Tunçok, Bezen

Yüksek Lisans, İngiliz Dili Öğretimi Bölümü

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21. yüzyılın çığır açan icatlarından biri olan bilgisayarlar, eğitim alanı da dâhil olmak üzere insan hayatını her açıdan kökten değiştirmiştir. Bu nedenle yıllardır bilgisayar destekli dil eğitimi interaktif, birçok duyuya hitap eden, otonom eğitim fırsatları sağlayarak araştırmacılar ve dil öğretmenleri arasında hatırı sayılır derecede ilgi görmüştür. Bu konuda sayısız büyük ya da küçük ölçekli çalışmalar diğer öğretmenlere yol göstermiştir.

Bu çalışma, öncelikli olarak öğrencilerin bilgisayar destekli dil eğitimine tutumları ile ilgilidir. Çalışmanın asıl amacı, öğrencilerin bilgisayar destekli eğitimine ve yabancı dile olan tutumlarını göz önüne alarak bilgisayar destekli dil eğitimine tutumlarının ne olduğunu incelemektedir. Son olarak, öğrencilerin tutumlarını etkileyen faktörler ve bilgisayar destekli eğitim, bilgisayar destekli dil eğitimi ve yabancı dil

öğrenimi arasındaki ilişkiler araştırılmıştır. Araştırma sonuçları göstermiştir ki, öğrenciler bilgisayar destekli yabancı dil eğitimine olumlu tutum göstermektedir. Yaş, sınıf, cinsiyet, İngilizce öğrenme yılı ve bilgisayar destekli dil öğrenme deneyimi öğrencilerin tutumunu etkilemektedir. Ayrıca, öğrencilerin bilgisayar destekli öğrenmeye, bilgisayar destekli dil öğrenmeye ve yabancı dil öğrenmeye olan tutumları birbirleriyle ilişkilidir.

Anahtar sözcükler: Bilgisayar destekli eğitimi, bilgisayar destekli dil eğitimi, yabancı dil öğrenimi, tutum, motivasyon

To my beloved mother, Gülgün TUNÇOK

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I. INTRODUCTION

1.0 Introduction

This chapter presents the background of the study, statement of the problem, research questions, significance of the problem and definition of the terms used in the research.

1.1 Background of the study

Thanks to the fact that pioneering projects like PLATO, TICCIT, ALLP, CAMILLA, OLA shed valuable insight to use of technology in education and they all have made their mark on today's perception of language learning and teaching, CALL has flourished and evolved phenomenally since the 1990s, which is defined as the 'growth area' by Liddell (1994). Since then, the roles for each party in the education process, teachers, students, computers, have been prescribed in a broader sense.

It is a fact that students have changed radically. Today's students who were born with all these advances are no longer the people our educational system was designed to teach. Students being taught only by the traditional ways cannot defy the need to power down and, thus, they lose focus and motivation. Therefore, educators should learn the new forms instead of forcing learners to stick with the old ways and tune down. Teachers must be prepared for new ways of structuring tasks, establishing exchanges, guiding, monitoring interaction, evaluating performance, and mastering the relevant computer applications. The teachers' role has transformed from the lecturer and the only

source of information in the classroom to a guide, as they need to provide the necessary tools and materials to facilitate learning.

Rather than passively listening to the teacher or audio tapes alone after class, through the use of the internet and CALL tools, EFL learners can easily participate in more interactions by reading and listening to authentic materials with visuals and animations, posting and replying messages, writing and replying emails. Learning is no longer restrained in time and space; rather, through the internet, learners are offered opportunities to communicate and learn collaboratively whenever and wherever they want.

Furthermore, they are more engaged in their own learning process by taking control over the process according to their needs, lacks and wants. As CALL gives them the chance to work independently, they may be able to define their specific objectives, use the materials effectively, specify time and space for their learning, assess their results and redirect their process and define new objectives according to the feedback and results they receive.

For Garcia and Arias (2000), main goal of education is not to provide a list of content but to teach them how to learn autonomously and how to maintain an attitude of continuous independent learning to meet their needs and wants. Thus, considerable amount of institutions have been adapting their curricula for students to meet the prospective requirements. They have been implementing more communicative, interactive, student- centered and task oriented language programs and developing and adapting materials and tools accordingly.

It has been estimated that many learners will be required to prepare for computer- assisted language tests such as those developed by The Test of English as a Foreign Language (TOEFL) program and the University of Cambridge Local Examinations Syndicate (UCLES) as well as the many Web- based language tests, including those being developed for languages of the European Union through the Diagnostic Language Assessment (DIALANG) project **(**Chapelle, 2001).

Evaluating effectiveness of language learning materials and tasks is generally seen as a key part of the development procedure. Likewise, the evaluation of CALL programs and their activities is an important aspect of their development. As Dunkel (1991) points out the issue of effectiveness of CALL and CALL materials should be investigated because unless student performance and skills improve, millions of dollars invested in microcomputer hardware and software [for CAL] might be wasted.

1.2 Statement of the Problem

There is a significant amount of research that attempts to evaluate CALL from a variety of aspects. Chapelle (2003) distinguishes three types of research in CALL, with respectively a focus on software, on the learning task or task pedagogy and on the learners. While most of the research studies in CALL focus on software design, indicating the most successful strategies and possibilities, the others examine the learning tasks identifying how to structure them to provide ideal learning conditions for learners. Only a few studies focus on learners and their interaction with the computer and presented CALL software and even fewer studies take learner differences such as personal attitudes into account (Vandewaetere & Desmet, 2009).

The integration of computer- assisted tools into language teaching gave impetus to the idea of exploring how language learners would approach these new tools. While swimmingly adopting computer- assisted language learning tools either as a means of instruction or assessing, students' attitude play a great role in achieving the intended goals. In addition, as more and more institutions are being wired and initiating attempts to integrate CALL applications into their policy and future accomplishments, it is important to assess users' attitudes and reflections and implement those tools based on a sound rationale.

Although some studies have connoted mixed results (Saggara & Zapata, 2008), what is transparent to all researchers and teachers is that positive attitude to language learning can raise learner's motivation and facilitate language learning (Merisuo-Storm, 2007). Therefore if students have positive attitudes towards the use of computers and CALL, CALL can enhance their motivation towards foreign language learning and facilitate their language acquisition.

The socioeducational model proposes that integrativness and attitudes toward the learning situation are correlated that support the individual's motivation to learn a second language, but that motivation is responsible for achievement in the second language (Masgoret and Gardner, 2003). Liaw (2002) found out that the more positive attitude individuals have towards e- learning and computer-based learning, the greater behavioral intention they will have to use it and for Ayres (2002), students who see CALL as an important part of the course also have high motivation and perceive CALL work as relevant to their needs.

Teachers' attitudes towards the use of CALL materials are as critical as students' since they affect the success of the program and students' attitudes as well. However, Lam (2000) emphasizes the lack of research investigating language teachers' perceptions of computer technology in language learning. Teachers' attitude defines whether they accept to use high-tech tools or software or not and even if they agree to use such tools, the successful implementation of the program may be impaired by teachers' internal barriers such as teachers' beliefs about teaching and computers, teachers' established classroom practices and unwillingness to change, lack of relevance of computer technology resources in teaching, lack of competence and training (Ertmer, Addison, Lane, Rose and Woods, 1999; Dusick, 1998).

Acknowledging the fact that effective exploitation of CALL and achieving the intended goals rely heavily on the students' attitude, this study aims to explore students' attitude towards CALL. However, evaluating this only by a single questionnaire seemed limited so in order to explore the factors affecting students' attitude towards CALL, students' attitude towards computer- assisted learning and foreign language learning are also taken into account.

1.3 Research Questions

1. What are students' attitudes towards computer- assisted learning (CAL)?
2. What are students' attitudes towards computer-assisted language learning (CALL)?
3. What are students' attitudes towards foreign language learning (FLL)?
4. Are there any relationships among them?
5. What are the factors affecting students' attitudes?

1.4 Significance of the Problem

Computers and CALL materials have been integrated into the education philosophy and especially into English language curricula providing learners and teachers a broad spectrum of opportunities and resources for higher language achievement. CALL represents a matrix of diverse activities, all of which in their many ways support learning (Levy, 1997: 41). As there is no one single method, technique, approach, or course book that work well miraculously in every context, a single type of CALL may not correspond to all needs and fit all learners' preferences. Evaluation consists of getting a clear understanding of what the tool actually offers in terms of input and interaction, and then judging how closely it fits with the learner's needs as determined by their preferences and learning objectives.

Notwithstanding many CALL researches on the software, the task and the pedagogy, this study appears to be important since it addresses students' and attempts to pinpoint their attitude towards CALL. There have not been many studies considering the learners' point of view. Indeed, most of the studies involve participants in higher education like university students but not young learners or teenagers.

The study also collects data through a four-section questionnaire. It not only examines students' attitude towards the CALL but also learners' attitude towards foreign language learning and computer- assisted learning through an empirically- based and psychometrically- sound instrument. It analyses the data according to participants' age, gender, grade, years studying English, and CALL experience.

CALL studies on variables such as attitude and motivation seem to focus on a single skill or sub-skill especially like reading and vocabulary acquisition. However,

this study focuses on CALL and how students perceive CALL develops all the four skills plus grammar and vocabulary knowledge.

Finally, it will hopefully provide relevant information for educators about using CALL in similar contexts. It may be of benefit to researchers and teachers who are willing to conduct a similar study in the future. It is also hoped that teachers who find it difficult to encourage their students to study outside the classroom and students who are willing to take control and manage their own learning can make use of this study

1.5 Definition of Terms

CAL: Computer- assisted learning is the use of instructional material presented by a computer.

FLL: Foreign language learning is learning a language, namely English in this study, in one's own culture with few immediate opportunities to use the language within the environment of that culture. For instance, a Turkish learning English in Turkey.

CALL: Computer- assisted language learning (CALL) was the expression agreed upon at the 1983 TESOL convention in Toronto in a meeting of all interested participants. This term refers to the area of technology and second language teaching and learning despite the fact that revisions for the term are suggested regularly. (Chapelle, 2001). This study embraces Egbert's (2005) definition and it means learners learning language in any context with, through, and around computer technologies.

Attitude: learned motivations, valued beliefs, evaluations, what one believes is acceptable, or responses oriented towards approaching or avoiding (Wenden, 1998).

II. LITERATURE REVIEW

2.0 Introduction

One of the real problems for the language teacher, software designer, or researcher who wishes to use technology is how to absorb and relate what has been achieved so far and how to make sense of it. As Confucius stated, one needs to study the past if he or she would divine the future. Thus, the historical overview discussed in this chapter aims to pinpoint some of the important CALL projects that have had influential impact and still have contemporary relevance. Though the projects differ greatly in terms of funding, scale, and goals, they reflect the perspective in the specific time frame.

The projects, which are presented in more or less chronological order are for the 1960s and 1970s, the PLATO and TICCIT projects; for the 1980s, Storyboard, and the Athena Language Learning Project (ALLP); and for the 1990s, The International Email Tandem Network, the CAMILLE/ France Interactive Project, and the Oral Language Archive (OLA) (Levy, 1997). After the overview of the progress of CALL throughout the world, the process of implementing technology and CALL into the Turkish education system, the theory lying behind CALL in an interdisciplinary approach, the role of the computer, advantages and disadvantages of CALL, and finally, attitude and motivation are discussed.

2.1 Genesis of Computer- assisted Language Learning

Although computer- assisted instruction had its genesis in the US in 1950s, examples of CALL started to be documented only in 1960s after a number of small-scale individual projects were undertaken to scrutinize how computers can be used to

supplement foreign language instruction in higher education. Before microcomputers, as the first experiences with CASLA (Computer Applications in Second Language Acquisition), such CALL projects had to be conducted at universities primarily because they were supported by mainframe computers connected to terminals on a single campus or by telephone lines to terminals of campus.

For instance, some of the pioneer CALL projects of such kind were undertaken by Collett (1980) in New Zealand for his French program, Boyle, Smith and Eckert (1976) for diagnostic French test, Rex Last and Graham Davies in 1970 for the construction of authoring software, Richard Atkinson (1972) and Patrick Suppes in North America at Stanford University, which started in collaboration with IBM and received funding from federal government sources. By funding experimental materials, IBM also induced a project at the State University of New York (Elling, 1995). In Canada three universities, Western Ontario, Guelph, Waterloo (and later the University of Alberta), collaborated to carry out a project and developed Computer- Assisted Learning Exercises for French (CLEF), a series of 62 lessons covering basic French grammar (Paramskas, 1983), which would later be used over 200 institutions in Canada and more abroad (Chapelle, 2001).

In the 1950s and 1960s language teaching was predominated by empiricist theory, which is defined by Stern (1983: p.169) as "pedagogically audiolingualism, psychologically behaviorism, linguistically structuralism". The harmony was just natural because in audiolingualism the target language is presented in dialogue forms which students were expected to learn the language through a process of imitation and repetition. Structures were sequenced by means of contrastive analysis and taught one at

a time. Error-free utterances were reinforced (Brown, 2000). Behavioristic psychologists advocated "conditioning and habit- formation models of learning that were perfectly married with the mimicry drills and pattern practices of audiolingual methodology" (Brown, 2001).

Although the early projects paved the way to the study of CALL, much progress was recorded after 1970s when the US government decided to support computer-assisted instruction across the curriculum by allocating a budget of ten million dollars for two companies, namely, Control Data Corporation (CDC) and Mitre Corporation. The idea was that the two companies would compete with each other and at least one viable CAI national system would emerge as a result. Control Data Corporation collaborated with the University of Illinois to develop PLATO (Programmed Logic for Automatic Teaching Operations) and the Mitre Corporation worked with Brigham University to develop the TICCIT (Time- Shared, Interactive, Computer- Controlled Information Television), both of which sowed the seeds of the evolutionary progress of CALL in terms of the extensive collection of CALL courseware and the laboratories for investigation they provided (Chapelle, 2001).

The PLATO project formed what the supplementary materials should consist of such as audio input for learners, graphics, and flexible response analysis (Chapelle, 2001). It would not be wrong to say it framed today's teaching and teaching materials. Furthermore, also for Levy (1997), CALL may be said to have begun with the PLATO. First, its one of the innovative features of the system was that it enabled students 'talk' in the form of notes files like a restricted email system and lesson material for use on PLATO system was written using the TUTOR authoring language system which is

considered to have shaped the type of CALL activities that could be created. Second, teachers became directly involved in materials development process for the first time as TUTOR was easy to use for the non-programmer.

TICCIT, with its capacity to combine text, audio, and video, was perhaps the first example of multimedia in computer- assisted instruction (CAI). TICCIT differs from the PLATO system in that the particular instructional framework developed by Merrill, namely Component Display Theory (CDT), which involves two parts: 'a 2-dimensional performance-content classification system, a taxonomy of presentation forms, and a set of prescriptions relating the classification system to the presentation forms' (Merrill 1988: 61). The most outstanding feature of TICCIT is learner control that goes beyond the simple selection of content, to include choice over the presentational form (Levy, 1997). Despite the fact that such early projects set the blueprints of CALL studies, works of 1980 could not fulfill their potential due to primitive computer equipments, lack of professional organization and immature research in applied linguistics (Chapelle, 2001).

With the spreading of microcomputers, computers became widely available and CALL started to become personalized because microcomputers did not require users to be attached to a mainframe computer maintained by a business or a university, any academic department, school, or individual teacher or researcher could purchase one and explore its potentials for language teaching (Chapelle, 2001).

Whilst humanistic methods such as Community Language Learning (Curran, 1976), Total Physical Response (Asher, 1977) and the most far-reaching one Communicative Language Teaching were making their marks on language learning and

teaching, technology was also flourishing when microcomputers were invented in 1973 (Levy, 1997). CALL had changed another skin after this period overlapped Steven Krashen's theory of second language acquisition. The studies of the previous decades were regarded as learning- oriented, however Higgins and Johns (1984) and Underwood (1984) attempted to dispel the idea that CALL serves only the conscious process of learning and it is useful for explicit learning by drills and tutorials. They defend the opinion that computers are or can be flexible enough to serve a variety of theories and it's not the limitations of computers but the limitations of the programs. Underwood, coined the approach "Communicative CALL" and based his approach on thirteen premises that were to be parallel with Krashen's prescriptions for creating an environment for acquisition (Chapelle, 2001).

In 1980s, CALL gained much importance and it metamorphosed from a remote local concern to an international construct (Chapelle, 2001). CALL studies thrived dramatically with the widespread availability of inexpensive microcomputers but without theoretical underpinnings being united to support them. Nevertheless, language-teacher programmer became prominent as teachers were provided with the opportunity to conceptualize CALL by either choosing to learn a high- level programming language such as BASIC to design materials or using authoring programs such as Storyboard to produce CALL materials which often consisted of single activity and examples like text reconstruction, gap- filling, speed- reading, simulation, and vocabulary games (Wyatt 1984; Underwood 1984).

This era labeled to be the 'adolescence of CALL' and describes the innovative progress made as "a time of exploration, a time of energy and exuberance, a time when

old ways are discarded, a time when new identities are born and born again" (Loritz, 1995: 47). On the other hand, for Chapelle (2001), emergence of Communicative CALL contributed to the evolution of CALL as it pioneered studies and professional steps were taken. However, the microcomputer period appeared to be the reinventing of 1970s because microcomputers were "limited in memory size and in fundamental capabilities such as audio or display of foreign language characters" (p.11).

By the end of 1980s affordable sophisticated computers better equipped with more memory as well as capabilities of audio, graphics and video changed the nature of CALL studies. The improvements in technology provided researchers with more sophisticated hardware and software (Chapelle, 2001). Thus, while individual CALL software developments took place using authoring systems and programs and sophisticated large scale projects like PLATO and TICCIT were also being improved and realized, the eight year research program, the ambitious Athena Language Learning Project was initiated at Massachusetts Institute of Technology in the US. Its aim was to create communication-based prototypes for beginning and intermediate courses in French, German, Spanish, Russian and English as a second language using multimedia learning environments. The project was conducted in an Artificial Intelligent lab and its goal was to create a "discovery- rich environment for the students to explore and interact with" (Kramsch, Morgenstern, & Murray, 1985: 31). The research attempted to combine video and natural language processing technologies.

Of the many new research initiatives associated with this project, two are particularly noteworthy. First is the development of the MUSE multimedia authoring environment that offers extensive cross-referencing of video, audio, and graphic

materials by using the basic structure of hypertext and hypermedia systems. (Lampe, 1988). The other one is MIT-based artificial intelligence techniques. The goal was to 'develop a natural language processing system that can intelligently "guess" meanings intended from minimal clues, and check its understanding with the user' (Murray *et al*. 1989: 98). The program aimed to develop vocabulary learning in context, reading and listening comprehension, cultural awareness, and practice with conversational strategies (Morgenstern 1986).

Like Athena Project, many other research studies continued to be conducted in laboratories world- wide and "CALL's professional infrastructure continued to expand" (Levy, 1997: 15). In 1988 The Computers and Teaching Initiative Centre for modern Languages (CTICML) was established in the UK at the University of Hull. Journals like ReCall, An International Journal, On-CALL, and CÆLL Journal appeared and many books methodological and pedagogical issues on CALL were being published (Chapelle, 2001).

The internet is said to have begun in 1969s as a project of the US Government's Department of Defense aiming electronic communications network to survive a nuclear attack. In 1990s, LAN (local area network), which is a close group of sites and the computers in the network that are physically connected, was evolving fast. However, the invention of the internet signposted the most influential breakthrough, especially for the field of education.

The CAMILLE (Computer- Aided Multimedia Language Learning) consortium consists of partners from the UK, France, Spain and the Netherlands aiming to provide beginner courses in Dutch and Spanish and advanced courses for French and English

through a textbook of learning activities, a grammar, a dictionary with recordings of native speaker saying the words, audio and video recordings, a book on the culture of the target language and a notebook. In order for students to manage and organize these resources CAMILLE used the metaphor of desktop by which students direct their own studies by selecting the icons representing various tools and resources.

The Oral Language Archive (OLA) was initiated at Carnegie Mellon University in 1994 to establish a collection of digitized sound recordings segmented in terms of complexity and formality for foreign language learning. The archive could be searched by language, gender of speaker(s), grammar trait, functions, topic, formality, subject keywords, and lexical difficulty in languages French, German, Japanese, and with Russian and Spanish to follow (Levy, 1997).

The fact that students from all around the world linked together to learn languages via email exchanges provided teachers a permanent record for language and discourse analysis. Moreover an untraditional, un-institution-based environment for students to negotiate meaning and communicate authentically, which also raised autonomy, has emerged thanks to the internet.

Internet has also given way to computer-mediated communication in language teaching and learning. According to the definition provided by Herring (1996), CMC is "communication that takes place between human beings via the instrumentality of computers" (p.1). CMC may be categorized as either synchronous or asynchronous. Synchronous CMC requires all participants to be online at the same time where an active exchange of information takes place as the participants read or listen to messages and respond immediately. Synchronous CMC includes, instant messaging and chatting

through MSN or Skype programs, classroom discussions, and MOOs (Multi- user domain Object Oriented). In asynchronous CMC, participants can log onto the computer and respond to messages whenever it is convenient for them. Asynchronous CMC includes mailing lists, bulletin boards, blogs, and e-mail.

Synchronous CMC and asynchronous CMC have certain characteristics, strong and weak points for some certain situations. For Skehan (1998), while synchronous CMC is suitable for higher- proficiency learners as it places a higher cognitive load on students, asynchronous CMC may be more convenient for lower proficiency students since students have time to process, plan and produce input. Furthermore, although synchronous CMC demand students to produce more output, the language produced lacks accuracy and asynchronous CMC provides learners with an opportunity to produce planned, edited language output and results in well formed- input. However, defectively enough, the time lags between sending and receiving messages may reduce learner motivation.

Another important issue has been whether or not CMC can contribute to language acquisition when compared to face-to-face interaction. Johnson (2002) argued that the integration of CMC into language courses is justified by the potential that computers enhance language learning, rather than empirical evidence that it does. The research results show that there may be a relationship between CMC and second language acquisition; however, the preliminary evidence is controversial. Stockwell and Harrington (2003) stated that learners who participated in e-mail interactions demonstrated increases in both accuracy and complexity of the language produced. Similarly, for Salaberry (2000), morphosyntactic skills develop when students took part

in synchronous online conferencing, and Payne and Whitney (2002) found that students' oral proficiency improves by online chatting. On the other hand, Gonzales- Bueno and Perez (2000) concluded that there could be found no significant increases lexically or syntactically in synchronous and asynchronous CMC discussions when compared to face-to-face interactions.

To conclude, among the many projects that have been initiated from 1960s to 2000s the most outstanding ones are mentioned above. Those projects constructed in such a sophisticated and tactful way that most of the advances and results introduced by them are now available for a much wider spectrum of people in a refined way.

2.2 Technology and CALL in Turkey

While all these CALL studies and projects were being conducted throughout the world, Turkey was, unfortunately, falling behind. Maps, laboratory equipment, film strip projectors were the only forms of technological teaching materials for instructional use in the schools until the 1940s. At that time teachers had to rely on written materials mostly. However, "Teaching Material Center" was founded in 1961 (Alkan, 1998) so that materials development and evaluation could take a step forward under the roof of a professional institution. Later, from 1950s to 1970s one can see the dominance of audiocassettes and overhead projectors as technological aids (Hizal, 1991). Although they may look like minor developments, these may have given way to more sophisticated, modern and technological means of education in 2000s.

Although the Turkish government initiated a number of projects in order to promote curriculum and instructional materials development, students' achievement

tests, teacher training, and scientific research on education, electronic technology was not integrated until the introduction of the television in the 1970s (Turkmen & Pederson, 2005). The apparent accomplishment of Eskişehir Academy of Economic and Commercials Sciences in developing the first educational television project justified television to be an educational tool as it provides multi-sensory, visual and auditory, input at the same time especially to teach abstract concepts and ideas (McIsaac, Murphy, & Demiray, 1988, Saglık & Öztürk, 2001). In 1987- 88 the Ministry of National Education (MoNE) began to offer televised summer courses for students who could not progress in the official academic year. Berkan and Demiray (1990) indicated that "with the help of television, students' learning of new concepts improved about 30%, their attention about 35% and their perseverance about 50% (p.5)." In time television has lost its popularity since some disadvantages were realized. Teachers faced some classroom management problems and it lacked instant feedback for teachers (Mutlu, 1995). Management problems might have happened since teaching with television lacks interaction. Lessons via televisions may not be student- centered enough and because it actually is a passive process students may get distracted or demotivated. Moreover, television could give the expected feedback neither to students nor to the teachers.

In the 1980s, computers started to be used in the departments of military, business, economy and soon after together with the internet they contrived to maintain their irrevocable position in the field of education as well. In 1983 the MoNe introduced a project called "Computer Aided Education (CAE)" to train teachers in computer literacy and programming. However, CAE could not fulfill the expectations, as the

software had not been integrated in the curriculum and there was an apparent lack of trained teachers to manage the hardware and software suitably. Moreover, due to the excessive bureaucracy, a number of vendors dropped out of the program (Yedekçioğlu, 1996).

In 1993, with the financial support of the World Bank, the Department of Information Technology in Education (DITE) at the MoNE undertook a new project called "Computer Experimental Schools (CES)" adopting the CMC tools as e-mail, online databases, computer conferencing, and electronic bulletins to promote interaction among schools (Yedekcioglu, 1996; Akkoyunlu, 2001).

In 1998, The Turkish government signed the "Basic Education Program Loan Agreement" with the World Bank to purchase computer hardware, office software, and education software for the scheduled 2,834 information technology classrooms in at least two primary education schools in 80 cities, 2,802 schools in total. Teacher training courses were also offered to integrate the hardware and the software into education.

Anadolu University, one of the pioneers, established a foundation for a virtual university in Turkey, in 1988. Since then it has been offering online alternative courses and online self- test opportunities for distance learners. Middle East Technical University has online programs such as: Asynchronous Internet Education (IDEA), dill (Distance Interactive Learning), Informatics Online– Master of Science Program, METU online, Health Information Systems Beginners Certification Program and Bilgi University has been offering an online degree program called e-MBA. Bilkent established a videoconference system through cooperative agreement with New York University offering the interactive courses.

The advances of 1990s throughout the world provided the vast audience crossing language, cultural and geographical boundaries with the variety of hardware and software configurations and the internet. Unfortunately, this could only be possible in 2000s in Turkey. Despite the reforms made over the last decades, the process of establishing computer- assisted education in the Turkish education system has been slow and the number of computers available in k-12 schools remains to be low still in 2010s. Although some private higher-institutions and k-12 schools took the initiative to adapt the hardware, software and the educational tools necessary to promote their education and especially language teaching, this could only be achieved nationwide in 2006 when within the context of 100% Support for Education Campaign, English Language Training System DynED was donated to the Ministry of Education and a protocol was signed between the parties of Ministry and Sanko Holding, Inc, and Future Prints Computer Industry and Commerce for English Language Training System DynED to be licensed (http://mebides.meb.gov.tr/).

DynED composes of a new metric, the *Completion Percentage,* and the *Intelligent Tutor.* Completion percentage assesses how well students are utilizing each lesson. The Completion Percentage is a measure of the number of *micro learning steps (MLS)* that a student has completed. It claims to stem from neural sciences and define a micro learning step to be any one of the following: (1) listening to and comprehending a language utterance, (2) recording and monitoring an utterance with comprehension, (3) processing information and completing a task in the target language, and (4) reading or writing a sentence or phrase with comprehension in the target language. To further assist in the monitoring and coaching of students, the *Intelligent Tutor* combs through the

details of each student's learning activities and summarizes the results so that teachers can identify which students need additional coaching. In addition, the *Tutor* provides specific suggestions about how the students can improve their practice strategies (Knowles, 2004).

In Turkey, CALL's progress has been slow but it is still an on going process and every day more and more institutions are getting interested in CALL and they have been initiating computer-assisted tools and they are trying to improve their equipments, materials, and strategies in use as well as their overall knowledge.

2.3 An Interdisciplinary Approach on CALL

Being a relatively new and interdisciplinary field of study, CALL draws on quite an amount of diverse disciplines, theories and fields that can be grouped into five categories: psychology, artificial intelligence, computational linguistics, instructional technology and design, and human- computer interaction studies (Levy, 1997).

Psychology includes programmed instruction, second language acquisition, and cognitive psychology. Programmed instruction, which is regarded as the antecedent to computer-assisted instruction (Schoen and Hunt 1977: 72), was the first application of a theory of learning in a computing environment. Sidney Pressey was especially influential as in 1920s he built demonstrated a device that could present multiple-choice questions and keep a record of students' answers. Program instruction was based on behaviorists' theories of learning emphasizing the positive effects of reinforcement.

Skinner also posited the idea of 'mechanizing' the schools by using 'mechanisms and electrical devices' for efficient reinforcement (Skinner 1954: 97).

The key principles underlying programmed instruction are summarized as compartmentalizing learning into small discrete steps, developing applications for more programmable areas of learning such as morphology, syntax, and vocabulary, treating aspects of language in isolation, allowing students to work at their own pace, and providing students with immediate feedback (Ahmad et al. 1985: 38).

Programmed instruction was a theory of instruction centered on the teaching process; however, with the noticeable shift from a focus on teaching to a focus on learning, second language acquisition (SLA) was of paramount importance. Unfortunately, SLA's reflections on CALL have been far from transparent as there is 'no generally accepted theory of SLA to embrace with confidence' (Fox, 1993: 101) and there are at least forty theories, models, perspectives, metaphors, hypotheses, and theoretical claims in the SLA literature (Larsen-Freeman, 1991: 288, Beretta, 1991).

For Interactive Videodisc (IVD), which shares the main characteristics of multimedia CALL, Doughty (1991) states that comprehension- based models of SLA, the Negotiated Interaction Model and the Cognitive Processing Model of SLA, offer the greatest potential to researchers and materials developers. Chapelle (2005: 63) recommends that the interactionist approach to SLA and discourse analysis for the study

of CALL provide more solid grounding for CALL research relative to other areas of applied linguistics.

During the late 1960s and early 1970s psychology started to change from a behavioristic approach to cognitive one. Cognitive psychology includes the study of attention, pattern recognition, memory, language, reading, writing, and problem solving (Best, 1989). The modern development of cognitive psychology has been strongly influenced by the information processing approach, developments in computer science, especially artificial intelligence, and developments in linguistics, particularly the work of Chomsky. Moreover, the notion of schema, schemata or script is a central concept in cognitive view. According to Doughty (1991) comprehension consists of three stages: locating a schema that appears to match the linguistic input, finding the elements of the input that correlate to the roles of schema, and making inferences to cover the gaps.

The value of the cognitive perspective of CALL can be seen in the aspects that multimedia and linguistic input activates the schemata enabling stronger connections. Thus it enhances memory and learning. CALL activities provide automaticity and restructuring (Mclaughlin, 1990), and students' work can be easily tracked through information processing approach (Levy, 1997).

Artificial intelligence (AI) is defined as "computer systems that simulate human intelligence using techniques of semantic representation and semantic processing" (Bailin and Levin 1989:4, Mulford 1989: 31). Computer programs for learning that

employ artificial intelligence and intelligent tutoring system (ITS) enable learners to receive dynamic responds and rather than pre-defined content and branching drills, ITS provide adaptive individualized instruction as the student proceeds by stages. It tailors the content, exercises, testing items and gives immediate feedback. Although it has been limited so far, artificial intelligence has lead to the emergence of ICALL (Intelligent Computer- Assisted Language Learning) and it has its potential to alter the field dramatically in the future.

Computational linguistics, which involves machine translation, information retrieval, and human- machine inferences, is the study of computing systems for understanding and producing natural languages (Grishman, 1986). Machine translation applications may be seen everyday through World Wide Web sites or search engine toolbars that translate texts from one natural language to another. In addition, bilingual and multilingual dictionaries are now available as CD-ROMs, internet sites, pocket computers or programs for cell phones.

Natural language processing (NLP) attempts to develop programs that can process and generate language as people do in their everyday lives. In order for programs to read, speak, and comprehend the language a special program called parser interprets the syntax and, to a limited degree, the semantics of a given phrase or sentence. Having been adapted to CALL, NLP and parsing improves communication

between learners and computers and helps advanced learners involved in translation and linguistics and consolidates grammatical awareness (Brierley, 1991).

Language data processing includes "identifying word-forms, representing texts, frequency listings, collocational environments, concordancing, and producing text analysis statistics for a range of varieties and styles" (Leech and Candlin 1986: 184). Concordancing and its relation with reading and vocabulary acquisition have been a popular area for practitioners and researchers. Additionally, language data processing has also had an impact on developing textbooks and dictionaries.

Programmed instruction is believed to be the first instructional technology as it was the first system of instruction based on a theory of learning (Seels, 1989). Instructional technology is often regarded to be equal to audiovisual devices and the systems approach. The audiovisuals include tape recorder, video player, language laboratory, film strips, radio, television, overhead projectors and, of course, computers. The system approach posits each and every element of a teaching environment function interrelatedly and interdependently and as an inextricable part of the whole (Van Gigch, 1974).

Instructional design evolved out of educational technology and the system approach. It is described as an architect's blueprint since it prescribes what the instruction should look like by specifying optimal methods (Reigeluth 1983). Instructional design is eclectic in nature and the process is systematic. System approach

is suggested to be the basis of methodology for CALL by Bedford (1991) and together with instructional design methods the basis approach to interactive videodisc courseware design by Meskill (1991). Therefore, applying the principles of instructional design will elevate the quality of CALL software especially in the context of language.

According to Card (1993), human computer interaction (HCI) dates back to 1982 when a seminal conference on human factors was held. HCI has a mutual interaction with psychology, computer science and sociology. In 1970s, as the CALL tools were in their infancy and rather primitive, CALL authors and teachers had little choice but to adapt to the highly idiosyncratic and capricious demands of computers.

Since the 1990s, with the influence of human computer interaction studies good design and ease of use have been paramount and no longer should the idea of developing programming applications which recognizes the real needs of learners and perceptual abilities of computer users be neglected. It seems that Chapelle (1994) sees HCI as a bridge between CALL and SLA as she argues that HCI research can be beneficial in answering pedagogical and psycholinguistic questions about SLA as it relates to CALL. Identifying the nature of learner's interaction with the input via a computer can contribute to positive CALL contexts and designing CALL programs. "HCI studies bring to CALL a focus on user characteristics and needs and innovations in designing menu selection systems, command languages, and interaction styles" (Levy, 1997: 73).

Overall, it is apparent that it is difficult to encompass CALL and to provide a prescriptive and well-defined framework for CALL because of the breadth and rapidly changing nature of the area. However, over the last forty decades many models for CALL have been drawn from theories of learning and/ or teaching. In order to perceive CALL, it may be helpful to appreciate the interplay of CALL with other contributing fields each of which has its own particular focus and frame of reference and had its impact on CALL.

2.4 The Role of the Computer

A framework on how to conceptualize CALL was defined by Robert Taylor in 1980 to help understanding computer use in education. He describes these roles as *tutor, tool and tutee*. In the *tutor* role, computers can provide instruction, feedback, and testing in grammar, vocabulary, writing, pronunciation, and other dimensions of language and culture learning. The computer evaluates the students' responses and keeps complete records of them. In the *tool* role, computers provide statistical analysis, super calculation, word processing and ready access to written, audio, and visual materials relevant to the language and culture being studied. They also provide reference tools such as online dictionaries and encyclopedias, grammar and style checkers and concordances for corpus analysis.

The distinction between tutor and tool is tutor evaluates the student input while tool does not. In the *tutee* role, control between the computer and user is reversed that tutee is to tutor the computer and therefore must learn to program and speak in 'computer'. Whereas Levy (1997) categorize CMC applications as tools, it seems to Kern (2006) that the metaphor *medium* (environment) better reflects how users think about chat, instant messaging, e-mail and other media. For Kern (2006), in the *medium* role, technology provides sites for interpersonal communication, multimedia publication, distance learning community participation, and identity formation. Moreover, these categories are not mutually exclusive and it may not be right to label any kind of software or application only as tutor, tool, tutee or medium as some projects combine elements from all three metaphors (Furstenberg & Levet, 1999; Furstenberg, Levert, English, & Maillet, 2001; Furstenberg, Murray, Malone, & Farman-Farmanian, 1993).

Warschauer (2002), argues that the role of the computer in education has been transformed from that of tutor to that of tool and Kern (2006) states that CALL' s original focus was on tutorials but now the general trend has been toward tool and especially medium tools. Nevertheless, Hubbard and Siskin (2004) point out that despite its marginalization from the pedagogical mainstream, tutorial CALL is very much alive and debunking common myths, they declare its significant assistance in developing learners' conscious knowledge of the language, improving listening and reading

comprehension and pronunciation. (Levy, 1997; Kern, 2006; Warschauer, 2002; Hubbard & Siskin, 2004).

Besides, computers' role in language learning and teaching as a tool and tutor, they also play a great role in language testing and assessment, which is far from new. The IBM 805 automatic scoring machine was launched commercially in 1935. Since then, computers function in test construction, item banking, test administration, scoring, data analysis, report generating, research, and the dissemination of research (Fulcher, 2001a).

The theory underlying computer-based testing is an algorithm based on Item Response Theory, "which is a probabilistic model that calculates learner ability in relation to an estimate of the difficulty of the item (or task) being attempted" (Fulcher, 2001b: p. 1). In test development, first, item difficulties are set for the population of intended testees and then items are placed on a difficulty scale.

According to Bunderson, Inouye, and Olsen (1989) computerized testing has undergone some transitions. For them there are four generations of computers in language testing. The first generation was the paper and pencil test on a computer, the second generation added adaptivity in which computers are capable of adapting test content and the difficulty of the items to suit the estimated ability of the test taker. The third generation indicates students' ability within an interpretative framework. Learners are provided with continuous assessment of learning and the learning trajectories from

the current ability level of the student to the target level. It seems that we are still a long way from fourth-generation tests. The fourth generation of tests would have all the properties of the third generation, but would be linked to expert second language acquisition systems that can provide tailored feedback with specific advice on even learner's learning style and content selection for the learner, related to the current estimated stage of learning, what the learner needs to study next, and how quickly they may hope to make progress.

Obviously, as Fulcher (2001b) states, the field of second language acquisition is currently not able to provide such an expert system, and the even if a model of language development could be generally agreed, calibrating the test to the theoretical model would be a major project that would occupy researchers for many years. It seems unlikely that the progress of individuals can be meaningfully predicted very far into the future. Until large testing organizations are able to utilize the internet for high-stakes test delivery and each institution is able to meet the requirements, first generation computer based tests will remain a very real option for language testers.

2.5 Advantages and Disadvantages of CALL

2.5.1 Advantages of CALL

The current computer technology has many advantages for second language learning and testing. Educators recognize that utilizing computer technology and its

attached language learning programs can be convenient to create both independent and collaborative learning environments and provide students with language experiences as they move through the various stages of second language acquisition (Kung, 2002).

Lee (2000) further stated the reasons why we should integrate computer technology in second language instruction. Computer and its attached language learning programs can (a) prove practices for students through the experiential learning, (b) offer students more the learning motivation, (c) enhance student achievement, (d) increase authentic materials for study, (e) encourage greater interaction between teachers and students and students and peers, (f) emphasize the individual needs, (g) regard independence from a single source of information, and (h) enlarge global understanding.

Computer- assisted language learning programs can administer precious stimuli for language learning. They provide multisensory input and higher-level tasks. It has tons of visual and audio materials. Thus well-developed computer- assisted language learning programs and tools support Gardner's Multiple Intelligence Theory (MIT). MIT, which is based on the findings of the disciplines such as neuroscience, neurobiology, and psychology, aims to maximize the learning outcomes by co-working with the natural way the brain processes, stores and retrieves information. Currently, computer technology can provide authentic materials and tasks, a lot of fun games and communicative and interactive activities that reduce the learning stress and anxiety, and provide repeated lessons as often as necessary. The enriched environment that the

computers provide can help students develop a positive attitude towards CALL, become motivated. As a result it can enhance memory and learning.

The use of CALL tutorials and tools in and out of the classroom provides new opportunities to promote language development by improving reading, writing, listening, and speaking skills together with grammar, vocabulary knowledge and pronunciation. They include infinite source, materials and aids that students can build on their language learning focusing on each skill or focusing on the language as a whole.

Jones and Fortescue (1987) note that computers help students develop their reading skills in three ways: *incidental reading, reading comprehension and text manipulation* in which learners read the text with the purpose of completing the activities successfully, answer traditional comprehension questions and study a text in terms of content and structure. Healey (1999) also agrees that computers may be beneficial in developing the reading skills such as skimming, scanning, recognizing details, main ideas, topic sentences, predicting what will come next. Moreover, word processing programs facilitate their writing as they automatically check the spelling, punctuation and sentence structure.

Through various communicative and interactive activities, computer technology can help language learners strengthen their linguistic skills, affect their learning attitude, promote motivation, and build their self-instruction strategies and self-confidence.

For grammar and vocabulary development, CALL makes mechanical exercises and drills more interesting and effective than the traditional instruction in the classroom. They motivate students with sad face or smiling face animations together with instant answers like “Well done”, “Excellent”, and “Oops! Sorry. Try again”. That students receive automatic feedback motivates students and develops their self- esteem and this may not be possible in real classrooms due to the fact that the teacher needs to cover the subjects in the syllabus in a pre-specified time. Giving constant feedback would be time consuming and correcting the students’ errors or mistakes each and every time may be discouraging. Kenning (1983) posits that unlike books and tape/CD recordings, computers have a unique ability to interact with the students. They can analyze their mistakes and react in a manner, which leads learner to correct them and understand the principles behind them.

In testing, CALL has some advantages in terms of test administration and human considerations. Among test administration advantages, using computers increases test security and using computers instead of humans may reduce the marking cost while maintaining the reliability. IRT (Item Response Theory) and computer-adaptive testing allow flexibility and individuality in test administration as it can tailor the items in terms of difficulty according to the test takers proficiency. Thus, it provides more accurate assessment of the examinee’s language ability since computers are more accurate than humans in scoring and reporting the results. The use of different tests for each student

may minimize any special practice effects, studying for the test, and cheating (Drasgow, Levine, & McLaughlin, 1987). Diagnostic feedback can be provided very quickly and effectively to each student on his or her incorrect answers. Such feedback can even be fairly descriptive if artificial intelligence is used (Baker, 1989; Bunderson, Inouye, & Olsen, 1989).

From the human point of view, the use of computers allows students to work at their own pace. Computerized tests generally take less time to finish than traditional paper-and-pencil tests and are therefore more efficient (Madsen, 1991;Kaya-Carton, Carton & Dandonoli, 1991; Fulcher, 2001a; Laurier, 1996). In computer adaptive test the number of the items that students need to attempt are reduced as the computer automatically sets questions according to test takers ability (Fulcher, 2001). In addition, compared to printed test takers, computer- assisted test takers consult to grammar references twice as often and they score higher in the achievement test (Arias & Garcia, 2000). They receive instant feedback that will improve their language skills. In computer adaptive language tests, students should experience less frustration than on paper-and-pencil tests because they will be working on test items that are appropriate for their own ability levels. Students may find that computerized tests are less overwhelming as compared to equivalent paper-and-pencil tests because the questions are presented one at a time on the screen rather than in an intimidating test booklet with

hundreds of test items. Many students like computers and even enjoy the testing process (Stevenson & Gross, 1991).

CALL tools involve simulations, multimedia production, and communicative and interactive input that can be accessed 24 hours a day. In a word, computer technology also provides the interdisciplinary and multicultural learning opportunities for students to carry out their independent studies. Particularly, for the concepts and cognitions that are abstract and may be difficult to express or comprehend in second or foreign language process, computers can make up for this shortage by using the image showing on the screen. Nunan (1999) reported that "interactive visual media which computers provide seem to have a unique instructional capability for topics that involve social situations or problem solving, such as interpersonal solving, foreign language or second language learning" (p.26).

Computer and its attached language learning programs could provide learners more independence from classrooms and granting learners the space to work on their learning material at any time of the day and as many times as they need. Providing the necessary environment, equipments and privacy for students, computers allow both slow and fast achievers to work on their own pace without feeling anxious and worried to catch up or bored as they need to wait for the others. In addition to that, as Warschauer (2004) states, shy or inhibited learners can greatly benefit from the individualized

technology-learning environment, and studious learners can also proceed at their own pace to achieve higher levels.

It provides a less threatening, rich environment and stress free atmosphere. Students tend to express themselves better than face-to-face interactions in a classroom where students feel pressure. A more relaxed atmosphere motivates students and enhances learning outcomes as they perform better. According to Robertson et al. (1987), the participants who joined computer-assisted language learning programs also have significantly higher self-esteem ratings than regular students. On the other hand, stress can cause psychological, physiological and behavioral consequences (Yemenici & Teele, 2006). The theory of Multiple Intelligences combined with the capabilities of computers can eliminate the negative effects of stress as it takes the significant role of emotions, multiple ways of assessment, brain enrichment, interpersonal communication, multiple sensory systems, and music.

Enriched environment has profound effects on physiology. Diamond and Hopson (1999), discuss how the cerebral cortex of the brain can grow when stimulated by an enriched environment. Pruning due to deprivation, lack of use or boring environments has widespread impacts in the areas of the brain that affect learning and memory. Enriched learning environments may indicate higher intelligence, maximized learning and long-term retention.

When used in conjunction with traditional second language classroom study, students can study more independently, leaving the teacher more time to concentrate effort on those parts of second language teaching that are still hard or impossible by the computer, such as pronunciation, work on spoken dialogue, training for essay writing and presentation (Roger, 1996).

Both cognitive theorists and humanists point out that practicing, experiencing and experimenting the language is very important for people's learning. Experiential theory educators believe that learning is about making sense of information, extracting meaning and relating information to everyday life and that learning is about understanding the world through reinterpreting knowledge (Ormrod, 1999). The tasks are more real life like and so more brain based. If presented wisely, they can be more contextual. The more relevant the target subject, the higher outcomes will be achieved.

When computer technology combines with Internet, it creates a channel for students to obtain a huge amount of human experience and guide students to enter the "global village". The novelty of working with a new medium is also a motivating factor. They become the creators not just the receivers of knowledge. And, "as the way information is presented is not linear, second language learners can still develop thinking skills and choose what to explore" (Lee, 2000: 5). When they become more autonomous learners and take initiative for their learning, students not only can extend their personal view, thought, and experience, but also acquire the skills to survive in the

real world. As Warschauer (2002) also states that not only technology is a tool for language learning and language learning is a tool to access technology but also both technology and language proficiency are tools for realizing individual and societal development.

2.5.2 Disadvantages of CALL

First, although implementing computers as a medium of education provides a liberal breakthrough, current computer technology still has its shortcomings and disadvantages. These shortcomings include financial problems, hardware, software problems and internet connection problems, and users' fatigue and loss of concentration.

Gips, DiMattia, & Gips (2004) indicated that the first disadvantage of computer and its attached language learning programs is that they will increase educational costs and harm the equity of education. When computers become a compulsory tool for students to follow the lessons, do homework, submit assignments, comment on school blogs and etc., low-income students usually cannot afford a computer and low budget schools may not be able to afford computer labs which will cause unfair educational conditions for those poor schools and students.

Second, unless both the teachers and students are competent in utilizing computers to a certain extent, the potential success of the program will not be achieved. If they lack the basic technology knowledge, they should be offered training courses in

the uses of computer technology. Insufficient competence of computers may lead to negative attitudes towards the computers and language as well.

Third, teachers should be able to compensate for the technical problems and she/ he also needs to be well aware of the shortcomings of the program as the software today is still imperfect. The teacher may feel the need to make adaptations. Computers cannot handle unexpected situations or complex language input. Due to the limitations of computers' artificial intelligence, computers are still unable to deal with learners' unexpected problems, questions and responses as immediately as teachers do. For instance, Warschauer (2004) pointed out that a program should ideally be able to understand a user's "*spoken"* input and evaluate it not just for correctness but also for "*appropriateness"*. The ideal program should be able to diagnose a student's problems with pronunciation, syntax, or usage and then intelligently decide among a range of options. In a word, as today's computer technology and its attached language learning programs are not yet intelligent enough to be truly interactive, teachers have great roles.

Fourth, the program relies on internet connection, the way that HTTP (Hypertext Transfer Protocol) works, on most pages every click is a request that has to go back to the original server so it results in a noticeable delay if the server is busy. Because of this delay, interactivity is limited compared to what is possible with disks or CD-ROMs. Moreover, down servers or broken links may lead to frustration (Hubbard, 2010).

Using computers, peculiarly for testing may also have some disadvantages concerning testing, physical and performance considerations. First, there has to be a large number of items in an item bank, which can be time consuming and costly to build. The more parameters the algorithm uses in computer adaptive test (CAT), the larger sample size is needed to pre-test and calibration. All items must also be answered in CATs for the computer to estimate ability reliability (Fulcher, 2001).

Computer equipment, hardware, software, and electricity, may not always be available, sufficient or working effectively. For instance, screen capacity is significant for reading test and for parts based on relatively long passages. While most computers today have overcome the 80 characters by 25 lines restrictions of a few years ago, the amount of material that can be presented on a computer screen is still limited. In addition, the graphics capabilities of old or cheap computers may be limited and slow. Thus, tests involving even basic graphs or animation may not be feasible in many language teaching situations (Brown, 1997).

For performance considerations, the presentation of a test on a computer may lead to different results from test administered in a paper-and-pencil format (Henning, 1991). Some limited research indicates that there is little difference for math or verbal items presented on computer as compared with pencil-and-paper version (Green, 1988) or on a medical technology examination (Lunz & Bergstrom, 1994). Not being familiar with using computers or typewriter keyboards may lead to discrepancies in some

learners' performances on computer-assisted or computer-adaptive tests (Hicks, 1989; Henning, 1991; Kirsch, Jamieson, Taylor, & Eignor, 1997). Computer anxiety may be another potential disadvantage for some learners (Henning, 1991).

2.6 Attitude and Motivation

Researchers have been challenged to define attitude, validate the construct of attitude, and estimate the contributions that motivation and attitudes make to achievement in language learning. For instance, Wenden (1998) defines attitudes as "learned motivations, valued beliefs, evaluations, what one believes is acceptable, or responses oriented towards approaching or avoiding." In a sense, attitudes are a form of "metacognitive knowledge" (p. 52). Candy (1991) argues, "the overall approach a learner adopts will significantly influence the shape of his or her learning outcomes" (p.295-296). For him both how and what of learning are highly interwoven.

In order to estimate the magnitude of attitude and motivation on language learning, most of the researchers subscribe to the viewpoint of tripartite model, suggesting attitude can be decomposed into three major components: cognitive, affective and behavioral (Liaw, 2002; Smith, 1971; Wenden, 1991). The cognitive component involves beliefs or perceptions about the objects or situations related to the attitude. The affective component expresses the feelings that arise about the cognitive element and the appraisal (good or bad) of theses feelings. Finally, the evaluation of the affect is translated into a behavioral component that gives utterance to the attitude and

certain attitudes tend to prompt learners to adopt particular learning behaviors (Vandewaetere and Desmet, 2009).

Each and every researcher rated the importance of each component differently. Graham (1997) defines affective variables as "the emotionally relevant characteristics of the individual that influence how she or he will respond to any situation" (p.92). On the other hand, Schumann (1978) attaches less importance to learners' emotions but more to social and psychological factors. Among social and affective variables self- esteem and desire to learn appear to be the crucial ones in learners' ability to overcome occasional setbacks or minor mistakes in the process of second and foreign language and in shaping their attitudes towards learning (Tarone & Yule, 1989, p. 139).

Gardner's (2003) socioeducational model suggests the Attitude/ Motivation Test Battery (AMTB) to measure three major components of the model. It consists of 19 subsets focusing motivational intensity which assesses the amount of effort the individual expends in learning a language; desire to learn the target language; and attitudes toward the target language. "The model proposes that integrativeness and attitudes toward the learning situation are two correlated variables that support the individual's motivation to learn a second language, but that motivation is responsible for achievement in second language" (Masgoret and Gardner, 2003: 169). Another outstanding questionnaire is BALLI (Beliefs About Language Learning Inventory) that was based on five major areas: foreign language aptitude, the difficulty of language learning, and the nature of language learning, effective learning and communication strategies and motivation (Horwitz, 1988).

Integrativeness is the concept that refers to an openness to identify with another language community. It is hypothesized by Gardner (1985) to influence second language acquisition because learning a second language requires certain behavioral and cognitive features that are part of another culture like the adoption of word sounds, pronunciation, word orders, and other. Thus, if someone is willing to identify with the other language group, that person is more motivated to learn the language than the individuals who do not. (Masgoret and Gardner, 2003).

In broad terms, motivation has been defined as the target language learners' orientation with regard to the goal of learning a second or foreign language (Crookes & Schmidt, 1991; Gan, 2004; Norris and Holt, 2001). Crookes & Schmidt (1991) explored various directions in which the social psychological construct of L2 motivation could be developed. As a result of this, the 1990s saw an influx of L2 research that extended and covered a variety of issues, particularly cognitive and situation-specific variables. Motivation involves the effort expended, desire to learning, and favorable attitudes toward learning the language (Masgoret & Gardner, 2003).

Amongst some of the researchers who have made an invaluable contribution to our understanding of L2 motivation are Williams & Burden (1997). These authors reviewed a substantial number of general motivational theories as well as some recent research on L2 motivation. The different aspects of this research have been presented in the form of a framework of motivational factors.

Similarly, Dörnyei (1994) attempted to integrate the various components of motivation and at the same time focus on the components that would be applicable to foreign language learning contexts as opposed to second language learning contexts. He

drew up an extended motivational framework, which was similar in nature but broader to that of Crookes & Schmidt's (1991) approach. The tripartite division of the framework was also based on the empirical results of Clément, Dörnyei & Noels, (1994) classroom study in Hungary in which a tripartite L2 motivation construct emerged comprising integrativeness, linguistic self-confidence and the appraisal of the classroom environment. Using this as the basis, Dörnyei developed a more general framework of L2 motivation. This framework consists of three relatively distinct levels. The first level is the language level, which comprises the integrative motivational subsystem and the instrumental motivational subsystem. The second level of this motivational construct is the learner level, which involves various cognitive aspects of motivation. It is formed by the 'baggage' that a person brings to the learning process. For the learner level, students' age, gender, proficiency, socio- cultural background, economical background can be the affecting learners' attitude and motivation among the many other factors. The third level of motivation is the Learning Situation Level, which involves three sub-categories of motivational components: Course-Specific Motivational Components, Teacher-Specific Motivational Components and Group-Specific Motivational Components.

Related to second level, several studies investigating gender differences in the use of computers revealed that males tend to be more interested in computers than females and that males use computers more than females (Collis 1985a; Collis 1985b; Fetler 1985; Fisher 1984; Adam and Bruce 1993; Murray 1993).

Thanks to new brain imaging technologies, it is also scientifically known that there are indeed real differences between male and female brain. Men and women use

different parts of their brains. Moreover, different parts of the brain mature faster in girls and boys' brains. The parts that are responsible for verbal fluency, handwriting, and recognizing familiar faces mature several years earlier in girls. Some of the regions involved in mechanical reasoning, visual targeting and spatial reasoning appear to mature four to eight years earlier in boys. Thus, there might be a rational explanation why boys have positive attitude towards computers more than girls.

However, for Yu Xie, a social professor at the University of Michigan, it is not only the biological differences that shape females and males' judgments. Biological factors would not play a role unless they interacted with social conditions (Ripley, 2005). For some, gender gap is not a story of talent but motivation. The society and, unfortunately, even the schools may mislead students. According to Sax, "The reason women are underrepresented in computer science and engineering is not because they can not do it. It is because of the way they are taught" (Ripley, 2005: 56). On the other hand, there is plenty of evidence that women excel in science, engineering, and computer studies if or when they are motivated and encouraged (Ripley, 2005). Studies indicate that a preference for computer use, or lack of it, stems from socialization that takes place outside schools (Yelloushan 1989; Henwood 1993; Kirk 1992). For instance, parents are more likely to buy a computer and video games for their sons than for their daughters (Levin and Gordon 1989). Several studies also note that sex differences in computer use are engendered by the media as it tends to advertise computer use essentially as a male activity (Forsyth and Lancy 1989; Jones 1987; Sanders 1985; DiMona and Herndon 1994). Therefore, it is assumed that the computer related perceptions between girls and boys may be different because of their brain's biological

architecture but it is also about the manipulations and ancient beliefs of the society.

In the eyes of the learners, the teacher seems to be the key figure in determining the attitude towards language learning and in shaping motivation. Therefore, the teacher has the complex task of generating initial student motivation and helping students maintain it. The teachers' support, enthusiasm, positive approach in providing a learning experience is an important motivational component. The above findings provide further evidence of the importance for the learning situation level including teacher-specific and course-specific components outlined in Dörnyei's (1994) framework of L2 motivation.

The total complex of integrativeness, attitudes towards the leaning situation, and motivation is referred to as integrative motivation (Gardner, 1985, 2003). It was the aspect of integrative motivation that was found to sustain long term success (Crookes & Schmidt, 1991; Ellis, 1997; Taylor, Meynard & Rheault, 1977), and to be related to greater motivational effort and competence in second language (Burke, 2004; Ellis 1997; Gardner & Lambert, 1972).

Beliefs about language learning belong in the domain of affective variables, such as attitudes, motivation, and anxiety. Richardson (1996) defines beliefs as "psychologically held understandings, premises, or propositions about the world that are felt to be true" (p.103). Assessing beliefs that language learners bring to the language classroom is important for both language instructors and curriculum designers because "beliefs are predispositions to action" (Rokeach, 1968: p. 113). Educational psychology supports the proposition of the importance of beliefs that learners hold as a defining factor of their learning behavior. Students who believe that their study is interesting and important are more actively engaged in the learning process and thus they are more

persevering in their academic work (Pintrich & De Groot, 1990). In addition, instructors need to know their audience in order to arrange the classroom procedure in the most effective way for learning.

Kuntz (1996) raised several issues concerning the instrument's validity. Firstly, statements dealing with learners' beliefs were generated by language teachers, not by learners themselves. Kuntz observes, "the five present themes represent a belief structure that teachers think students hold and not one that the sample of students actually revealed" (p. 4). Secondly, Horwitz's (1998) research employed only descriptive statistics; therefore there is no statistical backing as to the significance of selected variables. This prompted Kuntz to question the validity of the theme division. However, Horwitz's work generated considerable research interest in the nature of beliefs held by language learners. A multitude of studies into the subject has been conducted since the 1980s (Bacon and Finnemann, 1990; Yang, 1992; Truitt, 1995; Mori, 1999).

Cotteral (1995) used exploratory factor analysis to identify learning readiness for autonomy in terms of a six-dimensional construct: the role of teacher, the role of feedback, learner independence, learner confidence in their ability to study, experience of language learning and approach to studying. However all of these researches were non- computer related and were limited to the construct of language learning only.

The study undertaken by Ayres (2002), not only investigated the attitude towards language learning but also towards computer use in language learning. Ayres' attempt to gather empirical data in order to assess how much learners valued the use of CAL in their language courses concluded that 80% of the learners see CALL relevant to their

needs, 77% of them say the computer tasks provide useful information and 60% agree CALL should be used more. This study demonstrated a clear correlation between students' needs and wants and their motivation and attitude towards CALL. Learners regarding CALL as a substantial part of language learning have high motivation and positive attitude towards CALL. Nevertheless, for Vandewaetere and Desmet (2009), the study had its limitations because it was not clear on which variables an intervention should be created. They wanted to know it the focus of instruction is needed to be placed on motivation of learners and building a sound perception of CALL relevancy or it is the first requirement to substantially embedding CALL in a language course. Therefore, Vandewaetere and Desmet aim introducing a methodological approach to develop an empirically based and psychometrically sound instrument to measure the attitudes towards foreign language learning, computer- assisted learning and computer-assisted language learning.

The same point of view has been embraced in this study because in order to evaluate students' attitude towards CALL, one also needs to investigate their attitude towards computers and language learning. Thus, how they perceive computers, whether they are comfortable using them and whether they regard it as an indispensable tool to improve their language learning and teaching are the significant elements of the study.

2.7 Conclusion

It appears that in order to comprehend and appreciate the use of computers in language learning and teaching now, first, one has to acknowledge CALL's past. Concepts of the 1950s and 1960s are still vivid in today's computer- assisted tools. The

audiolingualism and structuralism shaped the CALL materials and grammatical exercises to be linear and the students study the structures in foreign language through imitation and repetition. The advances like the 'talk' function in PLATO, multimedia in TICCIT and ALLP are now available on personal computers. The fact that PLATO presented the notion of authoring and the toolbox approach gave flexibility not only to the teachers but also to the students. Teachers could choose the content and the instructional design as well and have had a greater role through the whole process.

A cautionary attention should be also given to TICCIT and its evolution in time. ADAPT, the recent version of TICCIT, met the expectations of the developers in that developers gained control on the content and on the way the content should be presented. TICCIT is still a rare example of hardware that has been designed specifically for education.

In 1980s, ATHENA was one of the largest scale and the most ambitious CALL projects. The project was conducted in an artificial intelligent lab combining video and natural language processing technologies in order to create a "discovery- rich environment for the students to explore and interact with" (Kramsch, Morgenstern, & Murray, 1985: 31). Storyboard is remarkable as it could be easily rewritten and adapted to the new hardware of all models of microcomputers. Furthermore, such authoring programs ventilated the question of the integration of CALL into the curriculum since these programs weren't designed to function independently but to assist the classroom instruction. It drew attention to the teachers' role and skills in implementing such programs. The role of teacher and the role of computers in education were demystified so that CALL tools depend heavily on the successful application, integration, and

iterative evaluation. In addition to these issues, approaches to authoring, effects of technology on methodology remain to be central in CALL studies and research areas.

For Turkey, although number reforms have been made for the last decades, the process of establishing CALL into the curriculums seems to be slow. CALL applications started in 1990s in higher education institutions and could only be realized nationwide in 2000s with Dyned. Meanwhile, many private institutions have taken the initiative to use computers for learning by providing distance learning opportunities or just adopting the use of CALL tools, websites and CMC tools such as blogs or e-mail.

CALL has played the role of tutor, tool or tutee and for testing. No matter its targeted role, when the financial and physical barriers are overcome, CALL shows great a promise as a supplementary material in foreign language teaching. Through the multi-sensory input, authentic materials and communicative and interactive tasks, language development can be achieved better and faster. Computers also promote language tests' security and reliability. It may be a great accomplish as CALL provides enriched and stress-free environments in which students can work autonomously. Thus, when the students adopt positive attitudes towards CALL, it seems to become a motivating tool for foreign language learning.

III. METHODOLOGY

3.0 Introduction

This study investigated attitudes of students' at Turkish American Association towards computer- assisted language learning. The study specifically examined how students perceive foreign language learning, computer- assisted learning and computer-assisted language learning as part of the curriculum in language instruction and its possible classroom implementations. The factors affecting their attitude and the relationship among them are investigated. The study also aimed to explore what aspects of language do students think that CALL facilitates.

This chapter presents the methods and procedures being followed during the data collection process. The first section sets the design of the study. Then, the second introduces the setting in which the study was conducted and the participants. Finally, the data collection tools, data collection procedure, and data analysis are discussed.

3.1 Design of the study

This case study aims to investigate foreign language learners' attitude towards computer- assisted learning, computer- assisted language learning, and foreign language learning. The present study also aims to investigate if there are any relationships among these three aspects of attitude and the factors affecting them.

The study explored its research questions through a cross-sectional questionnaire adapted from the article by Vandewaetere and Desmet (2009) entitled 'Introducing psychometrical validation of questionnaire in CALL research: the case of measuring

attitude towards CALL' published in Computer- Assisted Language Learning.

Questionnaires are used as an instrument to analyze abstract features and the numbers in a scale are used to differentiate the levels of answers. In researches items are grouped according to the constructs that are meant to be measured and instead of focusing on individual items, number of items are evaluated as a whole (Netemeyer, Bearden, Sharma, 2003).

Questionnaires are an easy and practical mean of gathering data from a large population when compared to other data collection instruments (O'Maley & Chamot, 1990). Moreover, Oppenheim (1993) indicates that the reasons of using questionnaire as an instrument is that it requires little time, there is no extended writing, it is easy to process, makes group comparisons easy, and is useful for testing specific hypothesis. Likert- scale items are defined to be a useful and effective mean of determining opinions and attitudes (Turner, 1993).

The questionnaire used in this study consists of 6 background items and 67 Likert type items, which are rated from 1 to 7. The data collected through the questionnaire was subject to descriptive analysis through SPSS for Windows 11.5. Descriptive studies aim to describe and to interpret the studied conditions. According to Best (1970),

> "Descriptive research is concerned with conditions or relationships that exist, practices that prevail; beliefs points of views or attitudes that are held; processes that are going on; effects that are being felt; or trends that are developing. At times descriptive research is concerned with how, what is or what exists is related to some preceding event that has influenced or affected a present condition or event" (cited in Cohen, Manion, and Morrison, 2000, p.169).

The rationale behind the use of descriptive statistics in this study was to obtain complete and detailed perceptions of students in regard to computer- assisted language

learning. In descriptive statistics, summary statistics are used to summarize a set of observations in order to communicate the largest amount as simply as possible. Statisticians commonly try to describe the observations in a measure of location, or central tendency, such as the arithmetic mean, median, mode, or interquartile mean, a measure of statistical dispersion like the standard deviation, variance, range, or interquartile range, or absolute deviation, a measure of the shape of the distribution like skewness or kurtosis (Upton & Cook, 2006).

Mean and median are measures of central tendency in a data set. They both examine where, in a data set, numbers are likely to occur with the most frequency. Before the statistical evaluations, the distribution of the data is analyzed and the appropriate hypothesis test is decided. If the distribution is symmetric, in other words, if the histogram chart looks like a bell-shaped curve or the ends of the distribution are symmetric, parametric statistics are referred. Mean and standard deviation are the parameters used in parametric tests (Devellis, 2003: 14-16).

However, depending upon the type of data set, using non- parametric statistics can be a better way than the other when evaluating data and coming up with statistical results. When the data is ordinal, one can refer to non-parametric statistics without looking into the distribution of the data (Gaito, 1980). If the distribution is skewed, non-parametric statistics are employed. For Likert type data, whatever the distribution may be, non-parametric statistics are employed (Nanna & Sawilowsky, 1998). In non-parametric tests, instead of mean, median is used and instead of standard deviation, interquartile ranges are taken into account. The interquartile range (IQR), also called the

midspread or middle fifty, is a measure of statistical dispersion, being equal to the difference between the lower and upper quartiles (Upton & Cook, 2006). In other words interquartile gives information about the spread of the answers and how close the spread is to the median score.

Moreover, when comparing two or more groups of participants, probability value (p) indicates whether or not the correlation in question is significant. In statistical analysis, p value is often taken into account in the first place. If p value is found to be smaller than 0,05 then it could be argued that there is a statistically meaningful relationship between the two variables. The $p<0,05$ results are accepted meaningful.

3.2 Setting and Participants

This study was conducted at Turkish American Association with children classes. TAA offers language courses such as general English courses for children and adults, translation courses, conversation courses, exam preparation courses for TOEFL, IELTS, KPDS, SAT, COPE, GRE, TOEIC, and GMAT, Turkish and Spanish courses.

Although students are already attending English courses at their schools, TAA is an institution that offers extra English courses. The programs for children at TAA are designed in accordance with the newest teaching methods. The primary aim is to help children enjoy the language they are learning. Students are grouped according to their age and level of English. They are taught by experienced teachers who are using the best course books available in English language teaching. The targeted skills are mostly listening and speaking in addition to reading, writing, vocabulary and basic grammar.

All the new students take a placement test before the course begins and then they are grouped according to their results. The courses are designed in accordance with the criteria set by 'Common European Framework of Reference: Learning, Teaching and Assessment'. Classes are held at weekends for 3 hours, or in intensive courses, on weekdays for 6 hours.

The questionnaires were administered in 16 classes to the 120 various level students present on 12th and 19th June in 2010. There were not any predetermined exclusion criteria; so all 120 students who completed the questionnaire were eligible for inclusion, resulting in a heterogeneous sample.

3.3 Data Collection Tools

In this study a four-section questionnaire was administered in order to collect data. According to Vandewaetere & Desmet, items are developed in line with the three component structure of attitude that was previously proposed in studies from Liaw (2002) and Smith (1971). This tripartite model of attitude was also found in more general foreign language attitude questionnaires such as Horwitz' (1988) Beliefs About Language Learning Inventory (BALLI) and the Attitude/ Motivation Test Battery (AMTB) by Gardner (1985). It was taken into account that all items were related to the specific attitude towards CAL, CALL, FLL and they were applicable for subjects with and without previous CALL experience.

Except for section one, the questionnaire (Appendix 1) is composed of Likert-scale items in which participants were asked to choose the best opinion that reflect their attitude. The response options were from strongly disagree (1) to strongly agree (7).

Section one in students' questionnaires aimed to collect relevant information about participants' background: their age, gender, grade, years studying English and experience in computer- assisted language learning.

Section two intended to explore students' attitude towards computer- assisted learning through nine items. The first five items were directed to learn about participants' computer proficiency and the following items to learn about their computer integration. For Gardner (1985), social integrativeness implies an openness on the part of individuals that would facilitate their motivation to learn the material and learners who are willing to identify with the other language group will be more motivated to learn the language than individuals who do not. In this context, integrativeness refers to individual willingness to work with a computer. Therefore items six to nine attempts to gather information about the target groups' opinions on their openness and willingness in using computers.

Section three was designed to explore students' attitude towards CALL and factors behind students' attitude. As several other researchers have already tried to measure one or more of the three components of attitude, items in this research questionnaire were extracted and adjusted for CALL context. Items 10-13, which are all reversed, contemplated to collect information about the effectiveness of computer-assisted language learning vs. non- computer- assisted language learning. Items 14-20 are about computer-assisted language learning only. Items 21 and 22 were added to see students' ideas about the feedback given by computers. One item (My language learning will improve when assisted by a computer) is removed from the questionnaire. Instead of it six items, items from 23 to 28, were added to see to what extent students think

CALL improves four skills, grammar, and vocabulary knowledge. In order to get information about the teacher influence, items from 29 to 31 were directed. Item 32 about computer-based tests and 33 is about computer-based exercises. Items 34-36 are about the degree of exhibition to CALL.

Section four in students' questionnaire focused on the students' attitude towards foreign language learning. The first part (items 37- 41) aims to assess the cognitive component of students. The second part (items 42-54) aims to assess the affective-evaluative component with the items about intrinsic motivation, extrinsic motivation and teacher's influence. The last part (items 55- 67) comprised behavioral- personal component in terms of inhibition, exhibition, tolerance of ambiguity, and learning effort.

After the items in the questionnaires were finalized by adding eight more items, the questionnaire was translated into Turkish as it was assumed that it would be too difficult for students in elementary school to comprehend. Then, to be sure of the translation, the questionnaire was translated into English again by a professional translator whose English proficiency is high enough. Minor corrections were made after the result of this back-translation.

3.4 Data Collection Procedure

3.4.1 Piloting the questionnaire

There were thirteen English classes in total. The questionnaire was piloted on May 29th and June 6th in 2010 with two random classes of English learners whose ages varied from eight to eleven and twelve to seventeen at Turkish- American Association.

The reason for selecting one class of 8-11 year olds and one class of 12-17 year olds was to ensure that the samples chosen for the piloting represent the whole population for the study. The researcher of this study was teaching the 8-11 year old students and the other class was the one next to her class so if the class had any questions they could directly ask her.

The piloting process was observed and the questions of students were noted down. The constructive feedback from the students was taken into consideration. Some concepts and terms were modified so that they were clear to the participants. The term 'feedback' was unfamiliar to younger learners so an explanation is added in parenthesis saying that it means the advice or criticism teachers give to students on their mistakes.

3.4.2 Administration of the questionnaire

Prior to the administration of the questionnaires, a face-to-face meeting was held with the executive director and the academic director of Turkish American Association. Permission for data collection for the study was requested. After the approval, the English teachers of the institution were briefed about the questionnaires. They distributed the questionnaire on June 12th and 19th. The teachers were asked to distribute the questionnaires on two different days as it is conjectured that the longer the questionnaires are, the more distracted students may get and this may have a negative effect on the results.

The questionnaires were administered at the beginning of the first lesson each day. On June 12th, first, the teachers asked the students to write down their ID numbers in TAA on the questionnaires and explained what it is about and why they are doing it. Then, they are asked to complete the first three sections of the questionnaire. The teachers collected the questionnaires and put them in the class files. The next week, teachers handed out the questionnaires again according to the students ID numbers and they are asked to complete the fourth section. The teachers collected them and handed them in the courses office. 120 students' questionnaires were taken from the courses office on June 21st and then the data was entered into the Statistical Packages for Social Sciences (SPSS).

3.5 Data Analysis

All the items in the questionnaire were analyzed using the Statistical Packages for Social Sciences (SPSS) 11.5 for Windows. Descriptive statistics for the continuous variables were demonstrated as ± standard deviation or median and categorical variables are demonstrated as case number and percentage. In order to find the significance of the difference in terms of median scores of answers for the Likert- scale items between two independent groups, Mann Whitney U tests were calculated and the significance of the difference of the median scores of the answers between three groups were analyzed through Kruskal Wallis Tests.

When the Kruskal Wallis Tests' results indicated significant differences, the multiple range tests were conducted. In terms of students' stated attitudes towards CAL, FLL and CALL, Spearmann's Correlation Tests were carried out to look for any significant correlations between continuous variables such as their attitudes towards computers and using computer for language learning use; between their attitude towards foreign language learning and computer- assisted language learning. The probability values under 0,05 ($p<0,05$) are accepted as meaningful.

IV. DATA ANALYSIS

4.0 Introduction

This study explored how students at Turkish American Association perceive the incorporation and use of computers for foreign language education through investigating students' attitude towards computer- assisted learning, computer- assisted language learning and foreign language learning.

The first section of this chapter discusses the analysis procedure in detail. Second section presents the results of the descriptive analysis of the collected data by means of the instruments as a questionnaire. Firstly, it gives information about the background of the participants. Secondly, it provides information about participants' overall attitude towards computer-assisted learning. Then, the findings about students' attitude towards computer- assisted language learning and foreign language learning are demonstrated. The findings about students' attitudes towards CALL, CALL, and FLL are shown according to their age, gender, grade, years they have been studying English, and whether they have CALL experience or not in order to examine the factors affecting their perceptions. The last part provides the information about the relationships among the groups of items in the questionnaires.

4.1 Data Analysis Procedure

The study addressed six background questions and sixty-seven items in Likert scale items to evaluate students' attitude towards computer- assisted learning, computer-assisted language learning and foreign language learning. Sixty-seven items were grouped so that they fall under 17 categories. Items 1 to 5 are about computer proficiency. Items from 6 to 9 are about computer integration. Items from 10 to 13 are about effectiveness of CALL vs. non- CALL and they are all reversed which means that the students who circled the numbers 1, 2 or 3 show positive attitudes towards CALL and the ones who circled 5, 6 or 7 show negative attitudes. Items from 14 to 21 are about effectiveness of CALL. 22 and 23 are about the feedback provided by the computers. Items from 24 to 29 are about the skills and grammar and vocabulary knowledge. Items from 30 to 32 are about the teacher influence on students' perception of CALL. 33 and 34 are about CALL based tests and exercises. Items from 35 and 37 are about the degree of exhibition to CALL. Items 38 to 42 are about cognitions. Items 43 to 45 are about extrinsic motivation. Items 46 to 52 are about intrinsic motivation. Items 53 to 55 are about teacher influence. Items 56 and 57 are about inhibition. Items 58 to 60 are about exhibition. Items 61 to 63 are about tolerance of ambiguity. Finally, items 63 to 67 are about learning effort. Interpretations of the median scores of the responses were made according to the Table 1 below.

Table 1: Interpretations of the median scores

Categories (number of items in the questionnaire)		Total Number of items	Strongly Disagree (Minimum median score)	Disagree	Neutral	Agree	Strongly Agree (Maximum median score)
CAL	Computer Proficiency (1-5)	5	5-7.5	7.6-17.5	17.6-22.5	22.6-32.5	32.6- 35
	Computer integration (6-9)	4	4- 6.5	6.6-14.5	14.6-16.5	16.6-26.5	26.6- 28
CALL	Effectiveness of CALL vs. non-CALL (10-13)	4	4- 6.5	6.6-14.5	14.6-16.5	16.6-26.5	26.6- 28
	CALL (14-20)	7	7- 10.5	10.6-24.5	24.6-31.5	31.6-45.5	45.6- 49
	Feedback (21-22)	2	2-3	3.1-7	7.1- 9	9.1-13	13.1-14
	Skills-grammar-vocabulary (23-28)	6	6-9	9.1-21	21.1-27	27.1-39	39.1- 42
	Teacher influence in CALL (29-31)	3	3-4.5	4.6-10.5	10.6-13.5	13.6-19.5	19.6- 21
	Degree of exhibition to CALL (34-36)	3	3-4.5	4.6-10.5	10.6-13.5	13.6-19.5	19.6- 21
FLL	Cognitions (37-41)	5	5-7.5	7.6-17.5	17.6-22.5	22.6-32.5	32.6- 35
	Extrinsic motivation (42- 44)	3	3-4.5	4.6-10.5	10.6-13.5	13.6-19.5	19.6- 21
	Intrinsic motivation (45-51)	6	6-9	9.1-21	21.1-27	27.1-39	39.1-4 2
	Teacher influence in FLL (52-54)	3	3-4.5	4.6-10.5	10.6-13.5	13.6-19.5	19.6- 21
	Inhibition (55-56)	2	2-3	3.1-7	7.1- 9	9.1-13	13.1- 14
	Exhibition (57-59)	3	3-4.5	4.6-10.5	10.6-13.5	13.6-19.5	19.6- 21
	Tolerance of Ambiguity (60-62)	3	3-4.5	4.6-10.5	10.6-13.5	13.6-19.5	19.6- 21
	Learning effort (63-67)	5	5-7.5	7.6-17.5	17.6-22.5	22.6-32.5	32.6- 35

After all the items in the questionnaire were analyzed using the Statistical Packages for Social Sciences (SPSS) 11.5 for Windows, descriptive statistics for the continuous variables were demonstrated as ± standard deviation or median and categorical variables are demonstrated as case number and percentage. In order to find the significance of the difference in terms of median scores of answers for the Likert-scale items between two independent groups, Mann Whitney U tests were calculated and the significance of the difference of the median scores of the answers between three groups were analyzed through Kruskal Wallis Tests. When the Kruskal Wallis Tests' results indicated significant differences, the multiple range tests were conducted.

First the results are interpreted according to the ranges of median scores provided in Table 1 to see whether the students have positive attitudes towards CAL, CALL, FLL and towards what categories students have positive attitudes. The demographic factors affecting these attitudes are investigated.

In terms of students' stated attitudes towards CAL, FLL and CALL, Spearmann's Correlation Tests were carried out in order to look for any significant correlation CAL, CALL, and FLL and their categories.

4.2 Results

4.2.1 Background of the participants

The participants of this study were 120 students who were attending English courses at Turkish American Association in Ankara, Turkey. The 120 participants' background information including their age, sex, experience with English language learning, and CALL experience are of priority of concern because they can give further insights about their overall perception of CALL.

The questionnaires were conducted to 120 students. The mean age of all participants is 11. 51 years (sd = 2.102), with a range from 8 to 16 years old. The proportion of the females in the sample is 50.8 (n = 61) and proportion of the males is 49.2 (n = 59). This, indeed, gives a balanced distribution. For practical reasons, the population is categorized into three age groups (8-11, 12-14, 15-16 years old) and three grades groups (2-5, 6-8, 9-11. grades) depending on the participants' answers in the background information, section I, in the questionnaire. Thus, the age groups are parallel with the grades. 8-11 year olds go to elementary school (grades 2-5), 12-14 year olds go to secondary school (grades 6-8), and 15-16 year olds go to high school (grades 9-11). It can be seen from the results that the majority of the participants (82.5 %) have been studying English less than 5 years while 17.5 % of them are studying English for more than 5 years.

Of all the participants, 67.5 of them have CALL experience. Among them, 58% of them have been studying English through Dyned, 40.7 % have been using CD-ROMs, 51.9% have been visiting websites, and only 4.9 of them have been using blogs. Two students chose the option other and they were using a set of CDs on the market, namely 'Tell me More'. More detailed descriptive statistics are presented below.

Table 2: Background information about the questionnaire respondents

Variables	**n=120**
Age *[average± sd(min.-max)]*	11,5±2,1 (8-16)
Age Groups *[n(%)]*	
8-11 years old	78 (65,0)
12-14 years old	21 (17,5)
15-16 years old	21 (17,5)
Sex *[n(%)]*	
Female	61 (50,8)
Male	59 (49,2)
Grade *[n(%)]*	
2-5. Grade	81 (67,5)
6-8. Grade	17 (14,2)
9-11. Grade	22 (18,3)
Years studying English *[average± sd(min.-max)]*	3,3±2,1 (1-10)
Years studying English *[n(%)]*	
≤5 Years	99 (82,5)
>5 Years	21 (17,5)
CALL Experience *[n(%)]*	
No	39 (32,5)
Yes	81 (67,5)
DYNED	47 (58,0)
CD-ROM	33 (40,7)
Web Sites	42 (51,9)
Blog	4 (4,9)
Chat	3 (3,7)

sd: standard deviation, min: minimum, max: maximum, n: case number, CALL: Computer- assisted language learning

4.2.2 Computer- Assisted Learning

The results in here are demonstrated according to the categories of the questionnaire. The items in Section II of the questionnaire aimed to investigate students' attitude towards computers and learning with the assistance of computers. The section comprised of 9 items in total. The first 5 items measures computer proficiency and items from 6 to 9 measure computer integration.

Table 3: Computer proficiency

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	26,0 (8,00)	23,0(12,00)	23,0 (4,75)	0,214
GENDER	**Female**	**Male**		**p[b]**
	24,0 (7,50)	27,0 (8,50)		0,042
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	25,5 (8,50)	26,0 (7,00)	23,0 (5,00)	0,158
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	25,5 (8,50)	23,5 (5,50)		0,136
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	26,0 (8,25)	23,0 (6,00)		0,020

a Kruskal Wallis test, b Mann Whitney Test

Most of the students have positive attitudes towards computers and using computers for learning as the median scores are between the ranges of 22.6- 32.5. For computer proficiency, Table 3 shows that median scores of the 12-14 and 15-16 year old students are the same with the median score 23 out of 35. Younger students think they have a higher level of proficiency of computers with the median score of 26 out of 35. Girls agree with the items with the median score of 24 out of 35 and the boys with 27.

2-5 graders agree with the median score of 25,5, 6-8 graders with the median score of 26 (5,2 ⁄ 7), and 9-11 graders agree with the items with the median score of 23.

Students studying English less than five years agree with the items with the median score of 25,5 and the ones more than five years with the median score 23,5. Students with CALL experience agree to the items with the median score of 26 and the ones who do not have any CALL experience with the median score of 23. However, the difference is not significant in terms of participants' age, grade and years studying English as the p value is smaller than 0,05. These three aspects are already related to each other as the students get older, they are in higher grades and thus they turn out to be more experienced in studying English. Among the variables given, there is significant difference between boys and girls and between the students who have prior CALL experience and who do not.

Table 4: Computer integration

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	25,0 (4,00)	24,0 (7,00)	23,0 (4,50)	0,101
GENDER	**Female**	**Male**		**p[b]**
	23,0 (6,50)	25,0 (4,00)		0,030
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	25,0 (5,00)	24,0 (7,00)	23,0 (4,00)	0,120
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	25,0 (5,00)	23,5 (6,50)		0,091
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	25,0 (5,50)	24,0 (4,00)		0,465

a Kruskal Wallis test, b Mann Whitney Test

Table 4 indicates students have higher results than computer proficiency results since there are four items related to computer integration and the ranges of agreeing is 16.6- 26.5. Thus, all the students seem intensely integrated with the computers because

the lowest median score is 23 out of 28, which is not an unexpected situation for this high-tech era.

For computer integration, 8-11 year olds agree to the items with the median score 25, the 12- 14 year olds with 24, and 15-16 year olds with 23. Girls agree with the items with the median score of 23 out of 28 and the boys with 25. 2-5 graders agree with the items with the median score of 25, 6-8 graders with the median score of 24, and 9-11 graders agree with the items with the median score of 23. Students studying English less than five years agree with the median score of 25 and the ones more than five years with the median score 23,5. Students with CALL experience agree to with the median score of 25 and even the ones who do not have any CALL experience with the median score of 24. The only significant difference is between boys and girls with p 0,030.

4.2.3 Computer- assisted language learning

Table 5: Effectiveness of CALL vs. non-CALL

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	13,0 (9,00)	15,0 (4,00)	10,0 (7,00)	0,101
GENDER	**Female**	**Male**		**p[b]**
	13,0 (7,00)	14,0 (8,00)		0,210
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	13,5 (8,00)	15,0 (6,00)	10,0 (7,00)	0,067
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	13,0 (8,00)	12,5 (8,25)		0,787
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	13,0 (7,25)	15,5 (6,00)		0,044

a Kruskal Wallis test, b Mann Whitney Test

Items 10, 11, 12, 13 compare studying English via computers with traditional teaching situations in the absence of computers. It is crucial that the items are reversed so the lower scores indicate positive attitudes towards CALL. In other words, if the students have positive attitudes towards CALL, students should disagree with the items such as 'Learning a foreign language assisted by computer is not as good as oral practice.', 'Computer based language tests can never be as good as paper-and- pencil tests.', 'Computer- assisted language learning is less adequate as the traditional learning.', 'People who learn a language assisted by computer- assisted learning are less proficient than those who learn through traditional methods.'

Out of 28, the median scores between the ranges of 6.6-14.5 means the students disagree with the items and the ones between 14.6- 16.5 are neutral. For CALL vs. non-CALL, 8-11 year olds disagree to the items with the median score 13, and 15-16 year olds with 10 but the 12- 14 year olds with are neutral with the median score 15. Girls disagree with the items with the median score of 13 out of 28 and the boys with 14. 2-5 graders disagree with the items with the median score of 13,5 and 9-11 graders disagree with the items with the median score of 10. 6-8 graders are neutral with the median score of 15. Students studying English less than five years agree with the items with the median score of 13 and the ones more than five years with the median score 12,5. Students with CALL experience agree to the items with the median score of 13 and the ones who do not have any CALL experience with the median score of 15,5. The only

significant difference is between the students with CALL experience and the ones who do not with p 0,044. There are not any significant differences for the other variables.

Table 6: CALL

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	34,0 (11,25)	29,0 (12,50)	28,0 (13,00)	0,024
GENDER	**Female**	**Male**		**p[b]**
	31,0 (13,00)	34,0 (11,00)		0,146
GRADE	**2-5**	**6-8**	**9-11**	**P[a]**
	33,0 (11,50)	31,0 (11,50)	27,0 (13,50)	0,045
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	33,0 (11,00)	27,0 (13,00)		0,016
CALL EXPERIENCE	**Yes**	**No**		**P[b]**
	35,0 (12,00)	30,0 (12,0)		0,008

a Kruskal Wallis test, b Mann Whitney Test

Out of 49, the median scores between 24.6- 31.5 indicate that students are neutral to the items about CALL and the scores between 31.6- 45.5 indicate that they agree with CALL items. 8-11 year olds agree to the items with the median score 34, however the 12- 14 year olds and 15-16 year olds are neutral with the median scores 29 and 28. Girls are neutral to the items with the median score of 31 and the boys agree with them with the score of 34. 2-5 graders agree with the items with the median score of 33. 6-8 graders are neutral with the median score of 31, and 9-11 graders with the median score of 27. Students studying English less than five years agree with the items with the median score of 33 and the ones more than five years are neutral with the median score 27. Students with CALL experience agree to the items with the median score of 35 and the ones who do not have any CALL experience are neutral with the

median score of 30. There are significant differences for the variables of age (p 0,024), grade (p 0,045), years studying English (p 0,016), and CALL experience (p 0,008).

For item 20, 'I would like to learn foreign language by computer', detailed analyses is conducted to see the percentages of participants responses to the statement and the median scores according to their age, years of studying English and CALL experience.

Table 7: Percentages of item 20

		Options							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**No answer**
Item 20	N	8	8	9	18	18	28	31	-
	%	6,7	6,7	7,5	15,0	15,0	23,3	25,8	-

According to Table 7, 20, 9 % of the students disagree that they would like to learn foreign language by a computer, 15 % of them are neutral and 64.1 % of them would like to learn English by a computer.

Table 8: Median scores of the item 20 according to age

	8-11	**12-14**	**15-16**	**p[a]**
Item 20	6,0 (3,0)	5,0 (3,25)	4,5 (3,0)	0,198

Table 9: Median scores of the item 20 according to years of studying English

	≤5 Years	**>5 Years**	**p[a]**
Item 20	6,0 (3,0)	4,5 (3,25)	0,055

Table 10: Median scores of the item 20 according to CALL experience

	yes	**No**	**p[a]**
Item 20	6,0 (3,0)	5,0 (3,5)	0,019

For Tables 8, 9 and 10, the younger the students are, the more they would like to study foreign language by a computer. The students studying English less than five years would like to learn foreign language more than the ones studying English more than five years. Both the learners with CALL experience and without CALL experience would like to learn foreign language by a computer, however, students with CALL experience have more positive attitudes to CALL than the ones who do not. The only significant difference is between the learners who have CALL experience and the students who do not.

Table 11: Feedback

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	11,0 (4,00)	10,0 (4,00)	9,0 (4,75)	<0,001
GENDER	**Female**	**Male**		**p[b]**
	9,0 (5,00)	11,0 (4,00)		0,051
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	11,0 (4,25)	10,0 (2,00)	9,0 (4,50)	<0,001
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	11,0 (4,25)	9,0 (4,75)		<0,001
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	11,0 (3,00)	9,0 (5,00)		0,037

a Kruskal Wallis test, b Mann Whitney Test

Out of 14, the median scores between the ranges of 9.1 - 13 indicate that students agree with the statements that feedback provided by the computers is clear and it gives them enough information on where they went wrong and the students whose scores are between 7. 1- 9 are neutral.

8-11 year olds agree with the items with the median score 11, the 12- 14 year olds with 10, and 15-16 year olds are neutral with 9. Girls are neutral to items with the median score of 9 and the boys agree with them with 11. 2-5 graders and 6-8 graders agree with the items with the median score of 11 and 10. 9-11 graders are neutral to the items with the median score of 9. Students studying English less than five years agree with the items with the median score of 11 and the ones more than five years are neutral with the median score 9. Students with CALL experience agree to the items with the median score of 11 and the ones who do not have any CALL experience are neutral with the median score of 9. The only significant difference is between boys and girls with p 0,030. There are not any significant differences for the other variables.

Table 11 suggests that all of the results show significant differences except from the difference between boys and girls (p 0.051). There are significant differences for the variables of age (p 0,001), grade (p 0,001), years studying English (p 0,001), and CALL experience (p 0,037).

8-11 and 12-14 year olds who go to 2-5 and 6-8 grades believe the feedback provided by the computers is clear and gives the learners enough information about where they went wrong. Students who have studied English less than five years and students who have CALL experience have positive attitudes towards CALL.

Table 12: Skills

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	29,0(13,00)	31,0(15,00)	27,0(15,75)	0,649
GENDER	**Female**	**Male**		**p[b]**
	29,0(13,50)	28,0(13,50)		0,607
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	28,5(13,50)	31,0 (8,00)	27,0(16,00)	0,803
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	29,5(12,25)	26,0(16,25)		0,538
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	30,5(11,25)	25,0(14,75)		0,022

a Kruskal Wallis test, b Mann Whitney Test

Items 23-28 are a set of statements that requested students' ideas about how they perceive the role of CALL in developing language skills. Out of 42, the median scores between the ranges of 27.1-39 indicate that students agree CALL develops the language skills, grammar and vocabulary and the students whose scores are between 7. 21.1-27 are neutral.

8-11 year olds agree with the items with the median score 29, the 12- 14 year olds with 31, and 15-16 year olds are neutral with 27. Girls agree with items with the median score of 29 and the boys with 28. 2-5 graders agree with the items with the median score of 28,5 and 6-8 graders with 31,0. 9-11 graders are neutral to the items with the median score of 27. Students studying English less than five years agree with the items with the median score of 29,5 and the ones more than five years are neutral with the median score 26. Students with CALL experience agree to the items with the median score of 30,5 and the ones who do not have any CALL experience are neutral

with the median score of 25. The only significant difference is between the students who have CALL experience and who do not with p 0,022. There are not any significant differences for the other variables.

Table 13: Percentages of the items 23-28

Items		**Options**							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**No answer**
Item 23 (reading)	n	11	8	13	18	25	25	20	-
	%	9,2	6,7	10,8	15,0	20,8	20,8	16,7	-
Item 24 (listening)	n	8	3	11	21	19	23	34	1
	%	6,7	2,5	9,2	17,5	15,8	19,2	28,3	0,8
Item 25 (writing)	n	29	9	12	19	21	16	13	1
	%	24,2	7,5	10,0	15,8	17,5	13,3	10,8	0,8
Item 26 (speaking)	n	17	7	10	16	21	23	23	3
	%	14,2	5,8	8,3	13,3	17,5	19,2	19,2	2,5
Item 27 (grammar)	n	6	9	10	18	15	28	26	8
	%	5,0	7,5	8,3	15,0	12,5	23,3	21,7	6,7
Item 28 (vocabulary)	n	1	3	10	15	24	31	31	5
	%	0,8	2,5	8,3	12,5	20,0	25,8	25,8	4,2

In detailed statistical analysis, 58.3 % of the students think CALL develops their reading skills, 15 % of them are neutral, and 26.7 % does not agree. It seems that students think CALL provides the most benefit for listening. 63 % of them agree CALL develops their listening skills, 17.5 % is neutral, and 18.4 % of them disagree. On the other hand, the results imply that according to the students, CALL is the least helpful in improving writing. 41.6 % of them agree that CALL develops writing, 19 % are neutral

where 41.7 % of does not believe CALL improves their writing. For speaking, 55.9 % think it enhances speaking, 13.3 % are neutral, and 28.3 % disagree. 57.5 % of the students reflect CALL develops their grammar knowledge, 15 % are neutral, and 20.8 % does not think CALL improves grammar. However, 71.6 % of the learners have confidence in CALL to develop their vocabulary, 12.5 % are neutral, and only 11.6 % of them disagree.

Table 14: Median scores of the items 23-28 according to age

	8-11	**12-14**	**15-16**	**p[a]**
Item23 (reading)	5,0 (2,0)	4,5 (4,25)	5,0 (3,0)	0,977
Item24 (listening)	5,0 (3,0)	5,0 (5,0)	6,0 (3,0)	0,747
Item 25 (writing)	4,0 (4,5)	3,5 (4,0)	4,0 (2,0)	0,885
Item 26 (speaking)	6,0 (3,0)	4,0 (4,0)	4,0 (4,0)	0,020
Item27 (grammar)	6,0 (3,0)	5,0 (3,5)	5,0 (3,0)	0,431
Item28 (vocabulary)	6,0 (3,0)	5,5 (2,25)	6,0 (2,25)	0,911

According to Table 14, 8-11 year olds and 15-16 year olds agree that CALL develops their reading skill but 12-14 year olds are neutral. All the students agree that CALL develops their listening skills and all the students are neutral that CALL develops their writing skill. For item 26, 8-11 year olds agree that CALL develops their speaking skill, however 12-14 and 15-16 year olds are neutral. All the students agree that CALL develops their grammar and vocabulary.

Table 15: Median scores of the items 23-28 according to years of studying English

	≤5 Years	**>5 Years**	**p[a]**
Item 23 (reading)	5,0 (2,0)	5,0 (3,0)	0,872
Item 24 (listening)	5,0 (3,0)	5,5 (3,0)	0,790
Item 25 (writing)	4,0 (5,0)	4,0 (3,25)	0,737
Item 26 (speaking)	5,0 (3,0)	4,0 (3,25)	0,089
Item 27 (grammar)	6,0 (3,0)	5,0 (3,0)	0,220
Item 28 (vocabulary)	6,0 (2,0)	6,0 (2,5)	0,696

According to Table 15, for items 23 and 24 both the students studying English less and more than five years agree that CALL develops their reading and listening skills, grammar and vocabulary knowledge. They are both neutral that CALL develops their writing skill. When the students studying English less than five years think CALL develops their speaking skill, students studying English more than five years are neutral.

Table 16: Median scores of the items 23-28 according to CALL experience

	yes	**No**	**p[a]**
Item 23 (reading)	6,0 (3,0)	5,0 (3,5)	0,019
Item 24 (listening)	5,0 (2,0)	4,0 (3,0)	0,051
Item 25 (writing)	6,0 (2,75)	4,0 (3,0)	0,004
Item 26 (speaking)	4,0 (4,0)	4,0 (3,5)	0,979
Item 27 (grammar)	5,0 (2,75)	4,0 (3,5)	0,049
Item 28 (vocabulary)	6,0 (2,75)	5,0 (3,5)	0,198

Both students who have CALL experience and who do not agree that CALL develops their reading skills and vocabulary knowledge. While the students who have CALL experience think CALL develops their listening and writing skills and grammar

knowledge, students who do not have CALL experience are neutral. Both of them are neutral to the item 26 that states CALL develops speaking skills.

Table 17: Teacher Influence in CALL

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	16,0 (5,00)	15,0 (7,00)	13,5 (6,75)	0,083
GENDER	**Female**	**Male**		**p[b]**
	15,0 (7,00)	16,0 (6,00)		0,342
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	16,0 (6,00)	15,0 (5,00)	13,0 (8,50)	0,083
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	16,0 (5,00)	12,0 (5,75)		0,006
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	16,0 (5,00)	14,5 (9,00)		0,153

a Kruskal Wallis test, b Mann Whitney Test

Items 29-31 investigate students' attitudes towards teachers' influence in CALL. Out of 21, the median scores between the ranges of 13.6-19.5 indicate that students agree with the statements that teachers' attitude, enthusiasm, and proficiency related to computers and CALL define their attitude. The students whose scores are between 10.6-13.5 are neutral to the items.

8-11 year olds agree with the median score 16, 12- 14 year olds with 15, and 15-16 year olds are neutral with median score 13,5. Girls agree with the median score of 15 and the boys with the median score 16. 2-5 graders and 6-8 graders agree with the median score of 16 and 15. 9-11 graders are neutral to the items with the median score of 13. Students studying English less than five years agree with the items with the median score of 16 and the ones more than five years are neutral with the median score

of 12. Students with CALL experience agree items with the median score of 16 and the ones who do not have any CALL experience with the median score of 14,5. The only significant difference is between students who have less than five years of studying English and more with p 0,006. There are not any significant differences for the other variables.

Table 18: Percentages of the items 11, 32, and 33

Items		**Options**							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**No answer**
Item 11	N	28	22	9	30	11	9	11	-
	%	23,3	18,3	7,5	25,0	9,2	7,5	9,2	-
Item 32	N	5	8	13	23	20	26	20	5
	%	4,2	6,7	10,8	19,2	16,7	21,7	16,7	4,2
Item 33	N	2	4	10	19	21	31	26	7
	%	1,7	3,3	8,3	15,8	17,5	25,8	21,7	5,8

Items 11, 32, and 33 in section three were addressed to students to evaluate their perception about computerized testing and exercises. 49.1 % of the students disagree that computer based language tests can never be as good as paper-and- pencil tests. 25 % of the students are neutral and 29.9 of them agree that the computerized language tests can never be as good as paper and pencil tests. For the item 32, 55.1 % of them claims that they have faith in computer-based tests, 19.2 % are neutral, and 21.7 % of the participants do not have faith in computer based tests. However, the results for 33 demonstrate that 65 % of the students claim to have faith in computer- based exercises,

15. 8 % are neutral, and only 13.3 % of them disagree that they have faith in computer-based exercises.

Table 19: Median Scores of items 11, 32, and 33 according to age

	8-11	**12-14**	**15-16**	**p[a]**
Item 11	3,0 (4,0)	4,0 (4,0)	3,0 (2,0)	0,200
Item 32	6,0 (3,0)	4,5 (3,0)	5,0 (1,25)	0,197
Item 33	6,0 (2,0)[c,d]	5,0 (2,0)[c]	5,0 (2,00)[d]	0,036

For item 11, 8- 11 and 15-16 year olds disagree with the statement that computer based language tests can never be as good as paper-and- pencil tests, whereas 12- 14 year olds are neutral. 8-12 and 15-16 year olds agree with item 32 that they have faith in computer based tests but 12-14 year olds are neutral. For 33, all the students agree that they have faith in computer based exercises. For item 33, there is a significant difference between the age groups of 8-11 and 12-14 and 8-11 and 15-16.

Table 20: Analyses of some items 11, 32, 33 according to years studying English

	≤5 Yıl	**>5 Yıl**	**p[a]**
Item 11	3,0 (4,0)	4,0 (2,25)	0,762
Item 32	5,0 (2,0)	4,5 (2,25)	0,116
Item 33	6,0 (3,0)	5,0 (1,25)	0,021

For item 11, students who have less than five years of studying English disagree that computer- based language tests can never be as good as paper-and- pencil tests and students studying English more than five years are neutral. Students studying English less than five years have faith in both computer based tests and exercises. Although

students studying English more than five years have faith in computer based exercises, they do not believe in computer based tests. The difference between the students for the item 33 is significant.

Table 21: Analyses of items 11, 32, and 33 according to CALL experience

	yes	**no**	**p[a]**
Item 11	3,0 (3,0)	4,0 (4,5)	0,576
Item 32	5,0 (2,0)	5,0 (3,0)	0,519
Item 33	6,0 (2,0)	5,0 (2,0)	0,075

Students who have CALL experience disagree that that computer based language tests can never be as good as paper-and- pencil tests and the ones who lack CALL experience are neutral. Both the students with and without CALL experience have faith in computer- based tests and exercises.

Table 22: Degree of exhibition to CALL

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	16,0 (5,00)	15,0 (7,00)	13,5 (6,75)	0,083
GENDER	**Female**	**Male**		**p[b]**
	14,0 (6,00)	15,0 (5,00)		0,253
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	15,0 (5,25)	13,0 (9,00)	14,0 (4,00)	0,355
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	15,0 (5,00)	12,5 (4,75)		0,023
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	15,0 (5,25)	15,0 (6,00)		0,727

a Kruskal Wallis test, b Mann Whitney Test

Items 34-36 evaluate how students feel when they exhibit their language performance. Out of 21, the median scores between the ranges of 13.6- 19.5 indicate that students agree with the statements that that they feel less inhibited when communicating in the foreign language via computer than in face- to- face situation and in a face- to- face situation, supposedly in the classroom, they often feel anxiety when speaking in the foreign language. For them, it takes longer to start a face to face conversation than a virtual conversation. The students whose scores are between 10.6-13.5 are neutral to the items.

8-11 year olds agree with the median score 16, the 12- 14 year olds with 15, and 15-16 year olds are neutral with median score 13,5. Girls agree with the median score of 14 and the boys with the median score 15. 2-5 graders agree with the median score of 15 and 9-11 graders with the median score of 14. 6-8 graders are neutral with the median score 13. Students studying English less than five years agree with the median score of 15 and the ones more than five years are neutral with the median score 12,5. Both the students with CALL experience and the ones who do not have any CALL experience agree with the items with the median scores of 15. The only significant difference is between students who have less than five years of studying English and more with p 0,023. There are not any significant differences for the other variables.

4.2.4 Foreign Language Learning

Table 23: Cognitions

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	29,0 (9,00)	24,0(13,00)	22,5 (7,75)	0,034
GENDER	**Female**	**Male**		**p[b]**
	28,0(10,00)	26,0(11,50)		0,620
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	29,5 (9,00)	24,0(16,00)	22,0 (7,50)	0,018
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	28,0(11,00)	22,0 (6,50)		0,028
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	29,5(10,00)	22,0 (9,75)		0,001

a Kruskal Wallis test, b Mann Whitney Test

Out of 35, the median scores between the ranges of 22.6- 32.5 indicate that students agree with the statements that they are efficient and successful in language learning. They also think they are fast learners and have an innate capacity and special ability to learn a language. The students whose scores are between 17.6- 22.5 are neutral to the items.

8-11 year olds agree with the median score 29, the 12- 14 year olds with 24, and 15-16 year olds are neutral with median score 22,5. Girls agree with the median score of 28 and the boys with the median score 26. 2-5 graders agree with the median score of 29,5 and 9-11 graders with the median score of 24. 6-8 graders are neutral with the median score 22. Students studying English less than five years agree with the median score of 28 and the ones more than five years are neutral with the median score 22. The students with CALL experience agree with the items with the median scores of 29,5 and

the ones who do not have any CALL experience are neutral with median score of 22. There are significant differences among students' grades with p 0,018, between the students who have less than five years of studying English and more with p 0,028 and between the students who have CALL experience and who do not with p 0,001. There are not any significant differences for the other variables.

Table 24: Extrinsic motivation

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	7,0 (8,00)	6,0 (9,00)	7,5 (7,25)	0,797
GENDER	**Female**	**Male**		**p[b]**
	5,0 (6,00)	8,0 (9,50)		0,012
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	6,5 (8,00)	6,0 (9,00)	8,0 (7,50)	0,594
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	6,0 (9,00)	7,5 (7,00)		0,756
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	6,0(9,25)	7,0 (6,00)		0,755

a Kruskal Wallis test, b Mann Whitney Test

Out of 21, the median scores between the ranges of 4.6- 10.5 indicate that students disagree with the statements that that they only learn a foreign language to succeed or to obtain a diploma, if they were not obliged to learn another language, they would not learn one and they do not like learning a foreign language. The students whose scores are between 10.6- 13.5 are neutral to the items.

8-11 year olds disagree with the median score 7, the 12- 14 year olds with 6, and 15-16 year olds with median score 7,5. Girls disagree with the median score of 5 and the boys with the median score 8. 2-5 graders agree with the median score of 6,5, 6-8

graders with the median score 6,0, and 9-11 graders with the median score of 8. Students studying English less than five years agree with the median score of 6 and the ones more than five years are disagree with the median score 7,5. Both the students with CALL experience and the ones who do not have any CALL experience disagree with the items with the median scores of 6 and 7. The only significant difference is between boys and girls with p 0,012. Girls are less extrinsically motivated than boys. There are not any significant differences for the other variables.

Table 25: Intrinsic motivation

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	40,0 (9,00)	41,0(13,00)	39,5(10,75)	0,585
GENDER	**Female**	**Male**		**p[b]**
	41,0 (9,00)	40,0 (9,50)		0,646
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	41,0 (8,50)	37,0(11,00)	39,0(11,00)	0,211
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	41,0 (8,00)	36,5(13,00)		0,064
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	41,0 (7,00)	39,0(12,75)		0,420

a Kruskal Wallis test, b Mann Whitney Test

As the results for intrinsic motivation state, the students have remarkably high rates and they are all strongly motivated. Out of 42, the group of students whose median scores are between the ranges of 27.1-39 indicate that students intrinsically motivated. The median scores between the ranges of 39.1- 42 show that they are strongly motivated.

8-11 year olds agree with the statements about intrinsic motivation with the median score 40, the 12- 14 year olds with 41, and 15-16 year olds with median score 39,5. Both the girls and boys strongly agree with the median score of 41 and 40. 2-5 graders agree with the median score of 41, 6-8 graders with the median score 37, and 9-11 graders with the median score of 39. Students studying English less than five years agree with the median score of 41 and the ones more than five years with the median score 36,5. Both the students with CALL experience and the ones who do not have any CALL experience agree with the items with the median scores of 41 and 39. There are not significant differences between the variables.

Table 26: Teacher Influence in FLL

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	18,0 (7,00)	18,0 (9,00)	16,5 (6,00)	0,374
GENDER	**Female**	**Male**		**p[b]**
	18,0 (6,00)	17,0 (8,00)		0,341
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	18,0 (7,25)	18,0 (6,00)	16,0 (6,00)	0,445
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	18,0 (7,25)	16,0 (6,00)		0,426
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	18,0 (6,00)	16,5 (9,00)		0,314

a Kruskal Wallis test, b Mann Whitney Test

According to Table 26 all the students agree that their teachers' attitude, language proficiency, and enthusiasm influence their attitude as their median scores are between the ranges of 13.6-19.5. Items 52-54 investigate students' attitudes towards teachers' influence in FLL. Out of 21, the median scores between the ranges of 13.6-

19.5 indicate that students agree that teachers' attitude, enthusiasm, and proficiency related to language and language teaching defines their attitude.

8-11 year olds and the 12- 14 year olds have the same median scores. They agree with the items with the median score of 18, and 15-16 year olds with median score 16,5. Girls agree with the median score of 18 and the boys with the median score 17. 2-5 graders and 6-8 graders agree with the median score of 18. 9-11 graders agree with the median score of 16. Students studying English less than five years agree with the items with the median score of and also the ones more than five years with the median score 16. Students with CALL experience agree with the items with the median score of 18 and the ones who do not have any CALL experience with the median score of 16,5. There are no significant differences in terms of age, gender, and language or CALL experience.

Table 27: Inhibition

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	8,0 (4,00)	10,0 (5,00)	7,5 (4,00)	0,223
GENDER	**Female**	**Male**		**p[b]**
	9,0 (4,00)	8,0 (4,00)		0,090
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	8,0 (4,00)	11,0 (5,00)	8,0 (4,50)	0,242
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	8,5 (4,00)	7,5 (3,75)		0,061
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	8,5 (4,25)	8,0 (3,00)		0,423

a Kruskal Wallis test, b Mann Whitney Test

Out of 14, the median scores between the ranges of 9.1 - 13 indicate that students agree with the items 55 and 56 and the students whose scores are between 7. 1-9 are neutral. With the median score 10, the 12- 14 year olds with agree that they are afraid people will laugh at them when I say things wrong and they feel some degree of resistance before starting to speak in the foreign language. 8-11 year olds and 15- 16 year olds are neutral with the median score 8 and 7,5.

Both the girls and the boys are neutral with the median scores of 9 and 8. 2-5 graders and 9-11 graders are neutral with the median scores of 8 and 6-8 graders agree with the median score of 11. Students studying English less than five years and the ones more than five years are neutral with the median score 8,5 and 7,5. Students with and without CALL are neutral with the median score of 8,5 and 8. There are not any significant differences for the variables.

Table 28: Exhibition

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	20,0 (4,00)	20,0 (4,00)	17,0(3,75)	0,006
GENDER	**Female**	**Male**		**p[b]**
	20,0 (3,00)	18,0 (4,00)		0,157
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	20,0 (3,25)	20,0 (4,00)	17,0 (4,00)	<0,001
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[b]**
	20,0 (4,00)	17,0 (4,75)		0,006
CALL EXPERIENCE	**Yes**	**No**		**p[b]**
	20,0 (4,00)	19,0 (5,75)		0,531

a Kruskal Wallis test, b Mann Whitney Test

According to Table 28 all the students agree that they try to understand people when they are talking in a foreign language. They love learning new things. They think that talking in the language they learn is very important in learning it. Out of 21,

students' median scores between the ranges of 13.6-19.5 agree with the items 57-59 investigate students' attitudes towards teachers' influence in FLL. Students' median scores between the ranges of 19.6- 21 strongly agree.

8-11 year olds and the 12- 14 year olds have the same median scores of 20 and they strongly agree with the items about exhibition. 15-16 year olds agree with median score 17. When girls strongly agree with these items with the median score of 20, the boys agree with the median score 18. 2-5 graders and 6-8 graders agree with the median score of 20 and 9-11 graders with the median score of 17. Students studying English less than five years strongly agree with the items with the median score of 20 and the ones more than five years with the median score 17. Students with CALL experience strongly agree with the items with the median score of 20 and the ones who do not have any CALL experience agree with the median score of 19. There are significant differences in terms of age (p 0,006), grade (p 0,001), and years studying English (p 0,006).

Table 29: Tolerance of ambiguity

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	16,0 (7,00)	16,0 (5,00)	13,0 (6,75)	0,030
GENDER	**Female**	**Male**		**p[a]**
	16,0 (6,50)	15,0 (6,00)		0,457
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	16,0 (7,00)	13,0 (9,00)	14,0 (6,50)	0,025
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[a]**
	16,0 (6,00)	14,0 (5,75)		0,203
CALL EXPERIENCE	**Yes**	**No**		**p[a]**
	16,0 (6,00)	14,5 (6,00)		0,391

a Kruskal Wallis test, b Mann Whitney Test

Out of 21, students' median scores between the ranges of 13.6-19.5 agree that, for pleasure, they often have conversations in a foreign language. They love an intensive use of another language (at work, at school) and they don't mind switching to another language. Students' median scores between the ranges of 10.6-13.5 are neutral.

8-11 year olds and the 12- 14 year olds have the same median scores of 16 and they agree with the items about 60-62. 15-16 year olds are neutral with median score 13. Both the girls and boys agree with these items with the median scores of 16 and 15. 2-5 graders agree with the median score of 16 and 9-11 graders with the median score of 14. 6-8 graders are neutral with the median score of 13. Students studying English less than five years strongly agree with the items with the median score of 20 16 and the ones more than five years with the median score 14. Students with CALL experience agree with the items with the median score of 16 and the ones who do not have any CALL experience agree with the median score of 14,5. The only significant differences are among the grades with p 0,025.

Table 30: Learning Effort

AGE	**8-11**	**12-14**	**15-16**	**p[a]**
	17,0(12,00)	18,0(13,00)	19,5(10,75)	0,203
GENDER	**Female**	**Male**		**p[a]**
	17,0(13,50)	18,0 (9,00)		0,340
GRADE	**2-5**	**6-8**	**9-11**	**p[a]**
	16,0 (7,00)	18,0(14,00)	19,0 (9,50)	0,025
YEARS STUDYING ENGLISH	**≥ 5 Years**	**< 5 Years**		**p[a]**
	17,0(12,00)	18,5 (8,00)		0,812
CALL EXPERIENCE	**Yes**	**No**		**p[a]**
	17,5(13,25)	18,5 (7,75)		0,750

a Kruskal Wallis test, b Mann Whitney Test

Out of 35, most of the students whose median score are between the ranges of 7.6-17.5 disagree with the items 63-67 that are about the learning effort. None of the group of students agrees that they feel frustrated when the learning effort increases and they declare that they actually do not lose their pleasure when the learning effort increases. The students whose scores are between 17.6- 22.5 are neutral to the items.

8-11 year olds disagree with the median score 17. The 12- 14 and 15-16 year olds are neutral with median scores of 18 and 19,5. The girls disagree with the median scores of 17 and boys are neutral with 18. 2-5 graders disagree with the median score 16. The 12- 14 and 15-16 year olds are neutral with median scores of 18 and 19. Students studying English less than five years disagree with the median score of 17 and the ones more than five years are neutral with the median score 18,5. The students with CALL experience disagree with the items with the median scores of 17,5 and the ones who do not have any CALL experience are neutral with median score of 18,5. There are significant differences among the groups of students in different grades.

4.2.5 Relationships among the Categories

The detailed results of the correlation analysis are presented in Table 31. R value stands for the correlation co-efficient. On the other hand, p is essentially a probability value indicating whether or not the correlation in question is significant. In statistical analysis, p value is often taken into account in the first place. If p value is found to be smaller than 0,05 then it could be argued that there is a statistically meaningful relationship between the two categories.

In the next stage, the researcher determines the direction of the relationship between the categories concerned by looking at the signs of the co-efficient value. If the co-efficient value has a negative (-) sign, this means that there is a negative correlation between the two categories. In negative correlation as the values of one of the categories increase, the values of the second variable decrease and vice versa. On the other hand, if the co-efficient value has a positive sign, this means that there is a positive correlation between the two categories concerned. In positive correlation, as the values of one of the category increase, the other increases also. In positive correlation, the more a value gets closer to 1000,the stronger the relationship becomes. The same rule applies to negative correlation also but in that case, -1000 is taken as the reference value.

The correlations for the whole sample (n=120) can be found Table 31 below. As it can be seen, many coefficients are significant. There are a total of fifty-five coefficients, which are all highlighted. Among them, four are negative correlations.

Table 31: Table of Correlations

		Computer integration	Effectiveness of CALL vs. non-CALL	CALL	Feedback	Skills-grammar- vocabulary	Teacher influence in CALL	Degree of exhibition to CALL	Cognitions	Extrinsic motivation	Intrinsic Motivation	Teacher influence in FLL	Inhibition	Exhibition	Tolerance of Ambiguity	Learning effort
Computer Proficiency	r	0,460	-0,021	0,590	0,423	0,357	0,290	0,061	0,309	-0,049	0,086	0,262	0,005	0,058	0,109	-0,127
	p	<0,001	0,818	<0,001	<0,001	<0,001	<0,002	0,512	<0,001	0,600	0,363	<0,006	0,955	0,544	0,251	0,179
Computer Integration	r		0,028	0,456	0,436	0,149	0,327	0,137	0,162	-0,020	0,268	0,289	-0,040	0,150	0,230	-0,193
	p		0,761	<0,001	<0,001	0,104	<0,001	0,142	0,082	0,834	<0,004	<0,002	0,674	0,113	<0,014	<0,040
Effectiveness of CALL vs. non-CALL	r			-0,009	0,024	-0,020	-0,072	-0,155	-0,209	0,054	-0,075	-0,122	-0,015	-0,125	-0,094	-0,039
	p			0,927	0,799	0,829	0,440	0,097	<0,024	0,569	0,426	0,202	0,874	0,187	0,320	0,679
CALL	r				0,586	0,576	0,455	0,336	0,166	0,081	0,050	0,389	0,123	0,048	0,161	-0,150
	p				<0,001	<0,001	<0,001	<0,001	0,074	0,390	0,599	<0,001	0,196	0,616	0,089	0,112
Feedback	r					0,520	0,475	0,257	0,284	-0,018	0,189	0,268	0,034	0,243	0,082	-0,104
	p					<0,001	<0,001	<0,005	<0,002	0,849	<0,044	<0,004	0,722	<0,010	0,389	0,272
Skills-grammar-vocabulary	r						0,410	0,365	0,239	0,022	0,148	0,278	0,083	0,044	0,074	-0,031
	p						<0,001	<0,001	0,010	0,816	0,117	0,003	0,384	0,641	0,434	0,741
Teacher influence in CALL	r							0,309	0,191	0,116	0,282	0,360	0,173	0,145	0,212	0,126
	p							<0,001	<0,040	0,221	<0,003	<0,001	0,068	0,126	<0,025	0,187
Degree of exhibition to CALL	r								0,010	0,194	0,199	0,087	0,241	0,012	-0,033	0,147
	p								0,917	<0,039	<0,035	0,365	<0,010	0,898	0,730	0,121
Cognitions	r									-0,181	0,330	0,300	0,034	0,323	0,365	-0,168
	p									0,054	<0,001	<0,001	0,720	<0,001	<0,001	0,077
Extrinsic Motivation	r										-0,079	-0,207	0,214	-0,448	-0,159	0,506
	p										0,404	<0,030	<0,023	<0,001	0,092	<0,001

		Computer integration	Effectiveness of CALL vs. non-CALL	CALL	Feedback	Skills sub skills	Teacher influence	Degree of exhibition to CALL	Cognitions	Extrinsic motivation	Intrinsic Motivation	Teacher influence	Inhibition	Exhibition	Tolerance of Ambiguity	Learning effort
Intrinsic motivation	r											0,414	0,033	0,305	0,328	0,097
	p											<0,001	0,729	<0,001	<0,001	0,309
Teacher Influence in FLL	r												0,062	0,481	0,452	-0,294
	p												0,516	<0,001	<0,001	0,002
Inhibition	r													0,028	-0,021	0,219
	p													0,767	0,827	<0,020
Exhibition	r														0,399	-0,252
	p														<0,001	<0,007
Tolerance of Ambiguity	r															-0,066
	p															0,489

Items in the second section are about students' attitude towards computer-assisted learning (CAL). The items are grouped in two headings: computer proficiency and computer integration. There are significant correlations between computer proficiency and computer integration, CALL, feedback, skills-grammar-vocabulary, teacher influence in CALL, cognitions and teacher influence in FLL. For computer integration, differences are significant between computer integration and computer proficiency, CALL, feedback, teacher influence in CALL, intrinsic motivation, teacher influence in FLL, tolerance of ambiguity, and learning effort, which is a negative one.

Items in the third section are about students' attitude towards computer- assisted language learning (CALL). The items are grouped under the categories of CALL vs. non-CALL, CALL, feedback, skills-grammar-vocabulary, teacher influence in CALL, and degree of exhibition to CALL.

There is a significant correlation between CALL vs. non-CALL items and the group of items about cognitions in foreign language learning. The correlation is negative. In addition to that the differences between CALL and computer proficiency, computer integration, feedback, skills-grammar-vocabulary, teacher influence in CALL, degree of exhibition to CALL, and teacher influence in FLL. There are also significant correlations between feedback and computer proficiency, computer integration, CALL, skills-grammar-vocabulary, teacher influence in CALL, degree of exhibition to CALL, cognitions, intrinsic motivation, teacher influence in FLL, and exhibition. Items in the third section that are about skills-grammar-vocabulary are significantly correlated with

computer proficiency, CALL, feedback, teacher influence in CALL, degree of exhibition to CALL, cognitions, and teacher influence in FLL. There are significant correlations between teacher influence in CALL and computer proficiency, computer integration, CALL, feedback, skills-grammar-vocabulary, degree of exhibition to CALL, cognitions, and teacher influence in FLL. The significant differences can be seen between degree of exhibition to CALL and CALL, feedback, skills-grammar-vocabulary, and teacher influence.

Items in the fourth section are about students' attitude towards foreign language learning (FLL). The items are grouped under the categories of cognitions, extrinsic motivation, intrinsic motivation, teacher influence in FLL, inhibition, exhibition, tolerance of ambiguity, and learning effort.

There are significant correlations between cognitions and computer proficiency, effectiveness of CALL vs. non-CALL, which is a negative one, feedback, skills-grammar-vocabulary, teacher influence in CALL, intrinsic motivation, teacher influence in FLL, exhibition, and tolerance of ambiguity.

There is a significant difference between with extrinsic motivation and degree of exhibition to CALL. However, intrinsic motivation is significantly correlated with computer integration, feedback, teacher influence in FLL, degree of exhibition to CALL, and cognitions. There are correlations between teacher influence in FLL and computer proficiency, computer integration, CALL, feedback, skills-grammar-vocabulary, teacher influence in CALL, cognitions, extrinsic motivation, which is negative, and intrinsic motivation. Inhibition is only correlated with two heading that are degree of exhibition to CALL and extrinsic motivation. Exhibition is correlated with

feedback, cognitions, intrinsic motivation, teacher influence in FLL and it is negatively correlated with extrinsic motivation. There are significant correlations between tolerance of ambiguity and computer integration, teacher influence in FLL, cognitions, intrinsic motivation, teacher influence in FLL, and exhibition. Learning effort is correlated with computer integration, extrinsic motivation, and inhibition. There is a negative correlation between learning effort and exhibition.

4.3 Summary of findings

All the students agree that they are proficient in computers and they are integrated with them. There are significant differences between boys' and girls' answers. Students who have prior CALL experience seem more proficient than the students who do not.

The results suggest that students' age, grade, years of studying English, and CALL experience affects their attitude towards CALL. 8-11 year old students in 2-5 grades, students who study English less than five years and students with CALL experience have more positive attitudes towards CALL. 64 % of the participants agree that they would like to study foreign language by a computer. 71.6 % of the learners have confidence in CALL to develop their vocabulary.63 % of them agree CALL develops their listening skills. 58.3 % of the students think CALL develops their reading skills. 57.5 % of the students reflect CALL develops their grammar knowledge, 55.9 % think it enhances speaking. 41.6 % of them agree that CALL develops writing. 49.1 % of the students disagrees that computer based language tests can never be as good as

paper-and- pencil tests. 55.1 % of them claim that they have faith in computer-based tests and 65 % of the students claim to have faith in computer- based exercises.

For students' attitude towards foreign language learning, 8-11 year olds, 2-5 graders, students studying English less than five years, and students with CALL experience possess more positive attitudes towards foreign language learning in terms of cognitive component of motivation. All the students are intrinsically motivated but they are not extrinsically motivated much. Boys are a little bit more extrinsically motivated than girls. Although there are not any significant differences, all the students seem quite influenced by the teacher in CALL studies as well as in foreign language learning. Again, 8-11 year olds, 2-5 graders, and students studying English less than five years adopts more positive attitudes towards exhibiting foreign language. In addition to that, they can tolerate ambiguity in foreign language better.

The implications of the findings are discussed in the next chapter.

V. CONCLUSION

5.0 Introduction

CALL may be a brilliant supplementary tool for language education, however, undoubtly, there are some factors affecting CALL's efficiency or the prerequisites before implementing CALL into curricula. The users, especially the students', attitude defines whether the aims and goals can be achieved easily and adequately through computer- assisted language learning.

In this study the questionnaire adapted to investigate students attitudes are divided into four areas, background of the participants, attitude towards computer-assisted learning, attitude towards computer- assisted language learning, and attitude towards foreign language learning. The three of these areas except from background part are also divided into 16 subheadings. Each of them are analyzed though SPSS for Windows 11.5 in terms of participants' age, gender, grade, years of studying English, and their CALL experience or lack of it.

In this chapter, first, factors affecting students' attitudes towards CAL, CALL, and FLL and then the relationship among students' attitudes towards CAL, CALL, FLL are discussed.

For ease of use and practicality, participants' same median scores for all the categoriess in the questionnaire are demonstrated again in Tables 32, 33, 34, 35, 36, in the discussion part in terms of age, grade, gender, years of studying English, and their CALL experience.

5.1 Discussion of the Findings

Table 32: Age

Categories	8-11	12-14	15-16	p[a]
Computer proficiency	26,0 (8,00)	23,0 (12,00)	23,0 (4,75)	0,214
Computer integration	25,0 (4,00)	24,0 (7,00)	23,0 (4,50)	0,101
Effectiveness of CALL vs. non-CALL	13,0 (9,00)	15,0 (4,00)	10,0 (7,00)	0,101
CALL	34,0 (11,25)	29,0 (12,50)	28,0 (13,00)[b]	0,024
Feedback	11,0 (4,00)[c,d]	10,0 (4,00)[c]	9,0 (4,75)[d]	<0,001
Skills-grammar-vocabulary	29,0(13,00)	31,0 (15,00)	27,0 (15,75)	0,649
Teacher influence in CALL	16,0 (5,00)	15,0 (7,00)	13,5 (6,75)	0,083
Degree of exhibition to CALL	15,0 (6,00)	15,0 (7,00)	14,0 (3,75)	0,281
Cognitions	29,0 (9,00)[b]	24,0 (13,00)	22,5 (7,75)[b]	0,034
Extrinsic motivation	7,0 (8,00)	6,0 (9,00)	7,5 (7,25)	0,797
Intrinsic motivation	40,0 (9,00)	41,0 (13,00)	39,5 (10,75)	0,585
Teacher influence in FLL	18,0 (7,00)	18,0 (9,00)	16,5 (6,00)	0,374
Inhibition	8,0 (4,00)	10,0 (5,00)	7,5 (4,00)	0,223
Exhibition	20,0 (4,00)[b]	20,0 (4,00)	17,0 (3,75)[b]	0,006
Tolerance of Ambiguity	16,0 (7,00)[e]	16,0 (5,00)	13,0 (6,75)[e]	0,030
Learning effort	17,0 (12,00)	18,0 (13,00)	19,5 (10,75)	0,203

Table 33: Grade

Categories	2-5.Sınıf	6-8.Sınıf	9-11.Sınıf	p[a]
Computer proficiency	25,5 (8,50)	26,0 (7,00)	23,0 (5,00)	0,158
Computer integration	25,0 (5,00)	24,0 (7,00)	23,0 (4,00)	0,120
Effectiveness of CALL vs. non-CALL	13,5 (8,00)	15,0 (6,00)	10,0 (7,00)	0,067
CALL	33,0 (11,50)[b]	31,0 (11,50)	27,0 (13,50)[b]	0,045
Feedback	11,0 (4,25)[c]	10,0 (2,00)	9,0 (4,50)[c]	<0,001
Skills-grammar-vocabulary	28,5 (13,50)	31,0 (8,00)	27,0 (16,00)	0,803
Teacher influence in CALL	16,0 (6,00)	15,0 (5,00)	13,0 (8,50)	0,083
Degree of exhibition to CALL	15,0 (5,25)	13,0 (9,00)	14,0 (4,00)	0,355
Cognitions	29,5 (9,00)[b]	24,0 (16,00)	22,0 (7,50)[b]	0,018
Extrinsic motivation	6,5 (8,00)	6,0 (9,00)	8,0 (7,50)	0,594
Intrinsic motivation	41,0 (8,50)	37,0 (11,00)	39,0 (11,00)	0,211
Teacher influence in FLL	18,0 (7,25)	18,0 (6,00)	16,0 (6,00)	0,445
Inhibition	8,0 (4,00)	11,0 (5,00)	8,0 (4,50)	0,242
Exhibition	20,0 (3,25)[c,d]	20,0 (4,00)[d]	17,0 (4,00)[c]	<0,001
Tolerance of Ambiguity	16,0 (7,00)[d,e]	13,0 (9,00)[d]	14,0 (6,50)[e]	0,025
Learning effort	17,0 (11,25)	18,0 (14,00)	19,0 (9,50)	0,246

First, according to Tables 32 and 33, the significant differences among age and grade groups are parallel. Students' attitude towards CALL, feedback provided by computers, and their cognitions for foreign learning indicate that students' age and grade are factors affecting these areas. The results imply that younger students have more positive attitudes towards CALL. This may be due to the fact that younger students are more integrated with computers as they are engaged in computer-assisted language learning program Dyned. However, Dyned is a program for primary education

not high school. 15-16 year olds may not be well aware of CALL programs as young learners are. They also have a heavy burden on their shoulder since they are getting prepared for the university exam. Moreover, older students may be required to perform more complicated tasks on computers than young learners. Thus, they have less positive attitudes towards CALL.

About the feedback given by computers, although the students have positive attitude towards feedback, the results show significant differences among the age and grade groups. The difference between students' perception of feedback provided by computers is also significant indicating as the students get older, they have less faith in feedback. Older students may need more detailed, clear and guiding feedback. It may be related to the fact that when the students get older, their language level is higher and the computers and the artificial intelligence is not capable of answering complicated language questions or giving sufficient feedback for complex sentences or structures. The feedback provided is not satisfactory of older students who are also studying English more than five years.

High school students need more efficient CALL tools and feedback for their language acquisition. For elementary levels CALL tools provide feedback such as correct, incorrect, and well done. Nevertheless, it seems poor information for higher-level students. They would probably like to learn where exactly they went wrong in a more detailed way. Teachers should scrutinize the learners' need and adapt their materials according to students' mental maturity and language proficiency.

According to Krashen's I+1 theory the input should be challenging enough. If it is too easy, students get bored and if it is too difficult, students get frustrated. Thus,

mediocre challenge tasks would be helpful enhancing their language skills. There are also far more games and fun activities for young learners but unfortunately educators tend to neglect the idea that teenagers need to have fun and study language enjoyably.

Cognitive component is an important part of students' attitude and motivation. However, the significant difference between 8-11 and 15-16 year olds implies students in high school lose their interest in foreign language and faith in themselves. The reason may again be high school students' priorities are directed to other subjects as most of them do not need to take an English test in the university entrance exam.

Furthermore, results indicate significant differences about the categories of exhibition and tolerance of ambiguity for foreign language learning. Students in grade 2-5 have more positive attitudes in exhibiting their performance in foreign language than the students in grades 9-11. Although, all level students, even the ones who study English more than five years, feel some sort of anxiety and resistance.

The results suggest that younger learners are more enthusiastic about communicating in foreign language then the others. The reason for that may be secondary schools students feel more inhibited when speaking in that language related to puberty and they care too much about what others think. It becomes more important to integrate CMC tools with this age group. They can become more self- confidant if they can communicate via computers. Taking these results into consideration while preparing lesson plans may be of great importance in terms of students' language achievement. As mentioned earlier, high schools students have other priorities than English.

It is surprising that young learners in elementary school can tolerate ambiguity better than high school students. The young learners agree that they like intensive use of language in school and for pleasure they like speaking in English. They do not mind switching to another language. It may be a better idea to focus on speaking with teenagers than focusing on reading, grammar, vocabulary and course book- based activities. The reason may be the elementary schools students' proficiency is low enough to tolerate the unexpected shifts in language, however, for the others they need to be more proficient in language.

Table 34: Gender

Categories	**Girls**	**Boys**	**p[a]**
Computer proficiency	24,0 (7,50)	27,0 (8,50)	0,042
Computer integration	23,0 (6,50)	25,0 (4,00)	0,030
Effectiveness of CALL vs. non-CALL	13,0 (7,00)	14,0 (8,00)	0,210
CALL	31,0 (13,00)	34,0 (11,00)	0,146
Feedback	9,0 (5,00)	11,0 (4,00)	0,051
Skills-grammar-vocabulary	29,0 (13,50)	28,0 (13,50)	0,607
Teacher influence in CALL	15,0 (7,00)	16,0 (6,00)	0,342
Degree of exhibition to CALL	14,0 (6,00)	15,0 (5,00)	0,253
Cognitions	28,0 (10,00)	26,0 (11,50)	0,620
Extrinsic motivation	5,0 (6,00)	8,0 (9,50)	0,012
Intrinsic motivation	41,0 (9,00)	40,0 (9,50)	0,646
Teacher influence in FLL	18,0 (6,00)	17,0 (8,00)	0,341
Inhibition	9,0 (4,00)	8,0 (4,00)	0,090
Exhibition	20,0 (3,00)	18,0 (4,00)	0,157
Tolerance of Ambiguity	16,0 (6,50)	15,0 (6,00)	0,457
Learning effort	17,0 (13,50)	18,0 (9,00)	0,340

Table 34 demonstrates the gender factor in students' attitude towards computer-assisted learning, computer- assisted language learning, and foreign language learning. For both computer proficiency and computer integration, the results between the boys and girls revealed significant differences.

The study shows that boys like to discover new things on computers and they like to explore technological possibilities of computers. They like computers more, so they like to study and work with computers. They become more proficient and integrated.

According to the Time magazine, not only the biological differences but also socializations affects the attitudes of boys and girls towards language and computers. The significant differences for their attitudes towards computer proficiency, computer integration and feedback may be for biological structuring of their brains.

There is also the socialization factor (Yelloushan 1989; Henwood 1993; Kirk 1992). Families, media, even the teachers, consciously or not, take the same side with this misconception. According to DiMona, et al. (1994), boys are favored in commercials for technological devices because of studies conducted in masculine psychology and summarized as follows: When boys associate a product with the presence of girls, they lose their interest in buying this product because they think "it is for girls"(p. 489).

The brain of females and males function differently, thus, the layout and the feedback provided by computers should be satisfying for both females and males. First of all, women have stronger connections to amygdala, which is located deep in the brain and handles language and higher- level functions. Additionally, as mentioned in literature review, girls' brain parts that are responsible for language grow earlier. The girls may be in need of a more detailed feedback about their performance. Boys' mechanical reasoning and spatial reasoning grow earlier. Graphics, statistical, mathematical reasoning supported by visual aids might help boys better. It may also be

conveyed in colorful texture and animated way as studies on rats suggest that male retina has more cells designed to detect motion and female retina has more cells to gather information on color and texture, which is the same for human beings.

Table 35: Years studying English

Categories	≤5 Years	>5 Years	p[a]
Computer proficiency	25,5 (8,50)	23,5 (5,50)	0,136
Computer integration	25,0 (5,00)	23,5 (6,50)	0,091
Effectiveness of CALL vs. non-CALL	13,0 (8,00)	12,5 (8,25)	0,787
CALL	33,0 (11,00)	27,0 (13,00)	0,016
Feedback	11,0 (4,25)	9,0 (4,75)	<0,001
Skills sub skills	29,5 (12,25)	26,0 (16,25)	0,538
Teacher influence	16,0 (5,00)	12,0 (5,75)	0,006
Degree of exhibition to CALL	15,0 (5,00)	12,5 (4,75)	0,023
Cognitions	28,0 (11,00)	22,0 (6,50)	0,028
Extrinsic motivation	6,0 (9,00)	7,5 (7,00)	0,756
Intrinsic motivation	41,0 (8,00)	36,5 (13,00)	0,064
Teacher influence	18,0 (7,25)	16,0 (6,00)	0,426
Inhibition	8,5 (4,00)	7,5 (3,75)	0,061
Exhibition	20,0 (4,00)	17,0 (4,75)	0,006
Tolerance of Ambiguity	16,0 (6,00)	14,0 (5,75)	0,203
Learning effort	17,0 (12,00)	18,5 (8,00)	0,812

Table 35 shows students results listed according to years they have been studying English. The results of CALL, feedback and degree of exhibition imply that students studying English less than five years have more positive results. This may be related to the points discussed for age and gender above and also the students who have been studying English less than five years are familiar with concept of CALL through Dyned.

Students studying less than five years also have more positive attitudes towards the degree of exhibition to CALL. Therefore, the significant difference implies that it is

not only high school students but less experienced students in English may also be engaged in CMC tools as they feel less inhibited communicating via computers.

Again, like the results of exhibition according to age and grade, students studying English more than five years do not have as positive attitudes as students studying English less than five years. Turkish education system favors tests, so testable skills like grammar, reading, and vocabulary are the center of focus but not speaking. Thus, teachers in secondary schools need to find better ways to engage students in communication as they become less interested in speaking in foreign language.

It may be a great opportunity to utilize CMC tools to enhance speaking and overcome the students' barriers to speaking. Chatting and writing to blogs, video conferencing may be beneficial. It is no more the era of pen friends but students may have chat friends or at least messaging boards and blogs may result in class discussions.

Table 36: Experience in CALL

Categories	**Yes**	**no**	**p[a]**
Computer proficiency	26,0 (8,25)	23,0 (6,00)	0,020
Computer integration	25,0 (5,50)	24,0 (4,00)	0,465
Effectiveness of CALL vs. non-CALL	13,0 (7,25)	15,5 (6,00)	0,044
CALL	35,0 (12,00)	30,0 (12,0)	0,008
Feedback	11,0 (3,00)	9,0 (5,00)	0,037
Skills-grammar-vocabulary	30,5 (11,25)	25,0 (14,75)	0,022
Teacher influence in CALL	16,0 (5,00)	14,5 (9,00)	0,153
Degree of exhibition to CALL	15,0 (5,25)	15,0 (6,00)	0,727
Cognitions	29,5 (10,00)	22,0 (9,75)	<0,001
Extrinsic motivation	6,0 (9,25)	7,0 (6,00)	0,755
Intrinsic motivation	41,0 (7,00)	39,0 (12,75)	0,420
Teacher influence in FLL	18,0 (6,00)	16,5 (9,00)	0,314
Inhibition	8,5 (4,25)	8,0 (3,00)	0,423
Exhibition	20,0 (4,00)	19,0 (5,75)	0,531
Tolerance of Ambiguity	16,0 (6,00)	14,5 (6,00)	0,391
Learning effort	17,5 (13,25)	18,5 (7,75)	0,750

Table 36 compares the median scores of participants in terms of their CALL experience or lack of it. For computer proficiency, it is nothing but expected that the difference between the students with CALL experience and with no CALL experience is significant. When something is unknown it is likely to be avoided or scared of. But when they are proficient in computers they are more likely to have positive attitudes towards CALL and CALL may lead to higher motivation and so higher language acquisition. Therefore, if students have the opportunity to study via computers they can trust in computers and, in return, they can improve their language skills. It appears that CALL is not only a great opportunity to develop language skills but also their computer skills. It may be interpreted as CALL also develops learners' computer proficiency that may also be considered as a life skill for 21st century because Warschauer (2002) also mentioned the interrelated relationship between technology and language learning. Technology is a tool for language learning and language learning is a tool to access technology. Both technology and language proficiency are tools for realizing individual and societal development.

There are significant differences for the effects of CALL experience on the attitudes of students towards effectiveness of CALL vs. non-CALL, CALL, and skills-grammar-vocabulary. The significant difference for learners' results of CALL vs. non-CALL implies that students with CALL experience give more credit to CALL than the students who lack CALL experience. As the items for this category is in reversed form, lower scores show more positive attitudes. Experienced students in CALL have more positive attitudes towards CALL when compared to the students who have no CALL

experience. In addition, students who have studied English via computers have more faith in CALL that it can develop their language skills, grammar and vocabulary than the ones who have not. It is clear that the more they study English through computers, the more positive attitudes students adopt. Thus, more and more students should be introduced to CALL tools and programs. If they are given the chance to study via computers, students may achieve higher proficiency goals and also become more autonomous learners because they have the positive attitudes.

The significant difference related to students' cognitions indicate that students who have CALL experience also have higher cognitions than the students who have not CALL experience. It appears that CALL affects students' attitude towards language as well. Students studying English assisted by computers think they are more efficient, talented in language learning and they can learn faster than the others.

Although there are not any significant differences according to their age or grade, still, there is a slight decrease for almost each category of the questionnaire. Indeed, it is unexpected that there are not significant differences according to age for students' intrinsic and extrinsic motivation. This shows that students actually do not lose their motivation to foreign language learning but only to exhibiting the language, tolerating the ambiguity in a foreign language and also their motivation to use computers for language learning. Thus, they lose their motivation for speaking particularly.

Although some results do not indicate significant differences, they are still important. For instance, all the students are influenced by the teachers' attitude, their enthusiasm, and proficiency, even the older students and the ones studying English more

than five years. This suggests the importance of teacher training especially for elementary school language teachers. Once the students are old enough and proficient enough, they don't need teachers' assistance as much as they used to do. Thus, the teachers should be proficient and willing to integrate CALL tools into their curriculum because otherwise lack of even one of the three may affect the success of CALL radically and it would only be a waste of time, money and effort for both teachers and students.

It is also unexpected and, thus, interesting that there are not any significant differences concerning age, gender, years of studying English and CALL experience related to learning effort and extrinsic motivation. Students' are, indeed, intrinsically motivated. The results indicate that students disagree with the items about the learning effort. They like challenging activities. They don't seem to have problems with teachers who focus on grammar and vocabulary instead of speaking. The reason for that may be it is the system they are accustomed to. Furthermore, the language input, tasks and exercises might not be challenging enough for the students.

Depending on the students' perceptions of CALL improving their language skills, they assume CALL especially improves their vocabulary, listening and reading. Thus, providing students with web sites or CALL tools or programs to work on these particular skills is believed to be highly constructive. CALL can also turn mechanical grammar examples into entertaining games. Students can practice grammatical structures unconsciously and in a more contextual way so their brain can make the input more meaningful and it would be easier to recall. Students think CALL is less helpful for speaking and writing probably because they have not experienced any CALL tool

designed for these skills. Dyned may not provide well-organized applications for these skills, however, there are number of programs or websites addressing all skills that even the teachers may be unaware of. Therefore, teacher-training seminars should also be mandatory.

Other than the demographic features affecting students' attitude, the results are also analyzed in terms of their relationships between and among the subheadings of the questionnaire. Most significant correlations emerged with computer proficiency, computer integration, teacher influence (in CALL and also in FLL), cognitions, and intrinsic motivation. However, all the correlations shed valuable light to the relationships between computer- assisted learning (CAL), computer- assisted language learning (CALL), and foreign language learning (FLL).

The results imply that students who are proficient in computers are also more integrated with computers. Students, who think they can work well with computers and have advanced knowledge about them, would like to explore computers' qualities and can learn faster by computers when compared to others. They love computers and agree that some content can be learned faster via computers. The more they are proficient about computers, the more they are integrated with them.

Moreover, for the relationship between CAL and CALL, students proficient in computers have more faith in computers, as they believe computers assist them to improve their language skills. Therefore, it appears that if students have some knowledge about computers and like to work with them, they have positive attitudes that CALL improves their reading, writing, listening, and speaking skills together with their grammar and vocabulary.

Students integrated in computers more, are intrinsically more motivated in terms of foreign language learning and they can tolerate ambiguity better. It may be due to the fact that as students are integrated with computers they research, read, and communicate via computers and they are up to challenge. Keeping in mind that the information in internet even in the computer games they play is generally in English, being integrated with computers provides opportunities to experiment the language in authentic occasions not only in artificial contexts like in textbooks. Thus, these students are more intrinsically motivated and they can tolerate ambiguity better.

Computer proficiency and integativeness seem to be the key factors to positive attitude towards CALL as students considering themselves proficient enough and already integrated with computers have positive attitudes towards computers use in language learning. Proficient and integrated students anticipate that feedback provided by computers is clear, guiding enough and it gives sufficient information on where they made a mistake.

As these factors are strongly interrelated computer literacy becomes crucially essential and it seems that is a prerequisite to computer- assisted language learning. Taking the advantages of CALL into consideration, it seems that offering computer literacy courses especially in primary schools will be more than necessary. As the students get familiar with computers, they would like to explore its possibilities and capabilities so they can, autonomously or not, study English through computers and reinforce their language skills.

Not only are there correlations between CAL and CALL, but also between students' perceptions of FLL and CALL. There is a negative correlation between the

results of items with the cognitive component part and CALL vs. non–CALL items. The results indicated that students, who agree to be efficient in language learning and to have special ability and capacity to learn a foreign language, disagree with these items such as: 'CALL is not as good as oral practice', 'Computer based test can never be as good as paper based tests', 'Language learning assisted by CALL is less efficient than traditional education', 'People who learn a language assisted by CALL are less proficient than those who learn through traditional methods'.

The students, who consider themselves to be good at language learning and to have talent for it, are also intrinsically motivated. These students can tolerate ambiguity better. They often like to have conversations in a foreign language. They love an intensive use of another language (at work, at school). They don't mind switching to another language. They can express themselves in a foreign language and exhibit their language performance.

Furthermore, the relationship between cognitions, intrinsic motivation, feedback and skills imply that students who have positive attitudes towards language learning have also positive attitudes towards the feedback given by computers and they believe CALL can develop their language skills, grammar and vocabulary knowledge. They appreciate that CALL is an asset to language learning.

There are two items about inhibition in behavioral/personality component of the foreign language attitude section. The students feeling inhibited hesitate speaking in the class because someone may laugh at them. They feel some degree of resistance when they are speaking in a foreign language. As the relationship between the results of inhibition and extrinsic motivation and learning effort indicates, these students are also

extrinsically motivated and they lose the pleasure of language learning when learning effort becomes too big. They enjoy foreign language more when learning effort decreases.

Both extrinsic motivation and inhibition is correlated with group of items under the category of degree of exhibition in CALL. This relation implies that inhibited and shy students seem to be extrinsically motivated and they agree that they feel less inhibited communication via computers. It is easier and takes shorter to start a virtual conversation. Unexpectedly, as the relationship between intrinsic motivation and degree of exhibition to CALL implies, it is not only inhibited and extrinsically motivated students, but also intrinsically motivated students find it easier to communicate via computers.

Degree of exhibition is also related to the items about CALL, feedback, and skills-grammar-vocabulary. This indicates that students who find it easier to communicate via computers than in face to face situations have positive attitudes towards CALL and the feedback provided by computers more. They agree that computers can develop their language skills, grammar and vocabulary knowledge.

Therefore, it seems to be of great value to adopt CALL into foreign language learning curriculums and provide opportunities for these students. They can express themselves better with CMC tools. They would be practicing the language and improve their language skills at the same time.

For teachers' influence, almost every other category of the questionnaire demonstrated correlations with it. Even if the students are proficient enough in using computers and they are integrated with them, still, they need teachers. The students who

think the feedback is clear and CALL facilitates their learning find teachers' attitude, enthusiasm, and proficiency in CALL and language important. Thus, teachers' perceptions define the students' attitude and motivation. No matter have the students' higher cognitions and intrinsic motivation, they are easily affected by teachers' attitude. Only learners extrinsically motivated indicated a negative correlation with teachers' influence. Therefore, it is important to offer computer literacy courses to students and also trainings about computers and computer- assisted language teaching to language teachers.

5.2 Limitations of the Study

This study aims to address a specific group of 120 students in Ankara, Turkey whose age varies from 8 to 16. The number of the participants may be too limited for general assumptions. By no means can this study be generalized. It only reflects the unique results of a specific group's attitude towards CALL. Thus, it may be misleading for other situations or for the use of particular CALL tools.

Another limitation of the study may be that the questionnaire addressed general attitudes of learners towards CALL but not a specific CALL tool. Therefore, although students are asked to give information about their past CALL experience and the results are discussed in that respect, the study reflects only the present group's perception of CALL. The results may indicate captious remarks if they are interpreted for precise CALL contexts or tools.

There were 67 items on the questionnaire to be evaluated by 7-scale Likert instrument. It might have been tiring for students to complete the questionnaire even if

they had been asked to complete it in two different days. 7 options may be too sophisticated. The answers tend to get an aggregate of choices 5 and 6 in the Likert system.

Finally, no observations could be carried out by the researcher just to be sure of whether the students use the tools they have declared or to have a deeper understanding of how they make use of CALL and CALL could be used effectively.

5.3 Suggestion for Further Research

The present study explored how students perceive the use of computers and their integration into foreign language education. It specifically investigated what students´ attitude toward CALL is by also investigating their attitude towards computers and foreign language learning. However, the term CALL may actually be too general for any further assumptions. As a next step, similar research may be carried out to a wider group of students to explore their attitude towards a specific CALL tool.

Moreover, ongoing classroom observations on a regular basis may be influential. They may give a closer idea on how the program is being employed, which skill(s) the program enhances, whether the program is user friendly or motivating, whether the subjects are contextualized. Students' corporation, if there is or should be any, can be monitored. Such firsthand observations can reveal the effectiveness of CALL in supplementing teaching, learning, and\or testing.

Including teachers into the same research also seems even more beneficial as they appear to be the other side of the whole process. They are the administrators and as this study also indicated they are quite an integral part of adapting CALL into curricula.

Students' achievement levels can be tested regularly and analyzed to check if there is any improvement and if there is to what extent and what skills are improved precisely. Thus, for an additional research both the students' and teachers' attitude on a specific CALL tool or program can be investigated and their language progress can be monitored to see if there is any change.

5.4 Conclusion

Over the last two decades, drastic innovations in technology have changed every aspect of life like the way people live, communicate, work and study. The latest advances in computers and internet introduced new concepts and resources such as wireless connection, webcam, infinite images, animation, visuals and audio, e-mail, instant messaging, chat rooms, wikis, blogs, podcasting, online communities, groups, RSS, MSN, Yahoo, Google, MOOs (virtual environments where participants can meet, communicate, and interact with each other and the environment as well), and virtual worlds.

This rapid evolution has inevitably challenged language pedagogy enabling and, indeed, demanding new means of instruction. In language teaching, new approaches, methods, methodologies, strategies and tools should be scrutinized and integrated into the curriculums in a well-organized way in order students to keep up with the vast changing world. One way for teachers to integrate information technology into their classrooms is through the use of computer-assisted language learning (CALL) through software programs, CDs, websites or blogs. However, students’ attitudes play a great role in the success of materials adapted, developed and integrated into the curriculum.

The technological developments over the last decades cast a new light to phenomena of education as well as plenty of other fields. Being some of the most innovative projects of their time, PLATO, TICCIT, ALLP, CAMILLA, and OLA provide unique insight into the use of computer in education. They pioneered CALL studies to thrive dramatically as talk function in PLATO and with the invention of internet OLA formed today's conception of e-mail and chat as a tool to negotiate meaning authentically. Multimedia in PALTO and TICCIT established the language teaching materials still in use. The authoring system in ALLP pulled the teachers into the game. It gave flexibility to the teachers and opportunity to create their unique materials, adapt them and present them as the way they want.

After the spread of microcomputers and internet, CALL has become and integral part of education. Computers gained their role in almost every stage of the learning-teaching process such as presenting the subject, practicing the language input, producing language, testing the language and etc.

The assumed advantages of CALL are that it provides independent, collaborative, and enriched language environments. Multisensory input supports students' multiple intelligences and makes the content more enjoyable and easier to restore and retrieve. It gives opportunities students to experiment the language through authentic materials and tasks. CALL encourages interaction between teachers and students and also between peers. Thus, it enhances motivation and language acquisition. On the other hand, in order CALL to accomplish the presented goals, students need to have positive attitudes towards computers and CALL. In the present study students'

overall attitude towards CALL is positive. Some other studies conducted in Turkey also reveal similar results. Durdu (2003) investigated the students' and teachers' perception of a web- based learning tool for an English course as a second language at elementary level. The site was used as a supplementary material for 8th grade students. The results showed that more than half of the students perceived positive attitudes towards it in terms of vocabulary learning through the dictionary, chat and activities pages. Students thought the chat page more suitable for communication than classroom environment. İşman (2004) et al. stated that students give importance to the computers as a part of their life.

Akman investigated the perceptions of students in an implementation of "Learning by Design" method through a web based learning environment. The course was given in blended form. Face to face lessons and online instructional activities were performed together. Both quantitative and qualitative data indicated that the students' perceptions about how the course was conducted. Önsoy's (2004) research addressed university level students. The finding in her research also indicated similar results as the participants', both the teachers and students' overall attitude towards CALL is positive.

This study also displayed that the demographic factors are affecting students perception of CALL. Additionally, attitudes towards CAL, CALL and FLL are interrelated. The demographic features addressed to the participants are their age, gender, years of learners' studying English and their CALL experience. It is clear students' attitude towards CALL, feedback and also cognitions of foreign language change negatively as they grow older. Ghenghesh (2010) found similar results that language motivation decreases as students get older.

Moreover, the extent students want to exhibit the language decreases in secondary and high school. Elementary students can tolerate ambiguity better than high school students. Assigning them more complicated and enjoyable, real-life tasks can increase their motivation. CALL and CMC tools can create real life like communication channels. It is clear that the input is not stimulating enough for older and higher levels so they lose interest and motivation. CALL and CMC tools can fill this gap and provide multi–sensory, entertaining, challenging activities when integrated carefully in a conceptual way. It may help teenagers have positive attitude not only to foreign language learning but also the culture. According to Üzüm's research findings, Turkish learners of English at sampled universities have favorable attitudes towards the English language due to their interest in the cultural products of the English speaking societies and the instrumental value of English as a global language. Thus, they have positive attitudes towards that language and learning that language.

CMC tools may provide authentic tasks that students can engage in and develop their language skills in meaningful, real life activities that can also be more enjoyable for the teenagers. They can write comments on the blogs about music, films, and books. As a class they can have a discussion board and topic each week. They can chat or write e-mails to each other or to second or foreign language speakers in other countries. Peer feedback can also be informative. It also provides stress free atmosphere that shy students can highly benefit from. Önsoy (2004) stated that students feel more comfortable and less anxious while studying with computers. Therefore, language curriculum and materials should be scrutinized and adapted according to students' wants

and needs. Interesting topics accompanied by relevant CALL materials may change students' attitude towards language in positive way.

The students who have previous CALL experience maintains positive attitudes towards CALL so the sooner the learners are introduced to CALL, the better it may get in terms of their language proficiency.

For the gender gap, several studies investigating gender differences in the use of computers revealed that males tend to be more interested in computers than females and that males use computers more than females (Collis 1985a; Collis 1985b; Fetler 1985; Fisher 1984; Adam and Bruce 1993; Murray 1993).

Although there might be biological or social differences between boys and girls CALL materials should be apt to embrace both of them. They need to be adapted so that they can be appropriate for both girls and boys.

This finding emphasizes the importance of external factors related to the teacher and course-specific motivational components outlined in Dörnyei's (1994) framework of L2 motivation. Among them one of the most important issue is teachers' influence. A number of researchers have found that there is a strong connection between the teacher and the learners' motivation, achievement, negative feelings and effort (Chambers, 1998; Clément et al , 1994; Gardner et al, 2004; Mihaljević, 1990, 1992, 1994; Nikolov, 1999; Ozek & Williams, 1999; Ryan & Patrick, 2001; Williams & Burden, 1999; Williams, Burden & Al-Baharna, 2001; Guilloteaux & Dörnyei, 2009; Hardré & Sullivan, 2008). The results of these studies highlight the fact that "the teacher's level of enthusiasm and commitment is one of the most important factors that affect the learners' motivation" (Dörnyei, 1998, p. 130).

It is also clear that teacher influence is dramatically affecting learners' judgment of CALL. The teachers need to be proficient in computers and enthusiastic about using them. They should have positive attitudes, in the first place, if they want their students to have positive attitudes as well. The teacher training is also essential especially for primary level teachers because younger students have more positive attitudes towards CALL and FLL. Elementary level students' positive attitudes should be reinforced and they need to be encouraged to use CALL. Students need training or computer literacy courses as well since more proficient and integrated students possess more positive attitudes towards CALL. Similarly, Ateş (2006) et al., concluded that implementation of Computer-assisted English instruction (CAEI) had a positive effect on high school students' attitudes towards computers and English.

The study demonstrated that the students' attitudes towards computers and computer- assisted learning define their attitude towards CALL. The learners who consider themselves to be proficient and integrated with computers have positive attitudes towards CALL. The study proved providing computer literacy classes for especially young learners would make a difference. The earlier they are introduced to CALL, the more positive attitudes may be achieved for CALL and FLL. Thus, computer literacy classes may be highly beneficial because when the student are confident enough to work with computers and integrated, they have positive attitude towards using computers in order to learn a foreign language and then they are likely to have higher motivation and eventually higher achievement.

The correlations between foreign language learning and computer- assisted language learning suggest that intrinsically motivated students can tolerate ambiguity

better and they also have positive attitudes towards CALL. On the other hand, students who are extrinsically motivated feel inhibited performing the language and they have difficulties particularly in speaking. Those students would like to communicate through computers and agree that they can exhibit their language via CALL better. The students indicated that their language performance does not decline when the learning effort is high. Indeed, this suggests that students need challenging tasks. CALL can provide challenging, authentic tasks for them.

The students think CALL is efficient in developing, in the order of students' preferences, vocabulary acquisition, listening, reading and grammar. For speaking and writing teachers may scrutinize the web and the market and advice better tools.

The study demonstrated similar results with Ayres' study. In Ayres' study 60 % of the students agree that CALL should be used more and in Önsoy's 62 % of the participants believe that CALL program is beneficial. This study demonstrated higher result as 77 % of the students agree that they would like to study English with computers. For skills, in Lasagabaster and Sierra's study students evaluated a software program and what aspects of language it improves. In the order that the learners think CALL software is most useful to the least, vocabulary, grammar, listening, general, writing, pronunciation, reading, and speaking are improved by using the software program. However, in this study pronunciation and the option general is not provided. Students in the present study students evaluated that CALL develops, in the order of highest percentage to lowest, vocabulary, listening, reading, grammar, speaking and writing.

The participants have faith in computer-based exercises. Considering the fact that in the near future they may have to take placement tests on computers and TOEFL, GRE, GIMAT, they need some practice beforehand. Moreover, computerized- tests actually save time. They are more accurate. They can give immediate and individualized feedback. However, the feedback given by the computers need to be much more detailed for teenagers.

To conclude, CALL has much to offer when it is integrated into the curriculum with a well- organized fashion. Students have positive attitudes towards it. As Gardner suggests, when students have positive attitudes they will be more motivated and they more likely to perform better and achieve higher levels of acquisition.

When it comes to preparing students for the future for their higher education and work, teachers should keep in mind that students would need to be proficient both in computers and language. They need to research, write reports, present them, and communicate in English via computers. Therefore, it is not only the question of technology for learning English, but also the urge to assist them in developing both life skills.

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Appendix 1

SECTION I:

PERSONAL INFORMATION: *Please tick (√) the appropriate choices and provide the necessary information below.*

Age: 8† 9† 10† 11† 12† 13† 14† 15† 16† 17† 18†
Gender: F† M†
Grade: 2† 3† 4† 5† 6† 7† 8† 9† 10† 11†
How many years have you been studying English:
1† 2† 3† 4† 5† 6† 7† 8† 9† 10† 11†
Have you studied English via any Computer-Assisted Language Learning (CALL) tool before?
Yes† No†
If yes, can you name it?
Dyned† Book supplied CD-ROMs† Internet Sites† Blogs† Chat† Other†
What is it? _____

SECTION II: The Students' Attitude towards CAL Questionnaire

People who learn by computer have different attitudes towards that learning process. Through this questionnaire, we would like to know how your attitude is towards Computer- Assisted Learning (CAL). Please read each statement carefully and indicate the extent to which you agree with the following statements. Please mark your response by circling the number to the right of each statement ranging from 1 (totally disagree) to 7 (totally agree).

	Totally disagree						Totally agree
1- I can study well with computers.	1	2	3	4	5	6	7
2- I have an advanced knowledge of computers.	1	2	3	4	5	6	7
3- I love to explore the possibilities and qualities of my computer.	1	2	3	4	5	6	7
4- I have an innate computer knack.	1	2	3	4	5	6	7
5- Compared to others, my speed of learning to work with computers is higher.	1	2	3	4	5	6	7
6- I love to use a computer.	1	2	3	4	5	6	7
7- The larger my computer knowledge, the more I love to work with a computer.	1	2	3	4	5	6	7
8- I love learning new things about computers.	1	2	3	4	5	6	7
9- Some content can be learned faster when using a computer.	1	2	3	4	5	6	7

Scoring:
Computer proficiency: sum score of items 1 to 5

Computer integration: Sum score of items 6 to 9

SECTION III:

The students' attitude towards Computer- Assisted Language Learning (CALL) Questionnaire

People who learn a foreign language assisted by computer have different attitudes towards that learning process. Through this questionnaire, we would like to know how your attitude is towards Computer- Assisted Language Learning (CALL). Please read each statement carefully and indicate the extent to which you agree with the following statements. Please mark your response by circling the number to the right of each statement ranging from 1 (totally disagree) to 7 (totally agree).

	Totally disagree						Totally agree
10- Learning a foreign language assisted by computer is not as good as oral practice.	1	2	3	4	5	6	7
11- Computer based language tests can never be as good as paper-and- pencil tests.	1	2	3	4	5	6	7
12- Computer- assisted language learning is less adequate as the traditional learning.	1	2	3	4	5	6	7
13- People who learn a language assisted by computer- assisted learning are less proficient than those who learn through traditional methods.	1	2	3	4	5	6	7
14- Computer- assisted language learning is a valuable extension of classical learning methods.	1	2	3	4	5	6	7
15- Computer- assisted language learning gives flexibility to language learning.	1	2	3	4	5	6	7
16- Computer- assisted language learning is as valuable as traditional language learning.	1	2	3	4	5	6	7
17- Computer- assisted language learning can stand alone.	1	2	3	4	5	6	7
18- Computer- assisted language learning constitutes a more relaxed and stress-free atmosphere.	1	2	3	4	5	6	7
19- Learning a foreign language assisted by computer enhances your intelligence.	1	2	3	4	5	6	7
20- I would like to learn foreign language by computer.	1	2	3	4	5	6	7
21- The feedback provided by computer is clear.	1	2	3	4	5	6	7
22- The feedback provided by computer gives me enough information on where I went wrong.	1	2	3	4	5	6	7
23- Computer- assisted language learning	1	2	3	4	5	6	7

develops my reading skills.							
24- Computer- assisted language learning develops my listening skills.	1	2	3	4	5	6	7
25- Computer- assisted language learning develops my writing skills.	1	2	3	4	5	6	7
26- Computer- assisted language learning develops my speaking skills.	1	2	3	4	5	6	7
27- Computer- assisted language learning develops my grammar.	1	2	3	4	5	6	7
28- Computer- assisted language learning develops my vocabulary knowledge.	1	2	3	4	5	6	7
29- Teacher's attitude towards CALL largely defines my own attitude.	1	2	3	4	5	6	7
30- Teacher's enthusiasm in CALL largely defines my own motivation.	1	2	3	4	5	6	7
31- Teacher's proficiency of using computers in language learning largely defines my own attitude to CALL.	1	2	3	4	5	6	7
32- I have faith in computer- based language tests.	1	2	3	4	5	6	7
33- I have faith in computer- based language exercises.	1	2	3	4	5	6	7
34- I feel less inhibited when communicating in the foreign language via computer than in face- to- face situation.	1	2	3	4	5	6	7
35- In a face- to- face situation (classroom) I often feel anxiety when speaking in the foreign language.	1	2	3	4	5	6	7
36- For me, it takes longer to start a face to face conversation than a virtual one on computers.	1	2	3	4	5	6	7

Scoring:
Effectiveness of CALL vs. non- CALL: sum score of items from10 to 13 (all reversed)
Effectiveness of CALL: sum of score from 14 to 21
Feedback: sum score of items 22 and 23
Skills and sub- skills: sum score of items from 24 to 29
Teacher influence: sum score of items from 30 to 32
Call based test and exercise: 33 and 34
Degree of exhibition to CALL: sum score of items from 35 to 37

SECTION IV: The Attitude towards Foreign Language Learning Questionnaire

People who learn a new language have different attitudes towards that learning process. Through this questionnaire, we would like to know how your attitude is towards Foreign Language Learning(FLL). Please read each statement carefully and indicate the extent to which you agree with the following statements. Please mark your response by circling the number to the right of each statement ranging from 1 (totally disagree) to 7 (totally agree).

	Totally Disagree						Totally Agree
COGNITIVE COMPONENT							
37- I am efficient in language learning.	1	2	3	4	5	6	7
38- I consider myself successful in language learning.	1	2	3	4	5	6	7
39- I have an innate capacity for learning a language.	1	2	3	4	5	6	7
40- I learn a new language faster than on average.	1	2	3	4	5	6	7
41- I believe I have a special ability for learning a language.	1	2	3	4	5	6	7
Scoring: cognitions: sum scoring of items 38 to 42							
AFFECTIVE/ EVALUATIVE COMPONENT							
42- I only learn a foreign language to succeed or to obtain a diploma.	1	2	3	4	5	6	7
43- If I wasn't obliged to learn another language, I would not learn one.	1	2	3	4	5	6	7
44- Learning a foreign language is important for your future, but I do not like it.	1	2	3	4	5	6	7
45- It is important to learn speak languages that are spoken around you.	1	2	3	4	5	6	7
46- The higher my language proficiency, the more I enjoy speaking the language.	1	2	3	4	5	6	7
47- I feel sympathy for the native speakers of the language I am learning.	1	2	3	4	5	6	7
48- It is impossible to get to know people if you do not speak their languages.	1	2	3	4	5	6	7
49- Living in a foreign country, you show respect to that country and its citizens by learning the language of that country.	1	2	3	4	5	6	7
50- I consider it very logical that I learn a language that is spoken in my country.	1	2	3	4	5	6	7

51- In a country with two or more official languages, it is important to speak at least two languages.	1	2	3	4	5	6	7
52- The enthusiasm of the language teachers influences my attitude towards language.	1	2	3	4	5	6	7
53- The language proficiency of the language teacher influences my attitude towards language.	1	2	3	4	5	6	7
54- The attitude of the language teacher influences my attitude towards the language.	1	2	3	4	5	6	7
Scoring: Extrinsic motivation: sum score of items 43 to 45 Intrinsic motivation: sum score of items 46 to 52 Teacher influence: sum score of items 53 to 55							
BEHAVIORAL/PERSONALITY COMPONENT							
55- I am afraid people will laugh at me when I say things wrong.	1	2	3	4	5	6	7
56- I feel some degree of resistance before starting to speak in the foreign language.	1	2	3	4	5	6	7
57- I try to understand people when they are talking in a foreign language.	1	2	3	4	5	6	7
58- I love learning new things.	1	2	3	4	5	6	7
59- Talking in the language you learn is very important in learning it.	1	2	3	4	5	6	7
60- For pleasure, I often have conversations in a foreign language.	1	2	3	4	5	6	7
61- I love an intensive use of another language (at work, at school).	1	2	3	4	5	6	7
62- I don’t mind switching to another language.	1	2	3	4	5	6	7
63- I’m losing the pleasure of language learning when learning effort becomes too big.	1	2	3	4	5	6	7
64- When learning effort decreases, I enjoy foreign language more.	1	2	3	4	5	6	7
65- I don’t like teachers staying focused on learning grammar and vocabulary, instead of converse.	1	2	3	4	5	6	7
66- Learning another language goes way too slow for me.	1	2	3	4	5	6	7
67- It is frustrating that learning a new language is slow in the beginning.	1	2	3	4	5	6	7
Scoring:							

Inhibition: sum score of items 56 and 57 Exhibition: sum score of items 58 to 60 Tolerance of Ambiguity: sum score of items 61 to 63 Learning effort : sum score of items 63 to 68	

* Questionnaires are adapted from: Vandewaetere, M. And Desmet, P., (2009).'Introducing psychometrical validation of questionnaire in CALL research: the case of measuring attitude towards CALL', Computer- assisted Language Learning, 22: 4, 349- 380.

** The explanations for sum of scores for each category were removed when the questionnaire was administered.