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Sümeyra BURAN

THE EFFECTS OF COMPUTER ASSISTED LANGUAGE LEARNING ON LISTENING COMPREHENSION ABILITY

MASTER THESIS

SUPERVISOR
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SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜNE

Bu çalışma, İngiliz Dili ve Edebiyatı Anabilim Dalının İngiliz Dilbilimi Bilim Dalında jürimiz tarafından Yüksek Lisans tezi olarak kabul edilmiştir.

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This study aims to explore the effects of computer assisted language learning (CALL) on listening comprehension ability. Listening comprehension is the ability to identify and understand what others are saying. Listening is an active process, as the mind actively engages in making meaning. It is therefore our duty as teachers to ensure that the materials we use are comprehensible to our young learners, as well as within the range of what they are developmentally ready for. This study is divided into six chapters; introduction, literature review, methodology, results, discussion and conclusion.

In the introduction, the role of listening in education is explained. The second chapter defines the terms of listening, listening comprehension and CALL. First, we see the strategies and processes of listening comprehension. Second, the historical perspective of CALL explains us the role of computers in education. Third, the effects of CALL on listening comprehension are explained. In the third and fourth chapters method of the study and its results are explained. Finally, the last two chapters contain a discussion and conclusion.

Consequently, this study is designed to evaluate the effect of CALL on listening comprehension ability. We use technology in our classrooms day by day, essentially the computer and it is known that listening in traditional classes with tape recordings is not as effective as computer-assisted listening in language laboratories. Our results show that computer assisted language learning has many beneficial effects on learners' listening comprehension ability.

ÖZET

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Bu çalışma bilgisayar destekli dil öğreniminin dinleme kavrama yetisi üzerine olan etkilerini belirlemeyi amaçlamaktadır. Dinleme kavrama başkalarının ne söylediğini anlama ve tanımlama yetisidir. Beynin anlam üretmeye aktif olarak bağlı olması gibi dinleme de etkin bir süreçtir. Bu nedenle öğretmenler olarak görevimiz, öğrencilerimiz için kullandığımız materyallerin günün koşullarına uygun ve anlaşılır olmalarını sağlamaktır.

Bu çalışma altı bölümden oluşmaktadır: giriş, alan tarama, yöntem, sonuç, tartışma ve yorum. Giriş bölümünde dinlemenin eğitimdeki rolü açıklanmıştır. İkinci bölüm dinleme, dinleme kavrama ve bilgisayar destekli dil öğrenimi terimlerini tanımlamıştır. Öncelikle dinleme anlama stratejileri ve süreçleri üzerinde durulmuştur. Daha sonra bilgisayar destekli dil çalışmalarının tarihsel sürecinin eğitimdeki rolünden bahsedilmektedir. Son olarak da bilgisayar destekli dil öğreniminin dinleme anlama yetisi üzerindeki etkileri açıklanmıştır. Üçüncü ve dördüncü bölümlerde ise çalışmanın yöntemi ve sonuçları açıklanmıştır. Son iki bölümde ise tartışma ve yorum yer almaktadır.

Sonuç olarak, bu çalışma bilgisayar destekli dil öğreniminin dinleme anlama üzerine etkilerini ortaya çıkarmak amacıyla düzenlenmiştir. Teknolojik gelişmeler, özellikle de bilgisayarlar her geçen gün daha fazla yaşamımıza ve sınıflarımıza girmektedir. Geleneksel sınıflardaki kasetçalarlar ile yapılan dinleme, bilgisayar destekli dil öğrenimine dayalı dil laboratuarlarındaki dinleme kadar etkili olmadığı bilinmektedir. Bu çalışmanın sonuçları bilgisayar destekli öğrenimin dinleme kavrama yetisi üzerine birçok etkisi olduğunu ortaya koymaktadır.

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LIST OF ABBREVIATIONS

BASIC	Beginners All Purpose Symbolic Institution Code
BBC	British Broadcasting Corporation
CAI	Computer Assisted Instruction
CALL	Computer Assisted language Learning
CAMILLE	Computer-Aided Multimedia Interactive Language Learning
CD	Compact Disc
CD-ROM	Compact Disc Ready-Only Memory
CLT	Communicative Language Teaching
D.C.T.	Design and Construction Teaching
DVD	Digital Versatile Disc
EFL	English Foreign Language
ELS	English Language School
ESL	English Second Language
Exp.	Experimental
L1	First Native Language
L2	Second Language
LAN	Local Area Network
MIT	Massachusetts Institute of Technology
OLA	Oral Language Archive
PCs	Personal Computers
PDP	Programmed Data Processor
PET	Personal Electronic Transactor, a 1970's era personal computer
PLATO	Programmed Logic for Automatic Teaching Operations
T.H.M.	Tourism and Hotel Management
TICCIT	Time-Shared, Interactive, Computer Controlled Information Television
TOEFL	Test of English as a Foreign Language
UK	United Kingdom
USA	United States of America
WWW	World Wide Web

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Finally, my great thanks to my parents, whose loving support make all things possible.

CHAPTER I

1. INTRODUCTION

This study was conducted to find out how computer assisted language learning contributes to learners' ability to develop listening comprehension. This introductory section explains the importance of listening among other skills and the relationship between traditional listening and CALL.

It is often reputed that the natural sequence of four language skills both in the process of first and second language acquisition is listening, speaking, reading, and writing. Listening, as the most frequently used language skill, plays a significant role in daily communication and the educational process but in spite of its importance, attempts to develop listening ability received only slight attention in language instruction in the past. It was not until the late sixties and early seventies that the listening skill began to be recognized in language teaching programs, as being significant as the other skills. Today in parallel with the development of communication via mass media, people tend to attach as much importance to listening as to the other language skills. Second language teachers now see it as a crucial skill in second language learning.

Listening is used more than any other skill in our daily life, because of the fact that we listen twice as much as we speak, four times more than we read and five times more than we write.[1] In 1978, Rivers and Temperly claimed the percentage as 45% listening, 30% speaking, 16% reading and 9% writing.[2] Barker stated that people spent 48% of their communication time for listening, 35% for speaking, 10% for reading, and 7% for writing.[3] Listening has direct or indirect influence on the learner's ability to speak, read, and write. This dependency is explained as follows:

> *... speech development is derived from one's imitation of others' sounds, reading development is heavily contingent upon auditory discrimination ability as well as ability to recode letters as sound and writing development is greatly affected by*

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[1] Murcia-Celce, M., **Teaching English as a Second or Foreign Language**, Second Edition Boston: Heinle and Heinle Publishers, 1991, p82.
[2] Rivers, W. M. and Temperly, M. S.,. **A Practical Guide to the Teaching of English as a Second or Foreign Language**, New York: Oxford University Press, 1978, p62.
[3] Barker, L. L., **Listening Behavior**, U.S.A. Prentice Hall, Inc, 1971, p3.

> *listening vocabulary, which according to Armstrong(1953), exceeds visual vocabulary until the age of twelve.*[1]

Listening comprehension is a complex process, and as indicated above it is central to learning. However as Brown described the process of listening comprehension in 1960s and 1950s there was little attempt to help learners understand the whole message of spoken English.

> *It was, of course, realized that students should not only be exposed to words or sentences pronounced in isolation, they should also be exposed to continuous texts. Courses were produced which included tapes of a passage read aloud where students were required to listen to the tape, a sentence at a time, and to write down the series of English words and sentences that they heard. A later variant on the Standard dictation exercise was to construct a 'situationalised' conversational dialogue between two people- a traveller and a customs officer, a tourist and a policeman, a husband and a wife having breakfast together- where the actors playing the parts of the conversationalists would read their parts slowly and clearly, carefully pronouncing all their consonants. Students would then answer questions about the content of the text they had just heard. If they had difficulty in remembering what they had heard, the text was played again, and, if necessary, again.*[2]

When the communicative (language) approach to language teaching became popular, listening comprehension focused on meaning rather than form as tape recordings of authentic material were used for teaching of listening comprehension in classrooms and were accepted as useful data for classroom work.

In these classes, firstly teachers should be organisers and tell the students exactly what their listening purpose is. A clear listening instruction should be provided and also teachers should encourage students to listen. Listening tasks should be achievable and texts comprehensible. Secondly, if the teacher uses tape or disk material he should be as efficient as possible in using the tape player. In other words, teachers are supposed to be machine operators and moderators as well and

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[1] Coakley, G. C. and Wolvin, A. D.. **Listening in the Native Language**, in Wing, B. H. (ed.), **Listening, Reading, Writing: Analysis and Application**, U.S.S. : Northest Conference on the Teaching of Foreign Languages Inc., 1986, p54.

[2] Brown, G., **Twenty-Five Years of Teaching Listening Comprehension**, English Teaching Forum, 1987, p11.

they are expected to intervene depending on students' needs. Thirdly, teachers should be feedback organisers and lead a feedback session to check whether students are successful or not after they have completed the tasks. Lastly, teachers should assume the function of prompters. Letting students listen to the tape again so they can notice a variety of language and spoken features.[3]

There are some advantages as well as disadvantages of tape material in language classes. The advantages are that students can hear different pronunciations apart from just their own teacher's. Tape is very easy, cheap, practical, portable and readily available, especially because many course books are accompanied by a CDs and tapes.

On the other hand, the disadvantages are that in large classrooms with poor acoustics, it is difficult for all students to hear on the same and equal basis and listening to a tape recorder is not easy particularly for the student at the back of a class. Secondly, all students are obliged to listen to at the same speed. Thirdly, they cannot themselves interact with the speakers and they cannot see the speaking taking place. Fourthly, if certain parts of the listening text have been misunderstood, it is difficult to go to that part of the tape, as it is not always easy to locate a certain piece of conversation or a particular passage on a tape. Finally, as the teacher often has to play the listening passage more than once using only one tape recorder, this takes up much time and sometimes may be boring for good students.

> *The tape recorder brings many disadvantages into the classroom. In the first place it is not always a very good machine and the tapes are sometimes less than totally clear. People speaking on tape cannot be seen and yet much of what we hear in real life takes place with the speaker being present. A speaker on a tape cannot be interrupted (although he can be stopped) to ask for clarification and the tape continues to run at a steady speed not chosen by individual students. In other words, understanding taped material is very difficult! But tapes are still the best means of letting the student hear the spoken language (especially in non – English - speaking country)*[4]

[3] Harmer, J., **The Practice of English Language Teaching**, Longman Pearson Press, 2001, p231.

[4] Harmer, J., ibid, p177.

However today, integrative language learning is based mainly on multimedia technology and the Internet. Such language learning provides a more authentic learning environment and the easy integration of skills. Language laboratories can provide learners' opportunities to improve listening comprehension abilities by providing authentic materials in an environment for autonomous learning, repetitive practice, immediate and detailed feedback, resulting in increased motivation. Computer assisted language learning (CALL) is therefore the best medium for listening activities. In the following sections, we will try to explain the relationship between listening comprehension and computer assisted language learning and the effect of CALL on listening comprehension.

CHAPTER II

2. LITERATURE REVIEW

2.1. What is Listening?

Listening is an essential part of the communication process. It is the act of hearing sounds and comprehending the messages of the speakers. In other words, listening is the ability to identify and understand what others are saying. This involves understanding a speaker's accent and other pronunciation features, grammar and vocabulary, and grasping meaning by understanding situations and contexts.

There are many definitions of 'listening' made by the early scholars who studied psycholinguistics, linguistics, and phonetics. One of the early definitions is that of Rankin in 1926, listening is 'the ability to understand spoken language'.[5] In 1955, Brown and Carlsen define listening as 'the aural assimilation of spoken symbols in face-to-face speaker-audience situations, with both oral and visual cues present'.[6] We do not only listen in the presence of a speaker. However, people can listen to many things without the absolute existence of a speaker. For example, we listen to announcements, radio and to listening materials on computers.

There is a broadened definition of listening by Lewis in 1958 that 'listening is the process of hearing, identifying, understanding, and interpreting spoken language'.[7]

In the same way, according to Barker attention, hearing, understanding, and remembering are the four processes of listening.[8] Lundsteen states that listening 'is the process by which spoken language is converted to meaning in the mind.'[9]

In 1979 Snow and Perkins argued that the listening ' is a very active and integrative language skill involving a grasp of phonological complexities as well as performance factors typical only of speech such as rate of speech, clarity of

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[5] Coakley, G. C. and Wolvin, A. D., ibid, p14.
[6] Brown, J.I., and G.R.Carlsen, **Brown-Carlsen Listening Comprehension Test,** New York: Brace and World, 1955, p1.
[7] Coakley, G.C. and Wolvin, A.D., ibid, p14.
[8] Barker, L.L., ibid, p17
[9] Lundsteen, Sara Wynn, **Language Arts: A Problem Solving Approach**, Harper and Row Ltd., 1979, p1.

intonation and pronunciation, hesitation, pauses.'[10] So according to them listening is not a passive process and in 1981, Rivers notes that listening is not a passive and receptive skill; it is a creative skill because we try to create a meaning from what is said by the speaker.[11]

Consequently, listening is not just hearing but also understanding the meaning. From these historical definitions of listening, we can conclude that listening is a kind of communication and a complex behaviour which involves the process of receiving, attending to and assigning meaning to aural or visual stimuli.

2.2. Study of Listening Comprehension

In this section, first, we try to give some definitions of listening comprehension, followed by the process of listening comprehension and lastly we try to explain strategies of listening comprehension.

2.2.1. Definitions of listening comprehension

Second language comprehension is a difficult task for the language learner which was thought of as a passive skill in the past. Prior to 1970, it was rarely considered as a separate skill from pronunciation and grammar but as Wang claims, listening comprehension is no longer a passive skill.

> *The process of speech recognition is an active interplay of guessing, approximation, expectation, and idealization that normally makes extensive use of all the redundancies found in a typical speech situation, phonology, morphological, syntactic, semantic, as well as many varieties of non-linguistic redundancies.*[12]

In 1983, Brown made both narrow and broad definitions: 'What is listening comprehension? In its narrowest definition, it is the process by which listeners come

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[10] Snow, B.G. and Perkins, K., The Teaching of Listening Comprehension and Communication Activities, **TESOL Quarterly**, Vol. 13, No. 1, 1979, p 51.
[11] Rivers, W.M., **Teaching Foreign Language Skills**, U.S.A.: The University of Chicago Press, 1981, p160.
[12] William S-Y Wang, **The Basis of Speech**, in Carroll E. Reed, **The Learning of Language**, New York: Appleton- Century Crofts, 1971, p296.

to an interpretation for a stream of speech. In its broader definition, it also includes the process by which listeners use those interpretations for their intended purpose.[13]

In 1984, Mendelsohn defined listening comprehension as 'the ability to understand the spoken language of native speakers'[14]. In 1989, O'Malley, Chamot, and Kupper offered a much more extensive definition, 'listening comprehension is an active and conscious press in which the listener constructs meaning by using cues from contextual information and from existing knowledge, while relying upon multiple strategic resources to fulfil the task requirements.'[15]

In 1994, Ellis explained listening comprehension as:

> *... analysing, concentrating, understanding, registering converting meaning to the mind, engaging in further mental activity, responding, reacting, interpreting, relating to past experiences, and future expectancies, assimilating, acting upon, selecting, receiving, apprehending, hearing, remembering, identifying, recognising, comprehending, sensing, evaluating, emphasising, and organising.*[16]

In addition to this definition Byrnes refers to 'scheme-based understanding', which he explains as 'information stored in long-term memory as frames or scripts which directs the comprehension process.'[17]

Lastly, Wolvin and Coakley proposed a very general definition that listening comprehension is 'the process of receiving, attending to, and assigning meaning to aural stimuli.'[18] These elements are found in most definitions of listening. The 'receiving and attending to' is also called speech perception and refers to the processes of distinguishing phonemes, constructing these into words, recognizing the features of stress and intonation combining this information to construct the syntax. This is also known as 'bottom-up processing'. Assigning meaning to the decoded stimuli is referred to as 'top-down' processing, and involves assigning communicative meaning to the decoded utterances based upon previous knowledge.

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[13] Brown, G. , **Listening to Spoken English**, Longman Pres, 1983, p.81.
[14] Mendelsohn, D. J., **There** ARE Strategies for Listening, **TEAL Occasional Papers 8**, 1984, p64.
[15] O'Malley, J. M. and Chamot, A. U., Kupper, L., Listening Comprehension Strategies in Second Language Acquisition, **Applied Linguistics**, Vol. 10, No. 4, 1989, p419.
[16] Ellis, R. **The Study on Second Language Acquisition**, Oxford University Pres, 1994, p.14.
[17] Byrnes, H., The Role of Listening Comprehension: A Theoretical Base, **Foreign Language Annals**, Vol. 17, No. 4, 1984, p317.
[18] Mendelsohn, D. J. and Rubin, J. Editors, **A Guide for the Teaching of Second Language Listening**, Dominie Pres, Inc., 1984, p31.

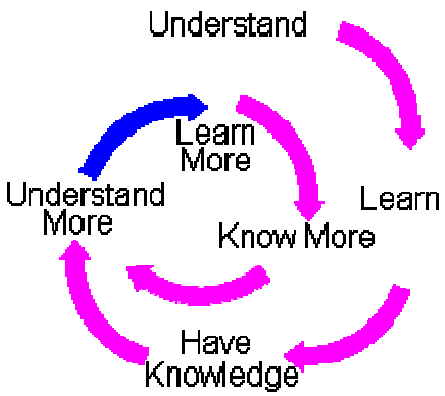
Top-down processing may also help in 'filling in gaps' in understanding created by decoding failures.

In 1990, Rost defines listening comprehension: 'Understanding spoken language is essentially an inferential process based on a perception of cues rather than a straightforward matching of sound to meaning. The listener must find relevant links between what is heard and those aspects of context'.[19]

Finally, any kind of comprehension can be perceived as a part of a circle:[20]

- Understand →learn →have knowledge →understand more →learn more →have more knowledge →understand more etc.

Figure 2.1. A Circle of Learning Comprehension Schema



This schema lists the process of listening comprehension as understanding, learning, having knowledge, understanding more, learning more, having more knowledge, and understanding more.

2.2.2. The process of listening comprehension

Second language (L2) listening comprehension is a complex process, crucial in the development of second language competence and in order to measure this process first we must understand what listening process is.

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[19] Rost, M. , **Introducing Listening**, Penguin English press, 1990, p.21.

[20] Gillet, A., Listening Comprehension and Note-Taking: Advice, Using English for Academic Purposes A Guide for Students in Higher Education, School of Combined Studies, University of Hertfordshire, Hatfield-UK, 2008, **http://www.uefap.com/listen/listfram.htm**.

Firstly, the listening process is an interpretive process and listening is not merely one of decoding. In the past, listening was treated as an activity in which competent listeners comprehended precisely what the speaker intended to communicate.[21] The goal was seen as decoding the message, yielding the text. Murphy characterizes the interpretive nature of listening as follows: 'Listeners generate internal texts which commonly differ from what they hear in unexpected ways.' [22] Acceptance of this notion requires that we modify our expectations of 'correctness' about what we listen to. Gillian Brown takes this notion a step further and talks of the 'imaginative effort' involved in communicating, and goes on to point out that an acceptance of this view of listening makes context crucial to meaning.[23]

Secondly, listening is an active process not as it was once seen a passive activity whereby that listeners passively receive the message sent by speaker. We now believe learners are actively processing and interpreting information and not merely functioning in an active activity. That is listeners are as active as when they are speaking.

Thirdly, listening is an interactive and conscious process. We as teachers need to bring the process of listening to a conscious level. Listening and speaking are very often intertwined. Interactive listening requires training and practice.

Lastly, the listening comprehension process involves 'Bottom-Up' or 'Top-Down processing. There has been a tendency on the part of comprehension theorists to describe the different processes involved in comprehension as being in a hierarchical relationship.

Over the past several years, the distinction between "top-down" and "bottom-up" processing has emerged as a useful metaphor for how learners make sense of what they are listening to. Listeners use both bottom-up processors (linguistic knowledge) and top-down processes (prior knowledge) to comprehend.

Scholars regarded the 'bottom-up' process of comprehension and taking place in a definite order, starting with the lowest level of detail and moving up to the

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[21] Meldelsohn, D. J., **Learning To Listen: A Strategy –Based Approach For The Second Language Learner**, Dominie Press, Inc, 1994, p.14.
[22] Murphy, J. M., Examining ESL Listening as an Interpretive Process, **TESOL Newsletter XIX**, Vol. 6, 1985, pp23-24.
[23] Meldelsohn, D.J., 1994, ibid, p16.

highest level. In other words, 'starting with lower level decoding of the language system and the representation in working memory of this decoding then being interpreted in relation to higher level knowledge of context and the world.'[24] Gary Buck explains the bottom-up process as follows:

> *The acoustic input is first decoded into phonemes (the smallest sound segments that can carry meaning), and then this is used to identify individual words. Then processing continues on to the next higher stage, the syntactic level, followed by an analysis of the semantic content to arrive at a literal understanding of the basic linguistic meaning. Finally, the listener interprets that literal meaning in terms of communicative situation to understand what the speaker means. This is the bottom-up view, which sees language comprehension as a process of passing through a number of consecutive stages or levels and the output of each stage becomes the input for the next higher stage. It is, as it were, a one way street.*[25]

On the other hand, top-down processing is holistic. It goes 'from whole to part'[26]Sperber and Wilson claims that' scholars working with top-down models posited the higher level pragmatic, inferential processes as the starting point, with linguistic data at the lower levels being processes only if required by comprehenders' expectations and goals.'[27] The concept of the top- down process is built on the premise that listening is an interpretive process. Gary Buck explains the top-down process as follows:

> *Listening comprehension is a top-down process in the sense that the various types of knowledge involved in understanding language are not applied in any fixed order-they can be used in any order, or even simultaneously, and they are all capable of interacting and influencing each other.*[28]

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[24] Liberman, A. M., Cooper, F. S., Shankweiler, D. P. and Studdert-Kennedy, M., Perseption of the speech code, **Psychological Review**, Vol. 74, No. 4, 1967, p31.
[25] Gary Buck, **Assessing Listening**, Cambridge University Press, 2001, p2.
[26] Rumelhart, D.E., **Schemata: The Building Blocks of Cognition**, in Spiro, Bruce, and Brewer, eds., 1980, p41.
[27] Sperber, D., and Wilson, D., **Relevance: Communication and Cognition**, Oxford: Blackwell, 1986, p14.
[28] Gary B., ibid, p3.

Anderson and Lynch capture the difference between these processes very clearly by describing bottom-up processing as the following: 'listener as tape recorder,' and top-down processing as 'listener as active model builder.'[29] In the same way, understanding the meaning of a word before decoding its sound is quite possible since we have many different types of knowledge, including knowledge of the world around us. Therefore, we can expect what we will hear. That is we always have a hypothesis about what is likely to come next. For example, if we hear the following uncompleted sentence, 'she was so angry; she picked up the gun, aimed and…..'[30] We can predict what is going to happen. By the help of our background knowledge about guns and what angry people do with them, we do not need acoustic information to understand the final word, be it 'fired', 'shot' or whatever. For this top-down process, we need very little acoustic information to determine what is coming next.

However, this does not mean that there is no place at all for bottom-up processing. The top-down approach which native speakers use is not so available to beginner ESL listeners. Consequently, they have to do more bottom-up processing of what they hear to facilitate subsequent top-down processing.[31] Furthermore, different approaches fit the different learning styles of different learners: those who tend to concentrate on fluency rather than accuracy will be most comfortable with the top-down process. On the other hand, those who value accuracy will prefer the bottom-up process. That is, top-down and bottom-up processes can compensate for each other.[32] Listening comprehension is not either top-down or bottom-up processing, but an interactive, interpretive process where listeners use both prior knowledge and linguistic knowledge in understanding messages.

To summarise, listening includes interpretive, active, interactive, conscious, and bottom-up and top-down processes. The key is to get learners to listen in all directions. They need to integrate top-down and bottom-up processing with the other

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[29] Anderson, A. and Lynch, T., **Listening**, Oxford: Oxford University Press, 1988, p20.
[30] Grosjean, F., Spoken Word Recognition and the Gating Paradigm, **Perception and Psychophysics**, Vol. 28, No. 4, 1980, p267.
[31] Byrnes, H., ibid, p322.
[32] Peterson, P.W., **A Synthesis of Models for Interactive Listening**, in Celce-Murcia, ed., 1991, pp106-122.

processes. When they do, it activates their language and increases their listening skills. Table 1. shows the processes of top-down and bottom-up.[33]

Table 1. The Top-Down and Bottom-up Process

<table>
<tr>
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Speech perception (e.g., sound discrimination, recognize stress patterns, intonation, pauses, etc.)

Word recognition (e.g., recognize the sound pattern as a word, locate the word in the lexicon, retrieve lexical, grammatical and semantic information about the word, etc.)

Sentence processing (parsing; e.g., detect sentence constituents, building a structure frame, etc.)

Construct the literal meaning of the sentence (select the relevant meaning in case of ambiguous word)

Hold the information in short-term memory

Recognize cohesive devices in discourse

Infer the implied meaning and intention (speech act)

Predict what is to be said

Decide how to respond

</td>
<td>

Bottom-up

Top-down

</td>
</tr>
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Conclusion: listening is not a passive process. It involves both bottom-up and top-down processes and requires the use of non-linguistic as well as linguistic knowledge.

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[33] Rost, M., **Teaching and Researching: Listening**, Section2, Longman Pearson Press, 2001, p.91.

2.2.3. The constituent elements of the listening process

In 1995, Anderson splits listening comprehension into three distinct interrelated processes. These are speech perception perceptual processing, parsing or lexical and grammatical access, and comprehension.

2.2.3.1. Speech perception

Speech perception is automatic, fast and happens effortlessly. According to the traditional view of speech perception, 'Most researchers believe that there is a stage of phonetic representation intermediate between the acoustic input and words.'[34] These researchers accounted for the role of memory in speech perception. For example, in 1981 Dirven sees a two-stage role of memory in speech perception from 'acoustic buffer' to 'auditory memory'. Also he talks of a 'gliding time window, the contents of which are passed on to central processing mechanisms that extract auditory attributes like pitch, timbre, loudness and duration from the input signal.'[35] In short, while the acoustic buffer represents the exact signal and it is brief and quickly emptied, the second form of memory 'auditory memory' holds the results of the already processed contents of the acoustic buffer and matches them with the words stored in the mental lexicon.

2.2.3.2. Recognizing spoken words

The outcome of speech perception is the recognition of words. To recognize the words, Brown proposes a cohort model that includes initial contact, lexical selection, and word recognition. In this model, all words are recognized from the phonological information, one decoded, raises a cohort including all the known words that have similar phonological beginnings. For example, if the word 'crash' is spoken, then once the initial phoneme 'k' has been decoded than all words in the hearer's mental lexicon that start with a 'k' sound are possibilities (the cohort). Further decoding that adds an 'r' sound to the 'k' means that all words which don't

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[34] Brown, G., 1983, ibid, p.23.

[35] Dirven, R. , **Basic Requirements for Integrated Listening Comprehension for Overseas Students' in ELS Documents Special: The Teaching of Listening Comprehension**, British Council, 1981, pp47-60.

match the 'kr' cohort drop out and so until the word is complete. Recognition occurs until only one word remains possible from the acoustic- phonetic information. [36]

2.2.3.3. Parsing-understanding the syntactic structure of sentences

Two types of information meaning and syntax become available. In 1988, Palincsar defines parsing as:

> *The essence of parsing is that the listener is working with input that consists of lexically identifiable elements temporarily sequenced; and is working towards determining the relationships of those elements as a part of the understanding process.*[37]

Rixon proposes that listeners use strategies based upon the surface structure of the sentence to explain the syntax. For example, English sentences frequently have a Subject- Verb- Object sequence. If these simple strategies do not succeed then further parsing needs to be done.[38]

2.2.3.4. Comprehension

After the words have been recognized, their meanings computed, and the syntax of the utterance has been parsed, meanings from speech should be interpreted.

Understanding the process of comprehension involves knowledge that a listener needs to obtain a meaningful interpretation of the spoken input. In addition, it needs consideration of how knowledge is organized in memory. Rost suggests that:

> *It is important to emphasize the principle of meaning as active knowledge construction. Meaning in discourse is created by the listener within a personal knowledge domain. Meaning is created only by an active listening in which the*

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[36] Brown, G., 1987, ibid, p.28.
[37] Khanchali, M. , **Developing the Teaching of Listening Comprehension in English at Middle Schools**, a Thesis Study, University of Batna, Faculty of Letters and Human Sciences Department of English, 2005, p.16.
[38] Rixon, S., The Design of Materials to Foster Particular Listening Strategies, **ELS Documents Special: The Teaching of Listening Comprehension**, The Bristish Council, 1981, pp.68-106.

linguistic form triggers interpretation within the listener's background and in relation to the listener's purpose.[39]

One of the factors, which affect the listening comprehension, is the listener's level of prior knowledge. The second factor is inferring. Trying to understand spoken texts enables listeners to infer meaning. Brown notes that there are many types of inference. One is the logical inference. For example in the sentence: 'he ran in another marathon last week', the listener can easily infer that 'he' participated in other marathons before. Another type is elaborative inference where world knowledge is used. In this type, both inferring and prior knowledge have to be used. Nunan notes that:

The inferences are drown from background knowledge or form what is explicit in the text. Face to face, conversations provide opportunities to infer from visual appearance and paralinguistic signals and thus inferences are also contextually based.[40]

Another factor is anaphoric reference. The listener has to compute the connections between sentences. Background knowledge helps the listener to achieve this by helping connect the new information with what has been said before. For example, 'Betty is getting married on Thursday. She is wearing white.' It is easy to infer that 'she' is 'Betty'.[41] Besse adds that 'pronoun resolution is quicker when the referent was last mentioned in the conversation.'[42]

The next one is short-term and long-term memory. Short-term memory is the system used to remember information 'in use' such as a telephone number while one is dialling it. It is limited in storage capacity and because of its limits; it has not received much attention in research. On the other hand, long-term memory relies on remembering the meaning of a passage, a conversation, or an event. The learner actively attempts to place some form of organization on the material in a consistent manner. It is by placing what follows in relation to what has already been said that

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[39] Rost, M., **Listening in Language Learning**, Longman Pearson Pres., 1996, p23.
[40] Nunan, D., **Designing Tasks for the Communicative Classroom**, Cambridge University Pres., 1993.
[41] Khanchali, M., ibid, p.18.
[42] Besse, H., The Pedagogic Authenticity of a Text, **ELS Documents Special: The Teaching of Listening Comprehension**, 1981, pp.20-29.

the listener establishes the speaker's meaning. In short, what we will remember is what is stored in long-term memory, and not what we held briefly in short-term memory.[43]

2.2.4. Strategies of listening comprehension

In this section, we attempt to present some of the most important listening comprehension strategies identified by different researchers in the recent literature.

In Murphy's analysis of the listening comprehension strategies of ESL students, he found twelve strategies in four broad strategy groupings. These are Recalling, Speculating, Probing, and Introspecting. His analysis depends on 'think-aloud' protocols. Firstly, recalling involves paraphrasing, revising and checking. Learners paraphrase textual information and put what they have heard into their own words. This shows that learners are attempting to recall what they heard as exactly as they can by rephrasing the information (paraphrasing), by revising the information they may have misunderstood the first time they heard it and by verifying the information in their own comments (checking). Secondly, speculating involves introducing 'listener-based information'. It follows recalling. Listeners use their imagination to help them in their listening in four speculating strategies; inferring (listening between the lines), connecting (drawing associations between what they hear and what they already know, prior knowledge), personalizing (draw connections from their private lives or personal worldview), and anticipating (attempt to predict information that might be introduced at some future point in time). Thirdly, probing involves going beneath the surface of the information presented in three probing stages; analysing the topics, analysing the conventions of language, evaluating the topics. Finally, introspecting involves listeners focusing their attention inwards and reflecting on their own experiences as listeners to the selections in two introspecting strategies; self-evaluating and self-describing.[44]

Willing sees listening strategies as a means of information control, so learners avoid becoming overloaded and overwhelmed. Willing identifies six strategies of listening comprehension; selectively attending, associating, recognizing

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[43] Khanchali, M., ibid, p.19.

[44] Murphy, J. M., The Listening Strategies of English as a Second Language College Students, **Research and Teaching in Developmental Education**, Vol. 4, No. 1, 1987, pp27-46.

patterns, analyzing, categorizing and inferencing. Firstly, if students learn to listen selectively for the stressed words, this will lead them to a telegraphic version of the message. Selective attending involves focusing on the main points according to different criteria. This results in a reduction of the information load. Secondly, association is a very important cognitive process keeping together items. As Willing states, 'this strategy takes information in and merges it with what has already been internalized.... in this way the person places the information under his control.'[45] Thirdly, recognizing patterns involves recognizing, matching, and reproducing patterns. By this way, learners maintain control of the input and are able to make analogies, which will assist in the guessing of meaning. Next analyzing involves the extraction of particular features from given context. Then categorizing is based on analyzing. The extracted features are used to form concepts and groups. Finally, inference involves discovering a solution by deriving it from what is already known. 'Take, for example, the following dialogue between a parent and a child:

Parent: how did you do in the History test?
Child: Ms. Panzerotti's tests are always unfair.

Competent listeners know that the inference is that the child did poorly.'[46] That is, inference involves comprehension of the meaning of the discourse beyond that which is explicitly stated.[47]

O'Malley, Chamot, Stewner-Manzanares, Kupper and Russo in their study came up with twenty-six strategies, nine metacognitive, sixteen cognitive and one social mediation. Many of these are indicated by Murphy and Willing above. In the metacognitive category, we see directed attention which is an interesting addition to Willing's selectively attending. Learners decide in advance to attend in general to a learning task and to ignore irrelevant distracters. In cognitive category, we see note taking and imagery.[48]

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[45] Willing, K., Learning Strategies as Information Management, **Prospect 2**, 1987, p281.
[46] Mendelsohn D. J., 1994, ibid, p30.
[47] Willing, K., ibid, Vol. 3, p291.
[48] O'Malley, J. M., Chamot, A.U., Stewner-Manzanares, G., Kupper, L. and Russo, R.P., Learning Strategies Used by Beginning and Intermediate ESL Students, **Language Learning**, Vol. 35, No. 1 1985, pp21-46.

O'Malley, Chamot, and Kupper divided listening comprehension strategies into two parts; metacognitive and cognitive listening comprehension strategies. The first includes directed attention, selective attention, self-management, self-monitoring and self-evaluating. Cognitive listening comprehension strategies involve repetition, directed physical response, translation, grouping, note taking, deduction, imagery, auditory representation, key word, contextualization, elaboration, transfer, inferencing, question for clarification and resourcing. They found important significant differences between effective and ineffective listeners. These are self-monitoring, elaboration, and inferencing. Effective listeners listen for larger chunks; their listening is not based on word-by-word basis. On the other hand, ineffective listeners try to determine the meaning of individual words (bottom-up). To them, effective listeners use both top-down and bottom-up strategies. In addition to this, effective listeners make use of prior knowledge in three ways; they use their world knowledge, their personal knowledge, and carry our self-questioning.[49]

Rubin indicated two strategies; storyline strategy and cognate strategy for listening comprehension. The first is used while watching a video. Listeners try to predict the main plot or storyline and they not only use the spoken language but also concentrate on the visual material. In second strategy learners are encouraged to notice that an individual word or phrase sounds like one or more in their own language such as television, supermarket etc.

Finally Goh divided listening comprehension strategies into two parts; cognitive strategies, metacognitive strategies. Cognitive listening comprehension strategies involve inferencing, elaboration, prediction, contextualisation, fixation, and reconstruction. Metacognitive listening comprehension strategies involve directed attention, comprehension monitoring, and real-time assessment of input, comprehension evaluation, and selective attention.[50] In Table 2., we attempt to show the list of the second language listening strategy. ([51] [52] [53]).

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[49] O'Malley, J. M., Chamot, A.U. and Kupper , L., 1985, ibid, pp418-435.
[50]Goh, C. C. M., How ESL Learners with Different Listening abilities Use Comprehension Strategies and Tactics, **Language Teaching Research**, Vol. 2, No. 2, 1998, pp124-147.
[51]O'Malley, J. M. and Chamot, A. U., **Learning Strategies in Second Language Acquisition**, Cambridge University Press, 1990, pp137-139.
[52]Oxford, R. L., **Language Learning Strategies: What Every Teacher Should Know**, New York, Newbury House, 1990.

Table 2. Second Language Listening Strategies

The Second Language Listening Comprehension Strategies	
Strategy	**Description**
Inferencing	Using acoustic, vocal, or lexical information *within* the text to guess the meaning of unfamiliar language items, or to fill in missing information.
Elaboration	Activating prior knowledge *outside* the text or conversational context to construct meaning or to fill in missing information. Or embellishing an interpretation to make it meaningful and complete.
Prediction	Anticipating content before and during listening.
Contextualisation	Relating new information to a wider familiar context.
Directed attention	Monitoring attention and avoiding distractions.
Fixation	Focusing attention on understanding a small part of the text.
Reconstruction	Using key words to relate the meaning.
Comprehension Monitoring	Checking/conforming understanding while listening.
Real-time Assessment of Input	Determining the value of specific parts of the input.
Comprehension Evaluation	Checking interpretation for accuracy, completeness and acceptability after listening.
Selective Attention	Noticing specific aspects of input.
Directed Physical Response	Relating new information to physical action as with directives.
Imagery	Using mental or visual images to represent information.
Note Taking	Writing down key words and concepts while listening.

[53]Rost,M., and Ross, S., Learner Use of Strategies in Interaction: Typology and Teachability, **Language Learning**, Vol. 41, 1991, pp235-273.

Deduction	Reaching a conclusion about the target language because of other information the listener thinks to be true.
Translation	Expressing target language words in the listener's first language in the listening task.
Transfer	Using knowledge of one language to facilitate listening in another.
Repetition	Repeating a word of phrase in the target language mentally or orally.
Resourcing	Using available references about the target language, including textbooks or the previous tasks.
Grouping	Classifying information such as words or concepts according to their meaning or according to the listener's own organization.
Self-monitoring	Checking, verifying, or correcting one's listening comprehension while performing a task.
Self-evaluation	Checking the concentration of oneself or assessing one's strategy use.
Storyline	Tiring to predict the main plot or storyline and they not only use the spoken language but also concentrate on the visual material.
Cognate	Noticing that an individual word or phrase sounds like one or more in their own language such as television, supermarket etc.
Self-management	Understanding the conditions that help learn and arranging for the presence of those conditions.
Auditory Representation	Deals with the retention of sounds for words, phrases or longer language sequences.

Key word	Remembering a new word in the target language by identifying a familiar word in the first language that sounds like or otherwise resembles the new word or generating easily recalled images of some relationship between the new words.
Problem Identification	Pointing out the central point needed to be resolved in a task, or identifying an aspect of the task that hinders its successful completion.
Reprise	Showing the "speakers" that they did not get the message across.
Clarifying	Asking for explanation, verification, rephrasing, or examples about the language and/or task, or posing questions to the self.
Recalling	Recalling involves paraphrasing, revising and checking.
Speculating	Speculating involves introducing 'listener-based information'. Speculating strategies are; inferring, connecting, personalizing, and anticipating.
Probing	Involves going beneath the surface of the information presented in three probing stages; analysing the topics, analysing the conventions of language, evaluating the topics.
Introspecting	Involves self-evaluating and self-describing.
Connecting	Drawing associations between what they hear and what they already know, prior knowledge.
Personalizing	Draw connections from their private lives or personal world view.
Anticipating	Attempt to predict information that might be introduced at some future point in time.
Association	It is a very important cognitive process keeping together

	items.
Recognizing Patterns	Involves recognizing, matching and reproducing patterns. By this way learners maintain control of the input and are able to make analogies which will assist in the guessing of meaning.
Analyzing	Involves the extraction of particular features from given context.

2.3. CALL

2.3.1. An introduction to CALL

CALL stands for Computer Assisted Language Learning the practice of using computer technology in language teaching. . In the following section, we will first discuss how and when this field started developing and what its developmental stages were then we will explore the advantages of computers in language learning, and finally the effect of CALL in listening comprehension.

2.3.2. History and development of CALL

Computer-Assisted Language Learning may be defined as 'the search for and study of applications of the computer in language teaching and learning.'[54]Computers have been used for language teaching since the 1960's. Levy, divides the history of CALL into three periods, the 1960s and 1970s, the 1980s, and the 1990s while Warschauer & Healey divide this 40-year period into three main stages: behaviourist CALL, communicative CALL, and integrative CALL. Each stage corresponds to a certain level of technology and certain pedagogical theories. We will look at Levy first then Warschauer & Healey.

Levy's 1960s and 1970s period includes the PLATO, TICCIT, Stanford and Darthmouth projects. PLATO (Programmed Logic for Automatic Teaching Operations), a pioneering project related to the use of computers in educational research began in 1960 at the University of Illinois. It was designed to provide interactive, self-paced instruction for large numbers of students.

[54] Levy, M., **Computer-Assisted Language Learning Context and Conceptualization**, Oxford University Press, 1997, p1.

> *In conjunction with the Control Data Corporation, with a view to servicing the needs of computer-based education across the range of disciplines taught at a conventional university. The PLATO system consists of computers and terminals manufactured by the Control Data Corporation together with the special purpose software to develop CAL material. These materials can only run on PLATO (CDC) hardware. One measure of the success of the PLATO system is its ability to survive over a period of decades and to sustain the interest of teachers.*[55]

Another major project TICCIT (Time-Shared, Interactive, Computer Controlled Information Television) was initiated in 1971 at Brigham Young University. This system, a combination of television technology and the computers, had a capacity to combine text, audio, and video and as such, TICCIT was perhaps the first example of multimedia computer assisted instruction.[56] It had a specific instructional framework that dictates the actual form of the hardware, software, and courseware and this framework is built into the system. This distinguishes the TICCIT project from PLATO. In addition, a central tenet of the TICCIT system is learner control.[57] Both projects made subsequent advances in computer hardware and the systems exist today on a number of mainframe computers at universities and in the form of Micro TICCIT for microcomputers.[58]

The Stanford project initiated at Stanford University dates from the mid-1960s. In this project, instead of slow teletype there is a bilingual visual display unit, and in place of the tape recorder there is a computer generated audio system. Finally, in the late 1960s, Dartmouth College in New Hampshire was also among the first academic institutions to provide time-sharing (interactive) facility to its user community, the Darmouth system used the BASIC programming language (Beginners All Purpose Symbolic Institution Code). Dartmouth was based on the principle that there are relationships between a student's ability in language and the proportion of time he spends with a computer. The amount of time spent in class

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[55] Ahmad, K., Corbett, G., Rogers, M. and Sussex, R., **Computers, Language Learning and Language Teaching**, Cambridge University Press., 1985, p30.
[56] Levy, M., ibid, p18.
[57] Merrill, M. D., Learner Control in Computer-Based Learning, **Computers and Education**, Vol. 77, 1980, p77-95.
[58] Levy, M., ibid, p20.

should therefore be decreased as students supplement their work with well-designed programs on a computer.[59]

The programs in this early period of CALL were driven by the audio-lingual approach to language teaching, but by the 1980s, a different view had appeared Communicative Language Teaching (CLT). This 'aims to communicative competence as the goal of language teaching and develops procedures for the teaching of the four skills that acknowledge the interdependence of language and communication.'[60] Furthermore, because of the introduction of the microcomputer in 1973, the early 1980s saw a boom in computer-assisted language learning. The language teacher-programmer emerged as teachers could write simple CALL programs and produce CALL material using authoring programs such as Storyboard, which is a text-reconstruction program for the microcomputer. In 1983, Massachusetts Institute of Technology (MIT) established Project Athena an eight-year research program to explore innovative uses of computers in education. New developments such as the CD-ROM, cable television, interactive videos, and speech-based software appeared. Moreover, experiments in the integration of computers into the curriculum were carried out.[61]

In the 1990s, one of the most important technological developments was the internet, the worldwide 'network of networks'. New software, and wide scale, fast access to the internet made computers available in almost all public and private schools as well as homes for personal and educational use. CALL projects now make use of the Internet and the multimedia materials available on it in different ways. The International Email Tandem Network begun by Helmut Brammerts is an example of language learning by computer-mediated communication using the Internet. In 1993, the CAMILLE (Computer-Aided Multimedia Interactive Language Learning) France InterActive projects combined a communicative competence approach to language acquisition with an interactive multimedia environment. In 1994, the Oral Language Archive (OLA) was initiated at Carnegie Mellon University, aiming to collect digitized sound recordings for foreign language

[59] Ahmad, K., Corbett, G., Rogers, M. and Sussex, R., ibid, p33.
[60] Richards, J. C. and Rodgers, T. S., **Approaches and Methods in Language Teaching**, Cambridge University Press., 1986, p 66.
[61] Levy, M., ibid, pp21-31.

learning from the great quantity that is accessible from around the world via the Internet.[62]

Important developments in the 2000s are the wide use of internet, fast and affordable processors, and developments of DVDs, video conferencing, and satellite systems. These give rise to new applications for language teachers and learners, while computers are available in a great many public and private schools, universities and homes for educational and personal use.

We will now look at Warschauer and Healey, developmental stages, behaviourist CALL, communicative CALL, and integrative CALL.

In the 1960's and 1970's when behaviourist theories of learning dominated, CALL was based on the idea of the 'computer as tutor' and entailed repetitive language drills, the so-called drill-and-practice method. The computer is used as a mechanical tutor, which gives students feedback, and lets learners work at their own speed. In this stage, the best-known tutorial system, PLATO, ran on its own special hardware which was mainly used for extensive drills, explicit grammar instruction, and translation tests.

Communicative CALL emerged in the 1970's and 1980's, during the reaction to the behaviourist approach to language learning, based on communicative teaching approach and grounded on the ideas of the ‘computer as stimulus' and 'computer as tool'. These developments stressed that CALL should focus more on using forms rather than on the forms themselves. It was focussed on implicit grammar teaching, generation of original utterances, and the appropriate usage of target language forms. Communicative computer-based instruction corresponded to cognitive theories which recognized that learning was a creative process of discovery, expression, and development. Popular CALL software in this era included text reconstruction programmers and simulations. [63]Warschauer and Healey indicated that ‘"The focus was not on what students did with the machine, but rather with each other while working at the computer."[64]

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[62] Levy, M., ibid, p37.

[63]Kuang-wu Lee, English Teachers' Barriers to the Use of Computer-assisted Language Learning, Hsuan Chuang University (Hsinchu, Taiwan), The Internet TESL Journal, Vol. VI, No. 12, 2000, **http://iteslj.org/** .

[64]Warschauer, M., and Healey, D., Cornputers and Language Learning: An Overview, **Language Teaching**, Vol. 3, No. 1, 1998, p13.

Integrative CALL, based on multimedia technology and the Internet, is the last stage of computer-assisted language learning. The advantages of such language learning are a more authentic learning environment and the easy integration of skills. Teachers have moved away from a cognitive view of communicative language teaching to a socio-cognitive view that emphasizes real language use in a meaningful, authentic context. Today CALL integrates the various skills of language use (listening, speaking, writing, and reading) while integrating technology more fully into language teaching as the multimedia-networked computer provides a range of informational, communicative, and publishing tools that are potentially available to every student. Table 3. lists the chronological development of computer assisted language learning.[65]

[65] Bullough, R. V., and Beatty, L. F., ibid, p8, and also see Levy, M., ibid, pp13-45 and Ahmad, K., Corbett, G., Rogers, M. and Sussex, R., ibid, pp27-44.

Table 3. The Chronological Development of CALL

1946	First generation computers based on vacuum tubes, introduced.
1959	Second-generation all-transistorized computer introduced by IBM.
1960	The PLATO project initiated at the University of Illinois.
1963	The Standford Project begins.
1964	Third generation computers, based on integrated circuits, appear; BASIC developed at Dartmouth.
1965	Digital Equipment Corporation markets the inexpensive PDP-8 minicomputer; teaching of classes at the University of Illinois using PLATO.
1965-1969	The Scientific Language Project (University of Essex).
1967	The New York plan; expanded use of computer-assisted instruction in the public schools.
1968	Logo introduced.
1969	The first microprocessor chip developed by Intel.
1972	Fourth generation begins with the introduction of expanded microchip by Intel.
1973	The microcomputer was invented.
1975	First full scale marketing of a microcomputer.
1976	Apple computer was formed and the Apple I realised.
1977	The Commodore PET, the Apple II, and the Radio Shack TRS-80 microcomputers introduced.
1977	The first serious educational applications appeared.

1980	The Sinclair ZX80 microcomputer.
1982	The BBC micro in the UK.
1983	In Australia with the introduction of the Apple IIe, there became wider educational context.
Early 1980s	*The language teacher-programmer became prominent. *Language teachers produced CALL materials using authoring programs such as Storyboard, authoring system such as HyperCard(becoming well-known when realised for the Macintosh computer in1987). *Wide-scale adoption of microcomputers by the schools; computer literacy movement. *Advances in technology such as CD-ROM, speech-based software, interactive videodiscs.
1983	Massachusetts Institute of Technology (MIT) established Project Athena as an eight-year research program to explore innovative uses of computers in education.
1990s	One of the most important technological developments is the Internet, the worldwide network of networks. The CALL projects make use of the Internet in different ways such as multimedia materials.
1991	Gopher, a menu-based system for exploring the Internet was released.
1992	CERN of the World Wide Web (WWW) found a hypertext-based system for finding and accessing Internet resources.
1993	*Mosaic was released. *The International Email Tandem Network begun by Helmut Brammerts is described as language learning by computer mediated communication using the Internet. *The CAMILLE (Computer-Aided Multimedia Interactive Language Learning) / France InterActive projects combine a

	communicative competence approach to language acquisition with an interactive multimedia environment.
1994	*Netscape Navigator was released. *The Oral Language Archive (OLA) was initiated at Carnegie Mellon University.
2000s	Wide use of Internet, fast and affordable processors, developments of DVDs, video conferencing, satellite system. There appear new applications for language teachers and learners. Computers are available in almost all public and private schools, Universities and at homes for educational and personal use.

2.3.3. The advantages of computers in language learning

In recent years, the computer has become an important feature of modern life. Forty years ago, computers were as big as houses and were extremely expensive. Today, computers are smaller, faster and easier for non-specialist to use. They are no longer large and expensive machines and are in the homes of people of different social and economical strata. Many of us use computers daily, sometimes without even being aware of the fact. It is a fact that computers are now a part of our daily life.[1]

Ahmad, Corbett, Rogers and Sussex discuss the advantages of the computers are in two categories; the advantages of the computer and its inherent nature, the benefits for the teacher and the benefits for the learner.

There are many inherent advantages of the computer. Firstly, the computer offers a much wider range of activities than other technological aids so one machine can now handle different kinds of materials in the form of text, graphics, audio, and video. Secondly, computers provide a forum for interactive learning in that they can conduct a two-way learning session with the student. It can handle a large volume of interaction, it does not tire, its attention does not falter, and its response is essentially

[1] Hope, G.R., Taylor, H.F. and Pusack, J. P., **Using Computers in Teaching Foreign Languages**, USA: Prentice Hall Regents, 1984, p30.

very quick. Furthermore, it can assess the student's response and reply to the student. In this way the computer can take the student through subsequent attempts at a question, and even take her or him to a different section of the package, depending on the nature of the response, and the computer can do all this very quickly. In addition, it can repeat an activity with none of the errors and it can deliver to the student feedback. Lastly, students can refer back to the information quickly and do their activities whenever they want to.[2]

From the teacher's point of view, the computer has several advantages. The computer can handle question and answer routines, simulated dialogues, hypothesis testing and many other types of exercise, it can choose questions at a random or in sequence or at random from the list of questions supplied by the teacher. In addition, it can record the results, errors, success rates; the time spent, and provides this information and much more for the teacher. Using this information, along with the reactions of the students, the teacher is then able to revise and refine the materials at any stage, adding and editing information, texts, and activities. Moreover, computer assisted teaching does not require the teacher to be in direct contact with the students. Software is interactive and gives the student the opportunity to benefit from material designed or selected by the teacher, while freeing the teacher from some time constraints, which will make more time available for creative and imaginative teaching in those parts of the course where teacher-student contact is more necessary.[3]

A key benefit for the learner is that the student has the control over the study routine. In other words, learners have choice of when to study and what to study, and how long to spend on it. . The student has the exclusive and full attention of the computer and can work at the speed best suited to him. Then when getting feedback the student does not have to wait for his or her turn to come round, as they would have to in class. A teacher may need days to mark and give feedback to the students but the computer does this process at immediately.[4]In addition, computers have allowed students to take a greater variety of distance learning courses, as teachers can send CDs or discs of their materials through the post or provide them online.

[2]Ahmad, K., Corbett, G., Rogers, M. and Sussex, R., ibid, pp4-6.
[3]Ahmad, K., Corbett, G., Rogers, M. and Sussex, R., ibid, p5.
[4] Ahmad, K., Corbett, G., Rogers, M. and Sussex, R., ibid, p6.

Finally, the teacher, using feedback and reports from the learner's performance, can tailor packages (linguistic data and programs) specifically to the needs of individual students with special learning problems.

According to Dhaif there are four main advantages of computers in language learning. The first is that language-learning conditions are made more interesting by computers. In addition, computers instruct language through games and problem solving activities, while difficult drills can be made more attractive to the student. Secondly, computers give immediate feedback enabling self-correction and further selective choice of materials according to the learner's level. Thirdly, the computer can present a great choice of type of activities in language teaching. Finally, Call gives opportunities to learners to develop general computer literacy.[5]

Hope, Taylor and Pusack mention that the computer keeps records and performs correction tasks. They state that;

> *The computer allows one-to-one interaction. The amount of control over events is shared fairly equally between student and machine: the computer asks the question and has the answers; the student decides when to turn it on and off, which material to work on, and how fast to go. Students have rarely such power over their teachers. Teachers rarely seem as patient.* [6]

According to Nagata, a CALL program can provide immediate feedback on the correctness of the learner's response.[7] Teachers give little attention to the importance of feedback in traditional classrooms and they provide corrective feedback in the classroom but it is not systematic or immediate. Computers, on the other hand, provide immediate feedback for every incorrect response.

Brown listed the advantages of CALL as giving immediate feedback and allowing students to work at their own pace with therefore less frustration among students.[8] Stokes stated that students can get detailed feedback and hints which led the students to think and added that

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[5] Dhaif, H. A., Can Computers Teach Languages, **English Teaching Forum**, Vol. 27, 1989 , p3.
[6] Hope, G.R., H.F. Taylor and J. P. Pusack , ibid, p40.
[7] Nagata, N., Intelligent Computer Feedback for Second Language Instruction, **The Modern Language Journal**, Vol. 77, 1993, p3.
[8] Brown, J. D. , Computers in Language Testing: Present Research and Some Future Directions, **Language Learning and Technology**, Vol. 1, No.1, 1997, p44.

> *The computer is tireless and non-judgmental. Students can play with the language and deliberately get things wrong and nobody will know.(This is especially important in those places where the concept of 'face' means that students worry unduly about making mistakes.*[9]

According to Garcia and Arias, CALL increases motivation of students, individualizes the learning process with non-linear access to information and immediate feedback.[10]

Chapel and Jamieson state that there are three advantages of CALL; individualization, record keeping and answer judging. The first one implies that learners have the opportunities to work with the instructed language on their own. The second one states that the computer collects the data that flows between the student and the computer while interacting such as students' answers. Finally, the computer gives information about the correctness of the answer that the student has answered to the question that the computer has asked and the computer give meaningful explanation about why the answer is wrong.[11]

Jones explains the advantages of computers as follows:

> *Computer assisted test and practice exercises present an important development in language teaching. They can provide in English – which means that they can teach as well as test. Because of its ability to provide students with individual and instant feedback, the computer as tester is potentially an invaluable aid to teachers: it can relieve them of the burden of constant remedial work, and of the unenviable task of trying to make such work interesting and motivating, thus releasing them for more creative and enjoyable whole class activities.*[12]

It is believed that CALL helps to create motivation in students in a number of ways firstly by personalizing information, for example by integrating the student's

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[9] Stokes, A,. Making a Success of CALL, **English Teaching Professional**, Vol. 4, 1997, p20-21.
[10] Garcia, M. R. and Arias, F. V., A comparative Study in Motivation and Learning through Print-Oriented and Computer-Oriented Tests, **Computer Assisted Language Learning**, Vol. 13, No. 4-5, 2000, pp457-465.
[11] Chapel, C. and Jamieson, J., Computer-Assisted Language Learning as a Predictor of Success in Acquiring English as a Second Language, **TESOL Quarterly**, Vol. 20, 1986, p1.
[12] Jones, C., Computer Assisted Language Learning: Testing or Teaching, ELT **Journal**, Vol. 37, No. 3, 1983, p 249-250.

name or familiar contexts as part of the program or task. Animate objects on the screens make activities appear lively and fun. Computers provide practice activities that incorporate challenge and curiosity and provide a context (real world or fantasy) that is not directly language-oriented. Using a range of multimedia components in a program or course increases the variety interest and thus the motivation of students.[13] Students tend to spend more time on tasks when they are on computers and this itself is an important factor that increases the motivation of students. [14]

Computers can adapt to the student. This usually arises as the student controls the pace of the learning but also means that students can make choices in what and how to learn, skip unnecessary items, or do remedial work on difficult concepts. By the help of this control, students feel more competent in their learning. Students tend to prefer exercises where they have control over content, such as branching stories, adventures, puzzles, or logic problems. With these, the computer has the role of providing attractive context for the use of language rather than directly providing the language the student needs.[15]

With real communication acts (authenticity), rather than teacher-contrived ones, students feel empowered and less afraid to contact others. Students learn faster, better, and learn more about culture with computer-mediated communication. While studying with computers students feel less stressed and more confident because surface errors do not matter so much on computers. They can check and then correct their mistakes. Use of computers improves self-concept (self-imagery / self-esteem) and mastery of basic skills with more student-centred learning and encourages real engagement in the learning process, more active processing resulting in higher-order thinking skills and better recall, and helps learners to gain confidence in directing their own learning.[16]

Consequently, computer assisted language learning has many advantages such as learner autonomy, repetitive practice, immediate and detailed feedback to learners as regards their progress and mistakes, flexible learning (suited to the

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[13] Finnegan, R. and R. Sinatra, Interactive Computer-Assisted Instruction with Adults, **Journal of Reading**, Vol. 35, 1991, p2.
[14] Stepp-Greany, J., Students Perceptions on Language Learning in a Technological Environment: Implications for the New Millennium, **Language Learning and Technology**, pp12-15.
[15] Retrieved from, **http://en.wikipedia.org/wiki/Computer-assisted_language_learning.**
[16] Traynor, P., Effects of Computer-Assisted Instruction on Different Learners, **Journal of Instructional Psychology**, 2003, pp12-15.

learner's own time constraints), non-linear learning and increased motivation, authenticity. Moreover, these advantages of computer are beneficial in language learning and teaching. Finally, the computer is a powerful motivating force for productive study.

2.3.4. The roles of computers in education

Computers are widely used in industry, military, and education but they have different roles in different areas. In education, three roles have been attributed to computers: computer as learner (tutee), computer as tool, and computer as tutor. [17]

2.3.4.1. Computer as learner

As computers are learners themselves, they perform their tasks in the way the user wants. Computers understand special languages (machine language) and special codes written by the programmers for them such as Microsoft Word and Power Point that we use today. By the help of these codes, computers can understand when, what and how to do the thing instructed.

2.3.4.2. Computer as tool

Computers have another role as tool in education. Word-processing and desktop publishing are the main use of computers in education as tool. Worrying about the typing mistakes while writing a term paper or a thesis is a history now which we have word-processing programmes. Teacher also now use computers as tool while writing their papers and worksheets for their classes.

2.3.4.3. Computers as tutor

As mentioned before, computers present activities such as drill and practice, tutorials, simulations, and games, and give feedback and remedial explanation to the learners.[18]

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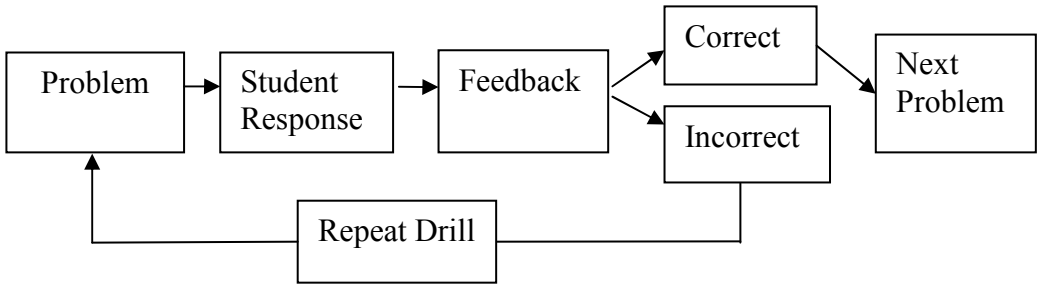
[17] Lockard, J., Abrams, P., & Many, W. A., **Microcomputers for Twenty-First Century Educators**, USA: HyperCollins Publishers Inc., 1994, p91.

[18] Lockard, J., Abrams, P., & Many, W. A., ibid and Higgins, J., & Jones, T., **Computers in Language Learning**, England: Collins ELT, 1984 and Mandell, C. J., & Mandell, S. L., **Computers in Education Today**, USA: Weat Publishing Company, 1984 and Lillie, D. L., Hannum, W. H., & Stuck, G. B.,

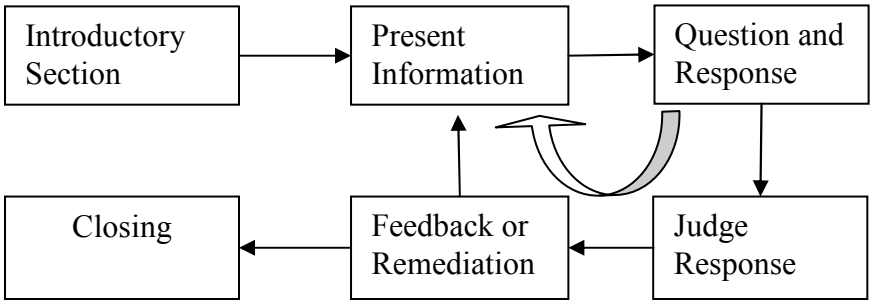
The drill activities help learners to practice and review items newly learned with a series of exercises which teach the task to learners by repetition and example. Figure 2. shows the basic characteristics of a drill and practice activity.[19]

Figure 2. Characteristics of a Drill and Practice Activity



Software tutorials are designed to teach the learners a subject matter through screens of textual materials followed by exercises and questions. They provide feedback on the responses given by the learner and can lead the learner to a different stage based on his/her performance. Figure 3. **s**hows the general structure and flow of a typical tutorial.[20]

Figure 3. General Structure and Flow of a Typical Tutorial



In addition to this, simulations provide the learners with opportunities to learn specific skills or improve decision-making processes. Computers control the

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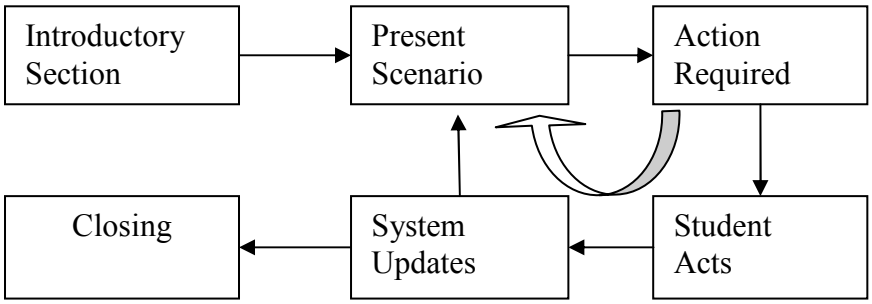
Copmuters and Effective Instruction: Using Computers and Software in the Classroom, USA: Longman, 1989 and Bullough, R. V. & Beatty, L. F., ibid, p.21.

[19] Mandell, C. J., & Mandell, S. L., ibid, p.47.

[20] Alessi, S. M. & Trollip, S. R., **Computer-Based Instruction: Method and Development**, New Jersey: Prentice-Hall, 1985, p33.

acts, schedule the events, and provide the outcomes. Table 4. gives the basic characteristics of a simulation.[21]

Figure 4. Characteristics of a Simulation

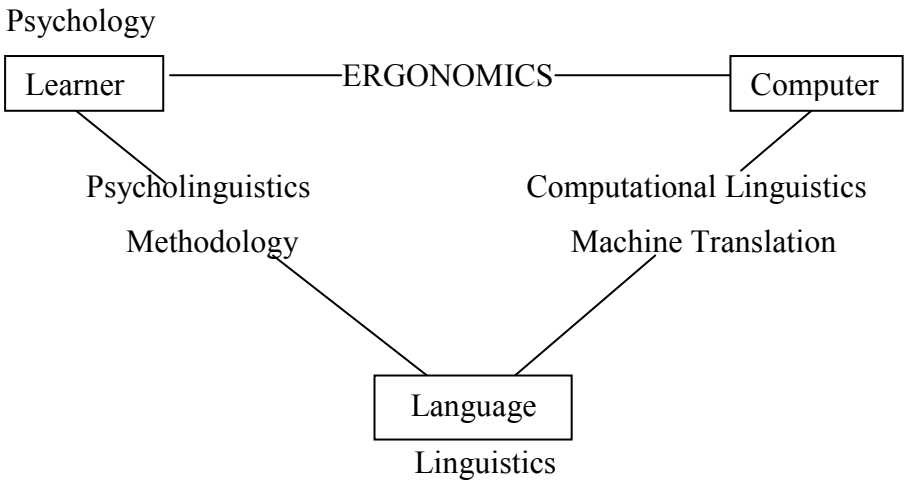


Finally, games provide an entertaining environment for the learners and are a very highly motivating tool for learners that can be integrated in many instructional activities.

2.3.5. The learner, language, and the computer triangle

The three elements as the learner, language and the computer interact with each other. In Figure 5., Ahmad, Corbett, Rogers and Sussex show a model of the three main factors in CALL.[22]

Figure 5. A Model of Three Main Factors in Call



[21] Alessi, S. M. & Trollip, S. R., ibid, p.17.
[22] Ahmad, K., Corbett, G., Rogers, M. and Sussex, R., ibid, p45.

2.3.5.1. The learner and the computer

Ergonomics is the most concrete of the three relationships. The literary definition of ergonomics is the way in which the careful design of equipment helps people to work better and more quickly. The science of ergonomics describes the relationship between people and machines. In other words, it is a relationship between the learner and the computer. The relevance of ergonomics to CALL can be considered in two ways; the physical environment, and the program usage.

The physical environment is important for learners' concentration. The first consideration is the location of the computers. They should not be put in a room where there is a lot of noise. In other words, machines should not be located in a distant place. They should be close to the classrooms. Secondly, access to them must be easy and reliable. Next, there should be adequate place near the computers for learners to put their books and writing materials. The final aspect of the learner's physical environment is the terminal. The keyboard must be large enough to allow easy use. The screen also must be large enough to allow comfortable reading. There must be no glare or reflection from lighting or other equipment in the room, and the screen must be at a suitable and safe distance from the user's eyes.

Using the programme is also very important. Basic operating instructions such as starting, running, and leaving the programme and general keyboard procedures should be clearly documented and readily available. If there is a problem about using the programme or system, the students should be informed by the teachers otherwise users might switch off the computer thinking that something has gone wrong. Another important thing is that students should not have any difficulty in finding the chosen package and getting it to run. Again, instructions to the user should be explicit. Once the contents have been loaded or the system accessed, the learner needs further guidance. In the same way, easy access to the programme must be matched by an easy exit. Learners become frustrated if they cannot end the programme.

2.3.5.2. Natural language and the computer

Natural language is more complex than a machine language. When looking at the formal properties of natural language is examined, it is seen that it operates at a number of levels. There is a relationship between the meaning and the structure but identical constituent structures serve for different underlying meanings. There can also be different surface structures. In other words, natural language performs processing operations, which are far more complex than matching strings of characters, or words, which is what machines are good at. In natural language, rules do not operate on words or arbitrary strings of words, but on syntactic categories: they are structure- dependent. For example[23],

(1) The man is tall.

(2) Is the man tall?

The rule is that the copula verb is moved to the beginning of the sentence.

(1) The man who is tall is in the room.

If we move the first copula verb in the sentence to the beginning of the sentence, we get:

(2) Is the man who tall is in the room?

It is not acceptable so the rule is in obvious need of revision. In the same way, a more obvious problem, which is impossible for the computer, is that homonymy. That is two words with different meanings have the same form such as *bank* (financial institution) and *bank* (side of a river). Another variant of this is the homograph where the words are distinguished in speech but not in writing such as lead (for a dog) and lead (metal). The lack of a one-to-one relationship between form and meaning presents difficulties for a very literal-minded machine.[24] Another feature of natural language is anaphora. It is again difficult for the computer to handle. For example[25]:

(1) John knew that he was going to win the race.

(2) He knew that John was going to win the race.

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[23] Chomsky, N., **Reflections on Language**, Glasgow, Fontana, Collins, 1976, pp.3-30.
[24] Ahmad, K., Corbett, G., Rogers, M. and Sussex, R., ibid, p51.
[25] Chomsky, N., **The Acquisition of Syntax in Children from 5 to 10**, Cambridge, Mass., MIT Press, 1969, p.108.

In example (1), the subject pronoun *he* can refer to *John* or to someone else. In example (2), however, the subject pronoun *he* can only refer to someone else. Natural language is also distinguished from computer by its high degree of redundancy. It often gives more than one indicator as to the grammatical function of a word or phrase in context. Computer languages, however, have simple and invariant rules of syntax and they have a low degree of redundancy. For instance, if the computer received the instruction: 'he go to bed at six o'clock', instead of 'he goes to bed at six o'clock', this would be a fatal syntax error; the computer would not understand what was meant.

On the other hand, natural language in the form of a continuous written text or as a tool of human interaction is more complex. Inference plays an important role in the understanding of language. For example[26]:

Mary was not at school today. Her mother was ill.

There is no structural or semantic link between these two sentences. However, any speaker of English will be able to draw the inference that Mary's mother's illness was the reason for her absence. CALL programmes are still very literal. They are not yet intelligent enough to cope adequately with the complexities of natural language processing. We should not expect the computer to process speech input since CALL is still forced to concentrate on the written medium. In the same way, the computer cannot match the teacher at interactive dialogue. To sum up, a computer language cannot be the same as a natural language so learners should not expect computers to behave and respond as a human being.

2.3.5.3. Natural language and the learner

As mentioned above, the view of language learning has changed in the last two decades from structural CALL to sociolinguistics (communicative CALL) and to integrative CALL. Table 4. outlines the development of CALL as regards to these

[26] Lehnert, W. G. & Ringle, M. D., editors, **Strategies for Natural Language P rocessing**, Hillsdale, NJ, Erlbaum, 1982, 24.

three stages suggested by Warschauer, 1996[27]; Kern and Warschauer, 2000[28] and Warschauer, 2000.[29]

Table 4. Development of CALL

Stage	1970s-1980s: Structural CALL	1980S-1990s: Communicative CALL	21'st Century: Integrative CALL
Technology	Mainframe	PCs	Multimedia and Internet
English-Teaching Paradigm	Grammar-Translation & Audio-Lingual	Communicative Language Teaching	Content-Based
View of Language	Structural	Cognitive	Socio-cognitive
Principal Use of Computers	Drill and Practice	Communicative Exercises	Authentic Discourse
Principle Objective	Accuracy	And Fluency	And Agency

Motivation and personality factors have been used as 'Monitor' or 'Affective Filter' in the eventual success or failure to learn.[30] For example, Krashen's well-known Monitor Model makes a case for a distinction between a conscious process of language learning and a subconscious process of language acquisition.[31] The latter is typical of children acquiring first and second languages. When the emphasis is on the message, the learner is acquiring, when it is on form, then learning is going on.

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[27] Warschauer, M., Computer Assisted Language Learning: An Introduction, In S. Fotos, ed., **Multimedia Language Teaching**, Tokyo, Logos International, 1996, pp3-20.
[28] Warschauer, M., The Death of Cyberspace and the Rebirth of CALL, **English Teachers' Journal 53**, 2000, pp61-67.
[29] Kern, N., & Warschauer, M., Theory and Practice of Network-Based Language Teaching, In Warschauer, M., and Kern, R., ed., **Network-Based Language Teaching: Concepts and Practice**, New York, Cambridge University Press, 2000, pp1-19.
[30] Dulay, H., Burt, M. & Krashen, S., **Language Two**, New York, Oxford University Press, 1982, p.4.
[31] Krashen, S. D., The Monitor Model for Adult Second Language Performance, In **Viewpoints on English as a Second Language**, eds. M. Burt, H. Dulay & M. Finocchiaro, New York, Regents Publishing Co., 1977, pp152-61.

So the acquisition process does not demonstrably benefit from overt correction or presentation of explicit rules whereas the learning process does. Krashen's model claims that language production is initiated by the learner's acquired system. Learners manage to create a balance between message and form.[32]

Many teachers now prefer to give more weight to the message or comprehensible input. However, that is not to say that we should not also provide students with opportunities for learning in Krashen's sense. CALL is one of the resources, which can fulfil this requirement. Johns, for instance, has investigated ways of using CALL to give students the opportunity to form appropriate hypotheses and guess intelligently.[33] He gives importance to cognitive skills and gives great emphasis on meaning. Some interesting work in the field of CALL has already been started with primary school children in Edinburgh where the aim of the project is to help the children understand language and develop their writing style through manipulation of grammar and vocabulary using the computer.[34]

On the other hand, the learner is not a psychologically uniform being and is obviously more complex than that. Learners have different styles of learning. In first- language acquisition variations in learning style have also been acknowledged.[35] In second language acquisition, reference is often made to different types of learner. For instance, Clahsen refers to 'rhetorically expressive learners' versus 'error preventers'[36] and Hatch talks of 'data-gatherers' versus 'rule-formers'[37] and Brown makes a distinction between 'reflective' and 'impulsive' learners.[38] Working with a computer appeals more to some learners than to others and particular program types have different degrees of success with various students.

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[32] Krashen, S. D., **Second Language Acquisition and Second Language** Learning, Oxford, Pergamon Press, 1981, pp 34-5.
[33] John, T. F., **Generating Alternatives**, In Chandler, 1983, pp89-97.
[34] Sharples, M., A Computer Written Language Lab., **Computer Education**, 1981, pp10-12.
[35] Bruner, J. S., Notes on a Theory of Instruction, In **Cognitive Development in the School Years**, ed. A. Floyd, Londom, Croom Helm in Association with the Open University Press, 1966, pp83-273.
[36] Clahsen, H., Psycholinguistic Aspects of L2 Acquisition: Word Order Phenomena in Foreign Workers' Interlanguage, In **Second Language Development (Trends and Issues)**, ed. S. W. Felix, Tübingen, Gunter Narr Verlag, 1980, pp57-79.
[37] Hatch, E., Second Language Learning – Universals, **Working Papers on Bilingualism**, Ontario Institute for Studies in Education, Toronto, Canada, 1974, pp1-17.
[38] Brown, H. D., Affective Variables in Second Language Acquisition, **Language Learning 23**, 1973, pp44-231.

It can be said that there is a need for teaching of language form. This is something which CALL can do well either as directed practice for the learner or as an exploratory exercise in language manipulation. CALL is capable of covering the whole range from expository teaching to discovery learning.

To summarise, CALL is based on the relationship of learner, language, and computer. Firstly, the important points which the teacher should consider about the physical environment (ergonomic considerations) of the learner are; location of computer or terminal, student access (booking system), comfort of working (chair, table etc.), ease of reading (screen size and presentation). Second, the difficulties which natural-language input (linguistic considerations) poses for computers: the lack of isomorphism between meaning and form, ellipsis, the range of structural choice, the role of prior knowledge, the expression of irony, humour lies, inference and so on are important. Therefore, teachers should avoid exercises where open-ended production of language by the learner is required as input to the computer since CALL programs are not yet intelligent enough to cope with the complexities of natural-language processing. Finally, learners learn in different styles so teachers should provide the learner with an opportunity to use language 'to mean', encourage a positive attitude on the part of the learner, and provide opportunities for learning without anxiety. CALL lowers anxiety levels, learning may therefore be encouraged through increased motivation and self-confidence

2.3.6. Experimental studies on CALL in the world

Experimental studies investigating the effectiveness of CALL on listening comprehension are very limited. The studies mainly focus on writing, grammar, reading, general attitudes, and effects of CALL in other educational subjects. This experimental study was conducted to determine the effectiveness of computer assisted listening instruction. When looked at similar studies, it can be said that computer assisted language learning is effective in the teaching and learning of language skills. Because there are not many studies on the effects of CALL on listening comprehension, some other similar and comparative studies are looked which could be helpful in supporting our hypotheses about.

One of the studies discussing positive effects of CALL is Rosenbaum's study, which was conducted in 1968. He obtained the results with students of German: one group took a conventional audio-lingual course supplemented with language-laboratory exercises, while for another group computer assisted instruction work replaced the language laboratory; the class work was aimed mainly at audio-lingual learning. He concluded that the computer assisted instruction group performed roughly as well on the listening/speaking skills as the non- CAI group, which had done language laboratory exercises but actually the experiment was on writing and reading skills. This shows the in effectiveness of the language laboratory. On the contrary, the CAI group significantly outperformed the non-CAI group in reading and writing skills since this is what they had been practicing in CAI.[39]

In 1969, Suppes and Morningstar report a 72 per cent continuing enrolment rate for CAI students versus 32 per cent for non-CAI students in elementary Russian classes at Stanford University. In almost all cases, there is a significantly greater number of students from CAI groups who re-enrol than from non-CAI control groups.[40]

In 1976, Curtin, Dawson, Provenzano & Cooper used the PLATO system to teach a reading-translation course in Russian, and found that there was no significant difference in the performance of PLATO and non-PLATO students. Although the CALL students were more likely to include the highest grades, they were also more susceptible to deferral and dropout. Curtin explained this feature as being due to insufficient classroom contact.[41]

In 1980, Kulik and Cohen claimed that 'computer-based' or 'computer-supplemented' instruction has educational advantages at elementary and secondary school levels. The main advantage claimed seems to be 'performance gains of 1-8 months over children who received only traditional instruction'.[42] Kulik investigated

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[39] Rosenbaum, P. S., The Computer as a Learning Environment for Foreign Language Instruction, **IBM Research Report RC-2352**, 1968. (Reprinted in Foreign Language Annals, Vol. 2, 1969), Vol. 4, pp65-457.
[40] Suppes, P. & Mornignstar, M., Computer- Assisted Instruction, **Science**, Vol. 166, 1969, pp50-343.
[41] Curtin, C., Dawson, C. L., Provenzano, N. & Cooper, P., The PLATO System: Using the Computer to Teach Russian, **Slavic and East European Journal**, Vol. 20, No. 3, 1976, pp92-280.
[42] Kulik, J. A., Kulik, C. L. & Cohen, P. A., Effectiveness of Computer-based College Teaching: A Meta-Analysis of Findings, **Review of Educational Research**, Vol. 50, No. 4, 1980, p526.

that the fifty-nine evaluation studies they considered show the following results for computer-based instruction:[43]

- It raised examination scores by about three percentage points;
- It had small positive effects on attitudes of college students towards instruction and subject matter;
- When substituted for conventional teaching it reduced tuition time by about two thirds.

Kulik and Kulik, also found that learners tend to learn more and in less time with computer assisted learning.[44]

In 1986, Dunkel investigated the effectiveness of CALL by reviewing the literature on CALL and relevant experimental studies. Among her findings was that when computers are used, students learn instructional materials at a faster pace. It was found that computer assisted instruction saved percentage 30 or more of the time learners needed to fulfil the same courses given by traditional instruction and found. [45] Dunkel stated that 'Many of the researches conducting literature reviews and meta-analyses in the 1960s and 70s were forced to conclude that there was no discernible cause-an-effect relationship between pupils learning'. He also added that the results were questionable in terms of the other fields such as social sciences since these studies were mostly related to mathematics.[46]

In 1991, Bacig, Evans and Larmouth conducted a study on Computer Assisted Instruction in Critical Thinking and Writing. They aimed to find out if students do better or worse in a program using a pencil-and-paper version of the process/model approach compared with a computer-assisted version of the approach. There were 98 subjects in the study. Samples of students' essays were collected in all freshman composition courses taught at the University of Minnesota, Duluth. The results showed that the students working with the CAI version did at least as well as,

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[43] Kulik, J. A., Kulik, C. L. & Cohen, P. A., A Meta-Analysis of Outcome Studies of Keller's Personalized System of Instruction, **American Psychologist**, Vol. 34, 1979, pp18-307.
[44] Kulik, J. A., Kulik, C. L., Effectiveness of Computer-assisted Instruction: An Updated Analysis, **Computers in Human Behavior**, Vol.7, 1991, pp75-94.
[45] Dunkel, P. A., Developing Listening Fluency in L2: Theoretical Principles and Pedagogical Considerations, **The Modern Language Journal**, Vol. 70, No. 2, 1986.
[46] Dunkel, P. A., Computer-assisted Instruction (CAI) and Computer-assisted Language Learning (CALL): Past Dilemmas and Future Prospects for Audible CALL, **The Modern Language Journal**, Vol. 71, No. 3, 1987, pp252.

and in some respect, better than the students who worked with the paper-and-pencil version.[47]

A study by Riding and Chambers was conducted in 1992 to compare the use of two learning media: CD-ROM and textbook. They used 40 19-year old undergraduates as subjects that were randomly divided into two groups. Geography textbook and the CD-ROM version of the book were their material. One group used the textbook while the other used a computer with the CD-ROM version of the book. Seven questions were asked which were divided into four categories: factual, interpretive, comparative, and deductive. The results were analyzed in terms of their performance on the questions and they showed that there was little difference between the subjects' scores. However, the group using the CD-ROM version performed better on both the factual and deductive categories but less on the comparatives because of the lack of diagrams in the CD-ROM version of the book.[48]

In another study, Beauvois (1992) investigated the effects of computer assisted classroom discussion. She described how computer assisted classroom discussion provides a unique environment for student-student and student-teacher interaction in an experimental networked laboratory established by the English Department at the University of Texas, Austin. The computer assisted network discussion is done by using a local area network (LAN). She was so impressed by the success of the LAN in a Portaguese class that she decided to experiment using the network to tutor high school students who were having serious trouble in French. In computer-assisted discussions, students send messages in their foreign language to other computer users in the lab and start discussion. She claimed that computer assisted whole class discussion gives students the courage to read, think, and write as they try to keep up with the ongoing conversation on the screen. Beauvois explains his ideas about LAN as follows;

> *The use of LAN to produce synchronous, real-time discussion show that in this networked computer classroom, typically reticent students, i.e., women, minority*

[47] Bacig, T. D., R. A. Evans and D. W. Larmouth, Computer-Assisted Instruction in Critical Thinking and Writing: A Process/Model Approach, **Research in the Teaching of English**, Vol. 25, No. 3, 1991, pp43-51.

[48] Riding, R., and Champers, P., CD-ROM Versus Textbook: A Comparison of the Use of Two Learning Media by Higher Education Students, **Educational and Training Technology International**, Vol. 29, No. 4, 1992, pp90-103.

> *students, and anxious or shy learners tend to participate in the discussion more readily and more often than in the regular classroom. The computer does not transmit accent or skin colours, no one is put on the spot to respond, and these elements seem to create a relatively nonthreating atmosphere in the classroom. ... On the network, the instructor becomes more of a guide and facilitator than a purveyor of right answers.*[49]

Abouserie, Moss and Barasi (1992) conducted a study measuring cognitive style, gender, attitudes toward computer assisted learning and academic achievement. For the study, they used 143 medical students enrolled on a physiology course at the University Of Wales College Of Cardiff. The procedure lasted for one academic year. A Group Embedded Figures Test and an attitude questionnaire were given to the subjects to measure their cognitive style and attitudes towards computer-assisted learning. According to the results, students have positive attitudes towards CALL.[50]

In the same year, Aşkar, Yavuz, and Köksal conducted a study on students' perception of computer assisted instruction environment and their attitudes towards computer-assisted learning at the University of Hacettepe, Turkey. 137 Fifth grade students from two private elementary schools were involved in this study. The subjects received computer-assisted instruction for one month. In order to assess the subjects' perceptions and attitudes they used two scales. The first one was an attitude towards CALL scale which was used to assess their attitudes towards computer assisted learning. The other one was a Computer Assisted Instruction Environment Instrument which was used to assess the students' perceptions about the differences between computer assisted instruction and traditional classroom instruction. The results indicated that all assessed perceptions of both the computer assisted and traditional environments are in favour of CALL. They claimed that students reported developments in concentration and self-evaluation while studying

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[49] Beauvois, M. H., Computer-Assisted Classroom Discussion in the Foreign Language Classroom: Conversation in Slow Motion, **Foreign Language Annals**, Vol. 25, No. 5, 1992, p456.
[50] Abouserie, R. & Moss, D., Basari, S., Cognitive Style, Gender, Attitude toward Computer Assisted Learning and Academic Achievement, **Educational Studied**, Vol. 18, No. 2, 1992, p56.

in a computer-assisted class. Aşkar concluded their study in one sentence: 'CAI is a better and more comfortable way of learning than are traditional methods'.[51]

Lowe and Bickel investigated the effectiveness of computer-assisted instruction in teaching grammar and writing in the following year. There were 27 subjects in this study and they were divided into two groups; a computer assisted class and a traditional class. A 55 question multiple choice pre-test was given to the students to measure their knowledge of grammar and writing concepts. The computer assisted class received computer assisted instruction while the traditional class received conventional classroom instruction. This treatment lasted for one semester. Students were given the pre-test as post-test at the end of the treatment. The results of pre- and post-test of the two groups were compared. The results indicated that students in the computer assisted class scored, on average, 8.1 points better on the 55 question post-test than did students in the traditional class although the average pre-test score for the computer assisted group was 1.7 points lower than for the traditional group.[52]

Bayır wanted to show the effects of computer assisted multimedia instruction on learning in his experimental study in 1995. There were 42 employees from the Central Bank of Turkish Republic (graduates of high school and university) as participants of this study. According to the results of this experimental study, computer-assisted multimedia instruction had a significant effect on learning according to one's own pace. The results also indicated that participants preferred computer-assisted multimedia instruction. The participants claimed that they learnt better in this type of instruction.[53]

In Nagata's study in 1996, 26 participants were taken from two first-semester Japanese classes at the University of San Francisco. The results indicated that given the same grammar notes and exercises, ongoing intelligent computer feedback was

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[51] Aşkar, P., Yavuz, H., and Köksal, M., Students' Perceptions of Computer Assisted Instruction Environment and Their Attitudes towards Computer Assisted Learning, **Educational Research**, Vol. 34, No. 2, 1992, pp11-39.

[52] Lowe, N. And Bickel, R., Computer-Assisted Instruction in Appalachia's Postsecondary Schools, **Journal of Educational Research**, Vol. 87, No. 1, 1993, p67.

[53] Bayır, G. O., **Hizmet İçi Eğitimde Bilgisayar Destekli Öğretimin Etkililiği** [Efficiency of Computer-Assisted Instruction in In-Service Training], Unpublished Master's Thesis, Ankara University, Ankara, 1995, p78.

more effective than simple workbook answer sheets for developing learner's grammatical skill in producing Japanese particles and sentences.[54]

Göktaş discussed computer education in the faculties of education in Turkey in 1996. In his study, he compared the education course between Turkey and European countries and U.S.A. In his overview of computer education and teacher training, he found that the courses in the faculties of education were not rich and various in regard to content as compared to other faculties in Europe countries and in the U.S.A.[55]

In 1997, Şentürk investigated the effects of supplementary computer assisted listening instruction on students' listening comprehension ability. His study was conducted at Anadolu University Communication Sciences Faculty and Education Faculty's Preparation Program. There were 40 subjects in this study. They were divided into two groups: experimental group (computer-assisted group) and control group (traditional group). The experimental group received 20 hours of supplementary computer assisted listening instruction at a computer laboratory while the control group received 20 hours of traditional supplementary classroom listening instruction. The content of both instructions was the same. He transformed the software into a textbook for the traditional classroom instruction. The only difference between the two groups was the learning medium. They both received a pre-test and a post-test. An attitude towards computer assisted learning questionnaire was given to the experimental group at the end of the experiment. The results of the comparison between two groups showed that both groups were similar. The only difference between these groups was in the TOEFL scores; the control group scored significantly higher than the experimental group except in one area; listening. Computer assisted classes were more successful than traditional classes in listening instruction. Computer assisted listening instruction enabled the subjects to progress in a faster pace. Finally, the results of the attitude questionnaire showed that subjects

[54] Nagata, N., Computers vs. Workbook Instruction in Second Language Acquisition, **CALICO Journal**, Vol. 14, No. 1, pp53-57.
[55] Göktaş, İ., **Bilgisayar Eğitimi Öğretim Teknolojisi**, [Computer Education Teaching Technology], Unpublished Master's Thesis, Ankara University, Ankara, 1996, pp 42-56.

who received computer-assisted instruction had positive attitudes towards computer-assisted learning.[56]

The same year, Yaşar proposed a model for the use of CAI in Turkey. He discussed the problems in CAI, teacher training and the use of computers by the help of the results of the studies done in Arizona in the U.S.A.[57]

Nutta's study in 1998 consisted of 53 students enrolled in an intensive academic ELS institute at a Mayor university in Florida. There were two groups: teacher-directed and computer-based both of which studied grammar instruction. According to the results, computer-based students scored significantly higher on open-ended tests than the teacher-directed students. On the other hand, there were no significant differences between the scores of two groups on multiple choice or fill-in-the-blank tests.[58]

In the same year, Dursun explained the roles of teachers working with the help of CAI in classrooms in a study of 80 teachers of computer education, teachers working in computer laboratories and administrators. According to the results, only 32.4 percent of the participants felt comfortable while benefiting from computer-assisted instruction and using computers.[59]

Pawlings conducted her study in 1999aiming to evaluate the feasibility and effectiveness of CD-ROM as a tool for research-based language learning. She focused on two case studies. Eleven sixth grade children were participants in this study learning English vocabulary through an application called 'Directions 2000', which can be described as a multimedia dictionary. Learners assimilated vocabulary through playing the model sentences as many times as required. She claimed:

> *CD-ROM is potentially a liberating instrument for teachers and learners alike in that it has the special facility of incorporating practice in all four language skills*

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[56] Şentürk, H., **The Effects of Supplementary Computer Assisted Listening Instruction on Listening Comprehension Ability**, Unpublished Master's Thesis, Anadolu University Social Sciences Institute, Eskişehir, 1997, pp15-23.
[57] Yaşar, Ş., **Expending the Effective Use of Computers in Middle and High Schools in Turkey**, Anadolu University Publications, Eskişehir, 1997, pp24-32.
[58] Nutta, J., Is Computer-Based Grammar Instruction as Effective as Teacher-Directed Grammar Instruction for Teaching L2 Structures?, **CALICO Journal**, Vol. 16, No. 1, 1998, pp49-62.
[59] Dursun, F., **Öğretmenlerin Bilgisayar Destekli Öğretime İlişkin Yeterlilikleri ve Eğitim İhtiyaçlarının Saptanması**, [Teachers' Qualifiedness in Regard to Computer Assisted Instruction and Determining the Needs of Education], Unpublished Master's Thesis, Ankara University, Ankara, 1998, pp32-45.

mentioned above in a multimedia package using video, text, photograph and sound. There is much evidence; not least teachers' own experience, to suggest that computer-based learning is very motivating for children.[60]

The same year, Russell investigated the paper and computer version of reading tests. According to the results, he found out that computer version significantly affected the test taker's performance.[61] In another study, Gillespie and McKee exposed learners from undergraduate and graduate studies to their own CALL software. The results indicated that CALL enhanced student performance.[62] In the same year, Murray' study was conducted to find out the effect of interactive video program by computers. Participants were twenty-three French second-language learners who were mostly students from Faculty of Arts of a large Canadian University. He stressed the importance of interactive and technological activities.[63] Lambacher also showed the effects of CALL by using software designed for pronunciation training in teaching English to forty primary school Japanese learners. The result was that students improved their perception and production of English consonants as they reviewed as many times as they could and they got immediate feedback. Finally, in 1999, Hauck, Mclain, and Youngs investigated the effect of CALL on four skills. There were thirty-three French II students. According to the findings, students in experimental group (CALL group) performed equally well as the control group in listening and speaking and better on reading and writing.[64]

In 2000, Garcia and Arias stressed the importance of CALL on learners' motivation. Sixty students of land surveying were participants at the Extremadura University in Spain. This study showed that students used the references provided by the computer more extensively than they did of the printed references. According to the results, the students' motivation to access computer-supported information

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[60] Pawling, E., Modern Languages and CD-ROM Based Learning, **British Journal of Educational Technology**, Vol. 30, No. 2, 1999, pp163-175.
[61] Russell, M., Testing on Computers: A Follow-up Study Comparing Performance on Computer and on Paper, **Education Policy Analysis Archives**, Vol. 7, No. 20, 1999, pp54-63.
[62] Gillespie, J., & McKee, J., Does It Fit and Does It Make any Difference?, Integrating CALL into Curriculum, **Computer Assisted Language Learning**, Vol. 12, No. 5, 1999, pp441-445.
[63] Murray, G. L., Exploring Learners' CALL Experiences: A Reflection on Method, **Computer Assisted Language Learning**, Vol. 12, No. 3, 1999, pp179-195.
[64] Hauck, B. A., Mclain, L. W., & Youngs, B. E., Evaluating the Integration of Technology and Second Language Learning, **CALICO Journal**, Vol. 17, No. 2, 1999, pp269-306.

was higher than accessing similar information in print-oriented references.[65] Similarly, Macleod, Dewhurst and Norris compared the difference between the computer-assisted instruction and traditional instruction. Sixty-two students of undergraduate Physiotherapy studying on Human Physiology were the participants and did equally well.[66]

In the following year, Sawaki investigated the effect of CALL on reading comprehension and listed the studies on computer-based and paper-based reading. Sawaki claimed that some studies showed that the students' outperform in the paper-based version of the reading tests, while others showed that they are equal.[67] On the other hand, Yang used 65 second-year students in an applied linguistics program. This study indicated that students benefited from maximizing the language and learning link in computer-mediated environments, particularly web based instruction.[68]

Alum stated that '…CALL does indeed deliver as effectively as conventional means in a range of language learning tasks.'[69] On the other side, the study of Ying, in 2002, consisted of 32 junior students majoring in Foreign Trade English at the school of Foreign Languages of Suzhou University. The results indicated that network-assisted environment provided learners with autonomous training and learning.[70]

In 2004, Muir-Herzig investigated the technology use of teachers from a Northwest Ohio high school. According to the results, teachers' technology use, students' technology use and overall technology use had no significant positive

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[65] Garcia, M. R., & Arias, F. V., A Comparative Study in Motivation and Learning through Print-oriented and Computer-oriented Tests, **Computer Assisted Language Learning**, Vol. 13, No. 4-5, 2000, pp457-465.
[66] Dewhurst, D. G., Macleod, H. A. & Norris, T. A. M., Independent Student Learning Aided by Computers: An Acceptable Alternative to Lectures?, **Computers & Education**, Vol. 35, 2000, pp223-241.
[67] Sawaki, Y., Comparability of Conventional and Computerized Tests of Reading in a Second Language, **Language Learning & Technology**, Vol. 5, No. 2, 2001, pp59-387.
[68] Yang, S. C., Integrating Computer-Mediated Tools into the Langugae Curriculum, **Journal of Computer Assisted Learning**, Vol. 17, 2001, pp85-93.
[69] Allum, P., CALL and the Classroom: the Case for Comparative Research, **ReCALL**, Vol. 14, No. 1, 2002, pp146-166.
[70] Ying, F., Promoting Learner Autonomy through CALL Projects in China's EFL Context, **Teaching English with Technology: A Journal for Teachers of English**, Vol. 2, No. 5, 2002, pp41-57.

effect on the grades and attendance of at- risk students. Technology use among the teachers was low in this sample.[71]

Finally, Kılıçkaya explored the effect of computer-assisted language learning on the sophomore undergraduate students' success on the TOEFL exam. There were two groups: computer assisted language learning group and traditional language learning group. Participants were 34 sophomore students in EFL department in Middle East Technical University. The training lasted for 8 weeks, during the first week, a pre-test was given, and at the end of the study, a post-test was given. Statistically significant differences were found in the scores on the reading and listening sections. The participants in the experimental group valued computer assisted language learning on their interviews.[72]

[71] Muir-Herzig, R. G., Technology and its Impact in the Classroom , **Computers & Education**, Vol. 42, 2004, pp111-131

[72] Kılıçkaya, F., **The Effect of Computer-Assisted Language Learning on Learners' Achievement on the TOFEL Exam**, Unpublished Master's Thesis, Middle East Technical University, Ankara, 2005, pp25-41.

CHAPTER III

3. METHOD

3.1 Presentation

In this chapter, the study that was carried out in relation to the research questions is presented with information on the procedure and method of the study. The methods consisted of two phases; computer assisted language learning and traditional instructional language learning followed by analysis of their effects on the level of student achievement. The chapter will begin with a description of the design of the study, the participants, and a detailed account of the materials. The next section will enumerate and explain the procedure and the data collection. Finally, the chapter will conclude by explaining the data analysis approach adopted in order to answer each of the research problems and the hypothesis posited for the current study.

3.2. Design of the Study

This study was conducted in the Department of Foreign Language Compulsory Preparatory Programme of Çaycuma Vocational School in Zonguldak Karaelmas University. The experimental study focused on using a computer assisted language learning and traditional instruction to prepare the participants for listening activities. This study was designed for two classes; one class was taught using computer assisted instruction in a language laboratory while the other class was taught using a traditional method of instruction in a traditional classroom setting. In the language laboratory, the teacher was in the class just to make sure that participants were working with the computers and to help with any technical issues with the computers. The levels of these two classes were the same. The participants were 42 intermediate level students between the ages 17 and 24. The training lasted for 4 weeks in which the same instructors met the classes six hours every week. Participants gave their informed consent before the beginning of the study. At the beginning of the study, a pre-test was given to them. Then the participants studied for the 4 weeks of the experiment. Next, at the end of the study they took a post-test, which was the same as the pre-test. Finally, a questionnaire was given to the

participants in the experimental group after the post-test. Table 5. shows the design of the study.

Table 5. Design of the Study

Data	Number of participants	Time
Informed Consent	42 participants in B3&B2	Before the beginning of the study
A. Pre-test	42 participants in B3&B2	At the beginning of the study
B. Study	42 participants in B3&B2	During 4 weeks
C. Post-test	42 participants in B3&B2	At the end of the study
D. Questionnaire	21(experimental group)	After the post-test

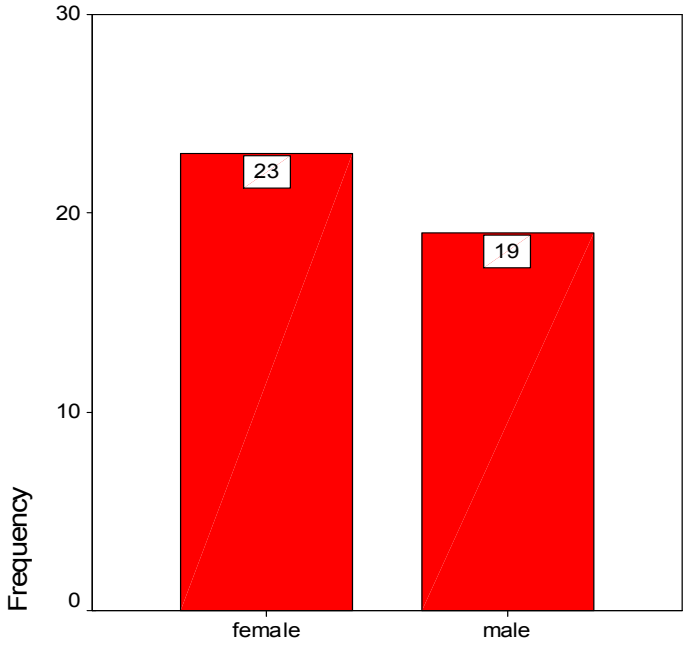
3.3. Participants

The participants in the study were 42 intermediate level students in the Department of Foreign Language Compulsory Preparatory Programme of Çaycuma Vocational School in Zonguldak Karaelmas University. The subjects were chosen according to the results of a placement test which they took at the beginning of the 2007 semester. In the department there is an English Placement Exam at the beginning of each academic year following which students are allocated to the two levels of classes; B classes (intermediate) and C classes (beginner). All students have laboratory lessons for six hours a week, grammar lesson (2 hours a week), speaking/listening lessons (2 hours), writing lesson (2 hours), main course lessons (8 hours), and reading lessons (2 hours). The main course book is Quartet and the lab version of these books is loaded to computers in laboratories. The computer-assisted instruction consists of nine computer tutorial packages.

The proficiency level of the participants in both groups (B2 and B3 classes) was the same; intermediate. The participants in B2 class were randomly assigned to the experimental group and the participants in B3 class were randomly assigned to the control group. All the participants came from different cities and were in different departments. Of the participants, 19 were males and 23 were females as

shown in Figure 6. There were both graduate and under graduate students in these groups.

Figure 6. Numbers of Female and Male Participants



The experimental (11 females and 10 males) and control groups (12 females and 9 males) consisted of 21 participants each. Participants in the experimental group were given a training course before the study regarding the use of software.

Table 6. Participants Profile in Class B3 (Control Group)

Subject	Name&Surname	Department	Age	Sex
1	Gizem Küçükvural	Nursing	19	Female
2	Müjde Çalikuşu	Nursing	19	Female
3	Hediye Koymen	Nursing	21	Female
4	İlknur Furkan	Nursing	19	Female
5	Esra Avci	Chemistry	18	Female
6	Gökay Arslan	D.C.T.	21	Male
7	İlyas Erdem	D.C.T.	20	Male
8	Tarik Turan	Tourism Guidance	24	Male
9	Cihat Öner	Tourism Guidance	21	Male
10	Cumhur Şeref	Tourism Guidance	21	Male
11	Tanju Salman	Tourism Guidance	19	Male
12	Fırat Bozoğlan	Tourism Guidance	22	Male
13	Selda Başar	Tourism Guidance	19	Female
14	Sevda Tarım	Tourism Guidance	24	Female
15	Buket Tanrıtanır	Tourism Guidance	22	Female
16	Fatma Aldemir	Tourism Guidance	21	Female
17	Yeşim Yenginol	Tourism Guidance	19	Female
18	Zuhal Sağlam	Tourism Guidance	20	Female
19	Gizem Öztürk	Tourism Guidance	18	Female
20	Gökhan Topuz	T.H.M.	18	Male
21	Cevat Demir	Tourism Guidance	22	Male

The control group received instruction in a traditional classroom environment. They consisted of 21 students, 12 females, and 9 males.

Table 7. Participants Profile in Class B2 (Experiment Group)

Subject	Name&Surname	Department	Age	Sex
1	Derya Turan	Nursing	20	Female
2	Tevhide Kaya	Nursing	19	Female
3	Elif Beytekin	Nursing	21	Female
4	Selda Keskin	Nursing	21	Female
5	Elif Demir	Nursing	18	Female
6	Ahmet Ünal	Physics	20	Male
7	Şükriye Ferhatoğlu	T.H.M.	20	Female
8	Ozan Baykara	Tourism Guidance	19	Male
9	Ekrem Kanal	Tourism Guidance	22	Male
10	Hakan Günel	Tourism Guidance	18	Male
11	İbrahim Altıntaş	Tourism Guidance	23	Male
12	İlker Demirkan	Tourism Guidance	22	Male
13	Mehmet Demir	Tourism Guidance	24	Male
14	Gülseren Demir	Tourism Guidance	20	Female
15	İlkin Yavuztekin	Tourism Guidance	20	Female
16	Reyya Görüroğlu	Tourism Guidance	19	Female
17	Nurife Gözde Akgüç	Tourism Guidance	19	Female
18	Bora Kıyıkçı	D.C.T.	23	Male
19	Çisem Konuş	T.H.M.	19	Female
20	Yasin Gözlü	Tourism Guidance	22	Male
21	İlker Çimen	Tourism Guidance	23	Male

The experimental group received computer assisted instruction in a computer laboratory. They consisted of 21 students, 11 females, and 10 males.

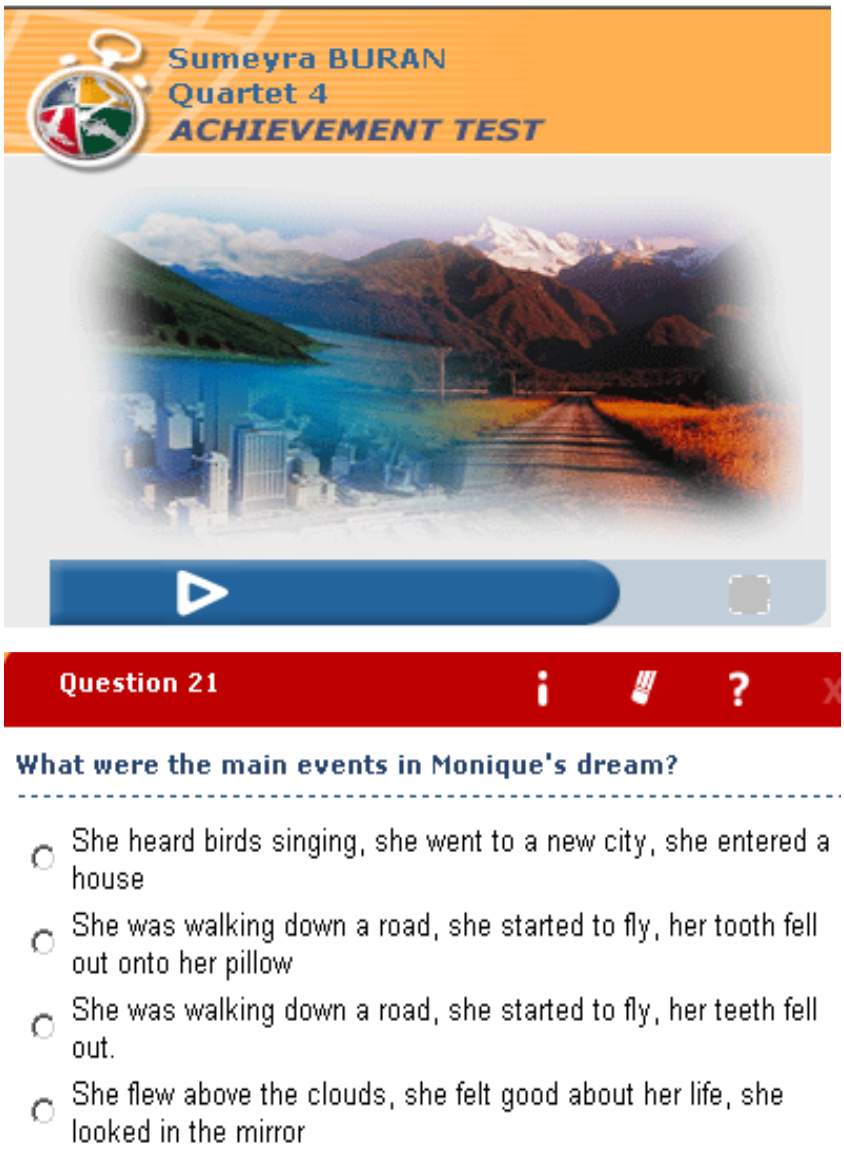
3.4. Materials

Computers were used for computer assisted instruction and audio tape recorders for the traditional instruction. The Preparation program allocates 6 hours of listening lab instruction per week. B2 class was chosen randomly as the experimental group for this study and students went on studying their instruction at

the same lab class 6 hours per week. On the other hand, B3 class was taken to a traditional class for this study for 6 hours per week in place of lab lesson. B3 did not take any lab lessons during this study.

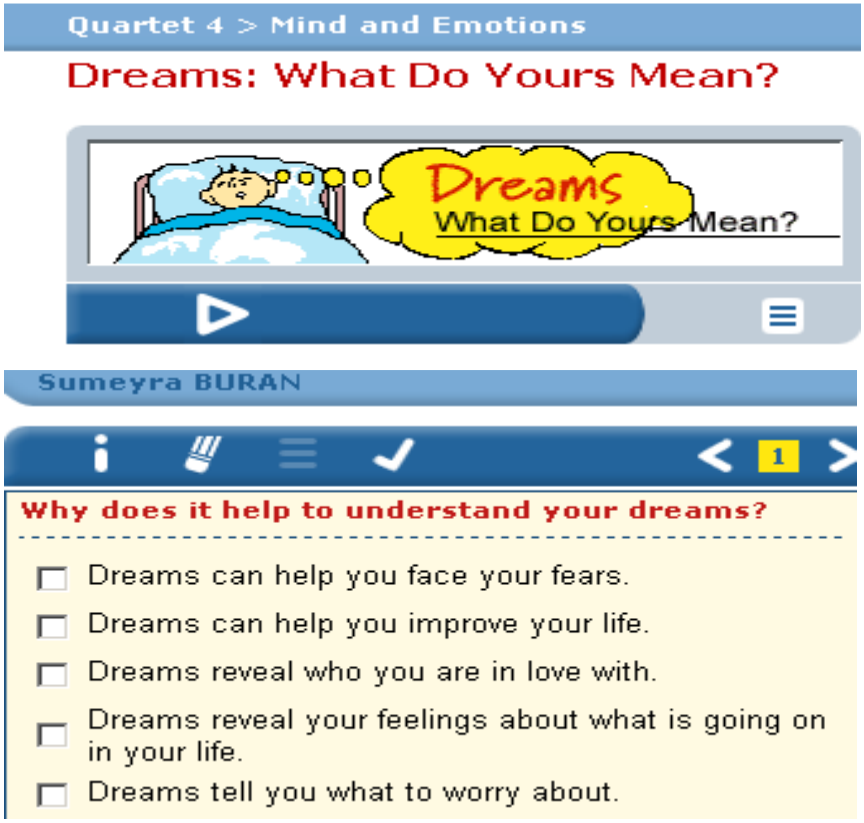
The software the experimental group used was the lab version of the books of Quartet main course lesson. There are nine main course books and nine lab packages of these books for a year. Students finish each package when they finish the same main course book. Students in B class were using the fourth main course book (and the lab version of this book in their lab classes) when the experiment started. So this fourth part was used for this study. it consists of 10 units and an achievement test at the end. Participants in the experimental group (B2 class) did a pre-test before the study and next did these 10 units during the study and finally did the achievement test as a post-test after the study. Figure 7. shows a sample text from pre-test/post-test questions.

Figure 7. A Screen-Print of a Sample Page of Pre-test/Post-test from Quartet Lab Program.



You can see the complete pre-test (achievement test) in Appendix A. After taking the pre-test both groups studied, the 10 units; the experimental group studied by computers on screens and the control group studied with tape recordings and paper materials but received the same listening material used by the experimental group. Figure 8. shows a sample text from one of the 10 units.

Figure 3.8. A Screen-Print of a Sample Page of 10 Units from Quartet Lab Program.



3.5. Procedure

The experiment lasted for 24 classroom hours. It started at the middle of the first semester of the preparation program. Before the experiment started, the students were given the pre-test to determine their current listening comprehension level. The pre-test was designed according to the listening skills students would receive during the study. Both the experimental group and the control group took the same pre-test, study activities and post-test at the same time while one group was studying on computers at laboratory class, the other group was studying by tape recorders in traditional class.

The post-test at the end of the experiment was the same as the pre-test, in order to determine if there was any difference in progress in listening comprehension ability. The test was made up 25 questions presented in a multiple-choice format.

Finally, at the end of the treatment, the experimental group received a questionnaire to determine the students' point of view towards computer-assisted learning.

3.6. Research Problems and Hypotheses

3.6.1. Research problems

1. Is there a significant difference in terms of the gain scores on the pre-listening achievement test between the learners instructed by CALL and the learners receiving traditional instruction?

2. Is there a significant difference in terms of the gain scores on the post-listening achievement test between the learners instructed by CALL and the learners receiving traditional instruction?

3. What are the learners' perceptions as regards the use of CALL for listening activities? Which one do they prefer? (According to the questionnaire)

3.6.2. Hypotheses

1. There is no significant difference in terms of the gain scores on the pre-listening achievement test between the learners instructed by CALL and the learners receiving traditional instruction.

2. There are some significant differences in terms of the gain scores on the post-listening achievement test between the learners instructed by CALL and the learners receiving traditional instruction.

3. Learners prefer CALL instruction to traditional language learning instruction for listening activities.

3.7. Data Collection

The pre-test, listening activities and post-test were prepared and the listening activities were loaded onto computers at the beginning of the semester. These materials are lab versions of the Quartet main course books. Listening achievement tests take place at the end of each Quartet listening lab packet. As there are 9 Quartet course books, there are nine listening packets, and nine achievement tests. Students have to finish their listening activities in order to take their achievement tests. In this

study the Quartet 4 listening lab packet including listening activities and achievement test were used as material for the students in B2 experimental group. The score of a student could be observed by the teacher from the main menu screen of the computer program. A sample unit is presented in Figure 3.4.2. However, for the students in the B3 control group this fourth packet was prepared in the form of a textbook while audio tapes were used to present the aural text. The content of the printed and aural texts were the same as the content used in the computer program. This adaptation was done by capturing the computer units from the screen and printing them, and recording the listening extracts from the computer on to an audio tape.

Before the beginning of the study, an informed consent form was presented (see Appendix B). This form was adapted from the sample consent forms of Fraenkel and Wallen.[1] Participants signed the form and then pre-tests were given to both of the classes at the same time. Then both groups received their instruction through different materials for four weeks and 6 hours each week by the same instructors.

During the four weeks, participants in the experimental group studied the units on their own with the computers and their headphones. They were able to study the material as much as they wanted. The instructors did not take part in the teaching of material but they observed as students were working alone on their computers and were there to give support if students had problems with the computers or with the materials. The participants in control group meanwhile studied the printed units listening to tape recorders and working together with the other students in the group. The instructor participated in the teaching of material by starting and stopping the tape recorder.

To answer the last research question a questionnaire was used to collect data in order to find out what the participants thought and felt about computer- assisted listening learning. This was done to observe computer assisted learning from the personal point of the learner and not only by looking at the scores, they had achieved in the tests. This questionnaire could be another way of showing us why the subjects in the experimental group were successful or not. This questionnaire was taken from

[1] Fraenkel, J. R., & Wallen, N. E., **How to Design and Evaluate Research in Education**, New York: McGraw-Hill, 2003, p51.

Aşkar, Yavuz and Köksal's study, 'Students' Perceptions of Computer Assisted Instruction Environment and their Attitudes towards Computer Assisted Learning'. There are three alternative responses; "yes", "sometimes" and "no" and the questionnaire was translated into Turkish to avoid any second language based misunderstandings that may cause false conclusions about the results of the questionnaire.

3.8. Data Analysis

In order to address the research questions, the analysis of data consisted of two different tests: Mann Whitney U Test (Two-Independent Samples) and Kruskal-Wallis H-Test (more than two, Independent Samples) which was also called as Kruskal-Wallis One-Way Analysis of Variance by Ranks.[2] Before the treatment, the total pre-test scores of both the experimental and control group were compared to see if there were any significant differences between the two groups. In addition, the post-test scores were calculated to determine if there were any significant differences between the two groups after the treatment whether there were any differences although both groups took the same test twice. Lastly, the results of questionnaire were analyzed by scoring the answers on the three-point response scale.

When analyzing data for a research project we are often confronted with a decision about what kind of statistical analysis to perform. There are literally hundreds of tests from which to choose and we have to careful to select the one that is the most appropriate for our data. Choosing the right test to compare measurements is a little tricky, as we must choose between two families of tests: parametric and nonparametric. Before giving accurate information about the data we need to make an assumption as to how the data is distributed. When statistics are calculated under the assumption that the data follow some common distribution such as the normal distribution we call these parametric statistics. Non-parametric tests are also called distribution-free tests since they do not make the assumption that the data follows some standard distribution. Nonparametric tests may be, and often are,

[2] Prof. Dr. Şenocak, M., **Temel Biyoistatistik**, Çağlayan Kitapevi, Beyoğlu-İstanbul, 1990, pp106-115.

more powerful in detecting population differences when certain assumptions are not satisfied and they are also more robust for social sciences.

We plotted the data in a histogram and it did not create a graph that looks like the well-known bell-shaped curve. Because the sample size was very small (42 participants), it did not give a normal distribution so nonparametric tests were used. In this study, subjects were randomly selected from the population and randomly assigned to two groups; experimental and control groups. There was no necessity to have the same number of scores in these groups. Since there was no basis for pairing scores these groups were analyzed independently. The Mann Whitney U Test was used to analyse data from the two independent groups, to determine the degree of separation between the experimental and control groups. This test is one of the most powerful of the nonparametric tests for comparing two populations. We used the Mann Whitney test to analyse pre-test scores of both groups and then to analyse the post-test scores of both groups, to determine if there was a significant difference within the groups and if there was a difference between the pre-test and post-test results of each group. In addition, in order to identify any significant difference between the pre-test and post-test scores of males and females we again used the Man Whitney U test.

On the other hand, the Kruskal-Wallis test is a nonparametric test used to compare three or more samples. In this study, this test was used to analyse 10 treatment units for each group in order to see the effectiveness of the treatment on post-test scores.

Finally, the results of the questionnaire were analyzed by scoring the answers on a three point response scale: Yes (3), Sometimes (2) and No (1). The scores of each student were calculated and their mean was taken. Then percentages of each respond were calculated.

The next chapter presents the results of the statistical analysis for between groups and the results of the questionnaire.

3.9 Limitations of the Study

One limitation is that this study was carried out for 4 weeks and 6 hours each week within the given time constraints and the availability of the participants.

As this study was carried out with two groups of learners of Department of Foreign Language Compulsory Preparatory Programme of Çaycuma Vocational School in Zonguldak Karaelmas University, it is suggested that similar experiments with a large number of participants on listening skill can be repeated.

CHAPTER IV

4. RESULTS

This study was conducted to investigate the effectiveness of computer-assisted language learning on listening comprehension, to determine if there is an effect of computer assisted language learning on listening comprehension. This chapter presents the pre-test scores of both groups, the post-test scores of both groups, comparisom between the the pre-test and post-test scores. Thenthe scores of the two groups in the exercises contained in the 10 units of the material are analysed to see whether there was any support of these 10 units to the scores of post-test of groups. Finally we compare the scores of genders in both groups and describe the results of the attitude questionnaire of the experimental group to show students' attitudes towards computer assisted language learning.

4.1. Pre-test Results

Mann Whitney U Test for two independent samples was used in analysis of pretest results of experimental and control group. U test is a nonparametric test and nonparametric tests require the degree of separation between the experimental and control groups. The first result that is required by nonparametric tests is that the scores in one experimental condition were the same as the scores in the other group. In order to determine whether the two groups used in this study were similar in terms of their listening comprehension proficiency, the pretest was done before the treatment. The scores of both groups were calculated and analyzed. The scores showed that two groups were homogeneous.

Table 8. Pretest Results for Control and Experimental Group

Groups	N	Mean	Mean Difference	Median	Mode	Z	Sig.
Control Group	21	12.5238	0.0476	12.0000	12.00	-0.815	0.415
Experimental Group	21	12.5714		13.0000	13.00		

P=<0.05 (Z= 1.96)

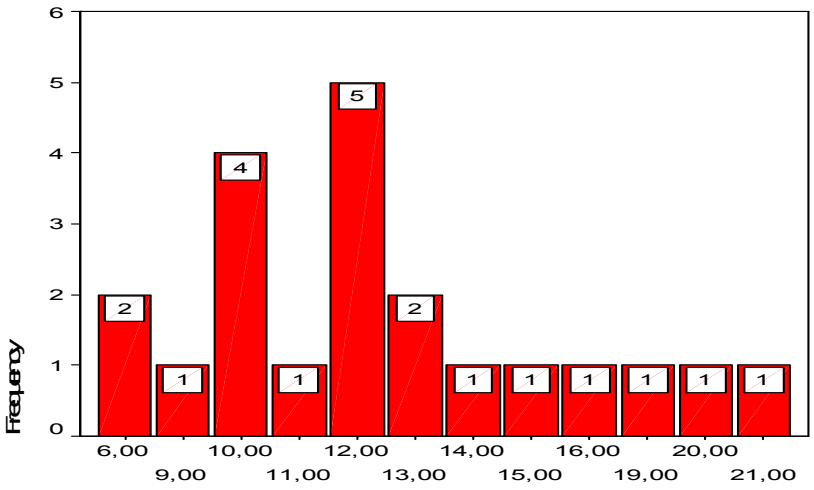
As shown in this Table 8., the mean score of the control group was 12.5238 and the mean score of the experimental group was 12.5714. In addition, the mean difference between groups was 0.0476. Median and mode scores of both groups are similar. While median score of control was 12.0000, it was 13.0000 for experimental group. It is the same for mode scores of both groups. Therefore, we can say that there is no significant difference between the scores of mode and median between groups. In the same way, the U test calculation did not show a significant difference between groups (p=0.415>a=0.05). As a result, of this statistical analysis there was no significant difference between groups. Both groups' listening comprehension proficiency was similar at the beginning of the treatment. Indeed, they had already been allocated to the same level of classes by to the placement test they had taken at the beginning of the semester. Appendix C shows extra analysis of the pre-test results of both groups.

Table 9. Pretest Percent Scores of Groups

	Control Group Pre-test %	Experimental Group Pre-test %
N Valid	21	21
Mean	,5010	,5029
Median	,4800	,5200
Mode	,48	,52

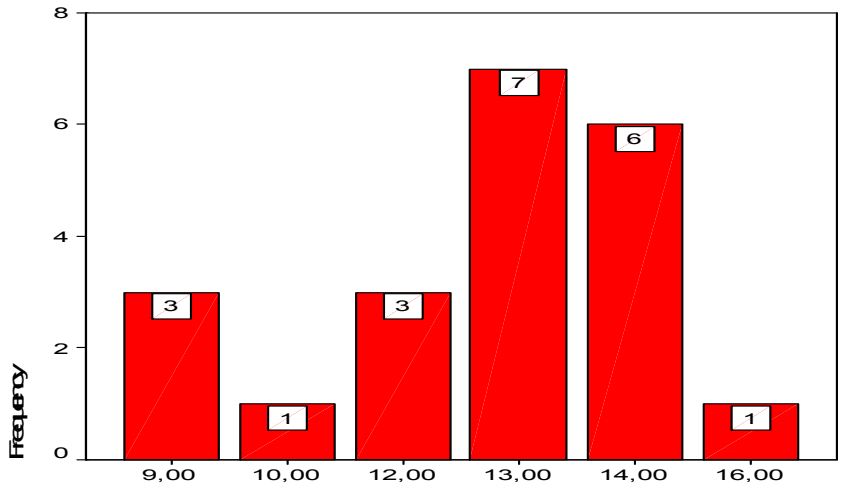
This table shows that there is no significant difference between the percent scores of mean, median and mode between two groups. The mean score of control group was 0.5010 and it was 0.5029 for experimental group. In the same way, median (0.4800) and mode (0.48) scores of control group were similar to the score of median (0.5200) and mode (0.52) of experimental group. The percent scores of groups show the same analysis as the pre-test result scores of both experimental and control groups.

Figure 9. Correct Scores of Pre-test of Control Group



This figure shows that only five students gave 12 correct answers and four students gave 10, two students gave 6 and the other two gave 13 correct answers to the questions. Only one student gave the highest correct answer (21) in the control group.

Figure 10. Correct Scores of Pre-test of Experimental Group



According to this figure, seven students in the experimental group gave 13 correct answers and six students gave 14, three students gave 12 and the other three students gave nine and one student gave 10 correct answers to the questions. Only one student gave the highest correct answer (16). As shown in this figure, participants in the experimental group gave similar correct answers to the control group. There was no significant difference between the two groups in terms of pre-test scores.

4.2. Post-test Results

The post-test scores were again calculated by using a Mann Whitney u Test for independent samples. Next, pre-test percent scores were calculated again in order to see if there was any difference between the post-test scores and post-test percent scores of control and experimental groups. Lastly, the following two tables indicate the correct answers given by participants in control and experimental groups, showing the difference between the correct scores of the students. Table 10. shows the results of both groups.

Table 10. Posttest Results for Control and Experimental Group

Groups	N	Mean	Mean Difference	Median	Mode	Z	Sig.
Control Group	21	13.0952	4.0477	11.0000	11.00	-3.934	0.000
Experimental Group	21	17.1429		17.0000	15.00		

P=<0.05 (Z= 1.96)

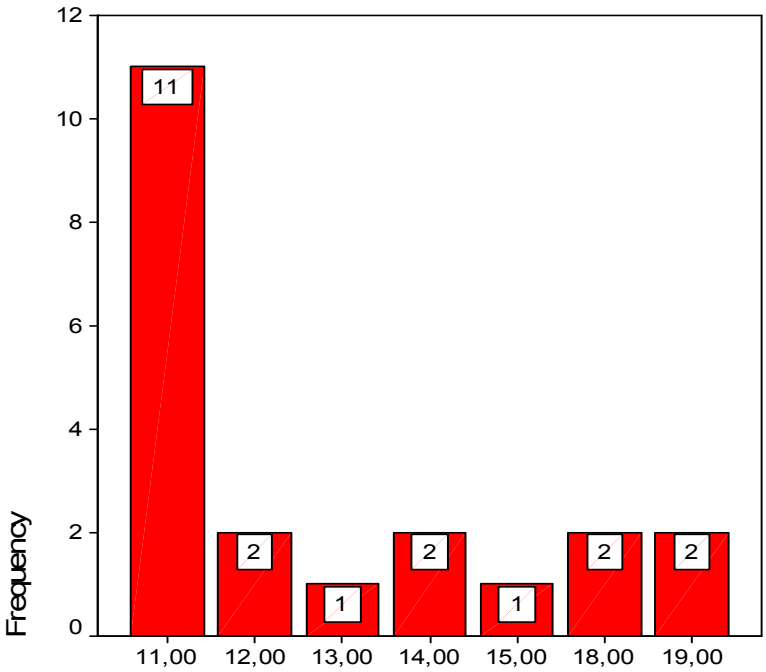
Table 10. shows the mean score of the control group was 13.0952 and the mean score for the experimental group was 17.1429. The mean difference was 4.0477 with the experimental group having the higher score. The median score of the control group was 11.0000 but the median score of experimental group was 17.0000, again a higher score. This was the same for mode scores of groups. While the mode score of control group was 11.00, it was 15.00 for experimental group. So we can see a significant difference between the median and mode scores between two groups. According to the U test analysis, there was a significant difference between the two groups ($p=0.000<a=0.05$) indicating an effect of computer-assisted language learning on listening comprehension ability in the experimental group which studied by computers. Appendix D contains further statistical analysis of the test results of both groups and Table 11. shows the post-test percent scores of the control and experimental groups.

Table 11. Post-test Percent Scores of Groups

	Control Group Pre-test %	Experimental Group Pre-test %
N Valid	21	21
Mean	,5238	,6857
Median	,4400	,6800
Mode	,44	,60

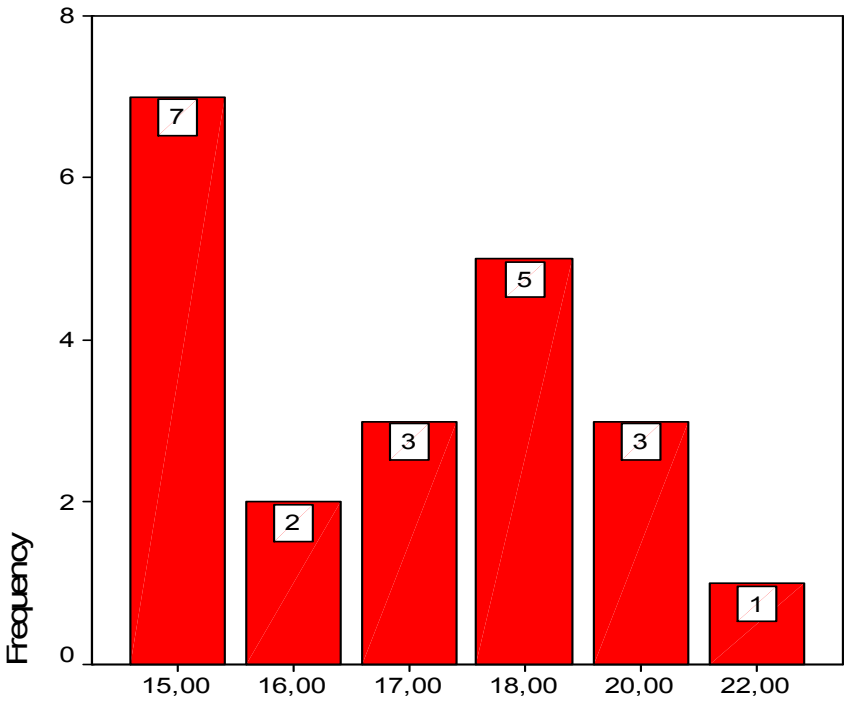
Here we can see that there is a significant difference between the percent scores of mean, median and mode between two groups. The mean score of the control group was 0.5238 but it was 0.6857 for the experimental group. In the same way, the median (0.4400) and mode (0.44) scores of the control group were clearly lower than the median (0.6800) and mode (0.60) of the experimental group.

Figure 11.Correct Scores of Post-test of Control Group



This graph shows the number of correct answers given by students in the control group. Eleven students gave 11 correct answers while only two students gave the highest correct answer (19).

Figure 12. Correct Scores of Post-test of Experimental Group



This graph shows a considerable difference between the scores of students in experimental group and the scores of control group, with the number of correct scores of the experimental group higher than the control groups' correct scores. Seven students gave 15 correct answers, while the highest correct answer in this group was 22, given by one student. The histogram of these results clearly shows a significant difference in terms of post-test scores between the two groups. Participants in the experimental group gave more correct answers than the control group, remembering there was no significant difference between two groups in terms of pre-test scores.

4.3. Pre-test and Post-test Results of Groups

Table 12. Pre-test and Post-test Scores of Groups

Groups	N	Mean	Mean Difference	Median	Mode	Z	Sig.
Pre-test Control Group	21	12.5238	0.0476	12.0000	12.00	-0.815	0.415
Pre-test Exp. Group	21	12.5714		13.0000	13.00		
Post-test Control Group	21	13.0952	4.0477	11.0000	11.00	-3.934	0.000
Post-test Exp. Group	21	17.1429		17.0000	15.00		

P=<0.05 (Z= 1.96)

As indicated in Table 12., while the pre-test mean score of the control group was 12.5238, the post-test mean score was 13.0952. On the other hand, the pre-test score of experimental group was 12.57 but the post-test mean score of the group was 17.1429. These scores show there was an increase between pre-test and post-test scores of both groups but although there was no real difference between the pre-test scores of both groups in terms of their listening comprehension ability, there is a significant difference between the post-test scores of both groups. That is students studied with computers were more successful than the students who studied with audio recordings in a traditional classroom. Furthermore, the pre-test median score of control group (12.0000) decreases to 11.0000 in the post-test score. By contrary, the pre-test median score of the experimental group increases from 13.0000 to 17.000 in post-test score. This was the same for the mode scores of both groups. The pre-test mode score of the control group decreased from 12.00 to 11.00 in the post-test score while the pre-test mode score of experimental group increased from 13.00 to 15.00 in post-test score. This means that there was a significant difference in term of median and mode between pre-test score and post-test score of experimental group although there was decrease in control group in terms of median and mode scores between pre-test and post-test.

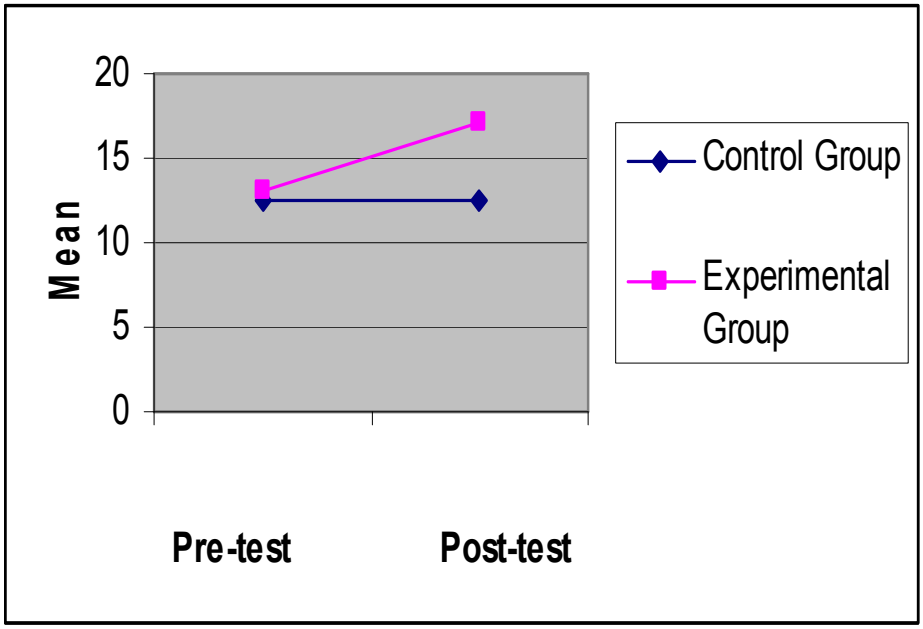
According to the U test analysis, there was no significant difference between the pre-test scores of two groups (p=0.415>a=0.05) whereas there was a significant difference between pos-test scores of two groups (p=0.000<a=0.05). In conclusion, the effect of computer-assisted language learning on listening comprehension ability was seen in experimental group studied by computers. Table 13. shows the same statistical results expressed as percentages.

Table 13.Pre-test and Post-test Percent Scores of Groups

	Cont. Pre-test %	Cont. Post-test %	Exp. Pre-test %	Exp. Post-test %
N Valid	21	21	21	21
Mean				
Median	,5010	,5238	,5029	,6857
Mode	,4800	,4400	,5200	,6800
	,48	,44	,52	,60

As shown in this table, the pre-test percent mean score of control groups was 0.5010 while it was 0.5029, not being any significant difference between them. On the other hand, the post-test percent mean score of the control group was 0.5238 but 0.6857 for the experimental group, a significant difference between the post-test percent scores of groups. Similarly, this was the same for the median and mode scores. The pre-test percentage median score of the control group decreased from 0.4800 to 0.4400 in post-test. However, the pre-test percent median score of the experimental group increased from 0.5200 to 0.6800 in post-test, this case was the same for the percent mode scores. This means that the experimental group showed a significant difference between the pre-test and post-test scores and computer assisted listening instruction was more effective than the traditional approach. We can conclude that computer assisted treatment showed a very significant effect on the listening proficiencies of learners. (For further results see Appendix E).

Figure 13. The Colour Line of Control and Experimental Groups



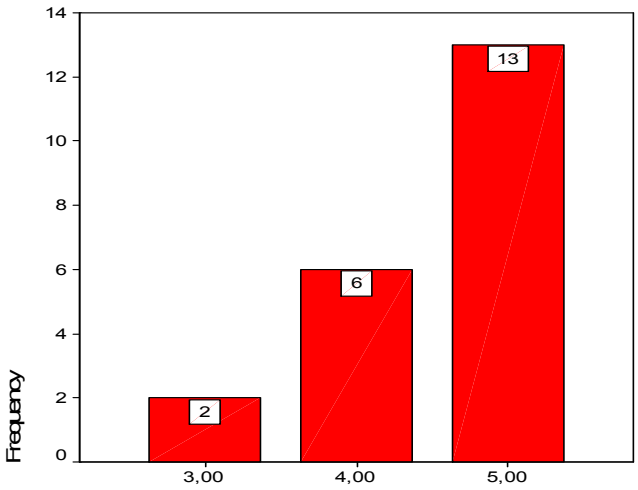
This graph shows the experimental group (the pink line) increases from a 12.5714 pre-test score to a 17.1429 post-test score, while the blue line of the control group remained stable from 12.5238 pre-test score to 13.0952 post-test score. This was a significant difference between the pre-test and post-test scores of experimental group and a significant difference again was seen in terms of post-test scores between experimental group and control group. In conclusion, it can be said that computer assisted language learning has an effect on learners' listening comprehension abilities.

4.4. Results of the 10 Units of Groups

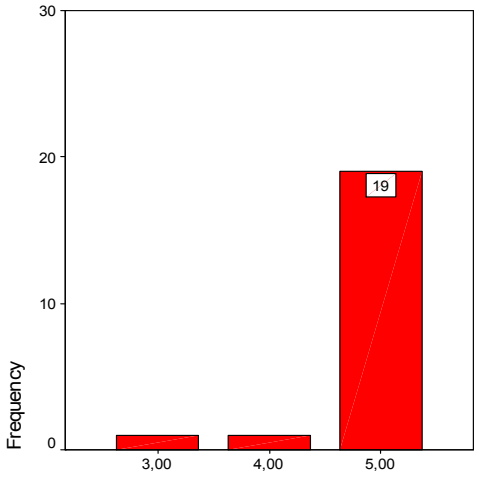
The results of ten units were used for this part of the study, which lasted 4 weeks (24 hours). The experimental group used computers to do these ten units, while the units were printed as textbooks for the control group, who used tape recorders to do these listening tasks. We saw the effects of these units on the post-test scores of both groups.

Figure 14. Results of Unit 1 (5 questions)

Control Group



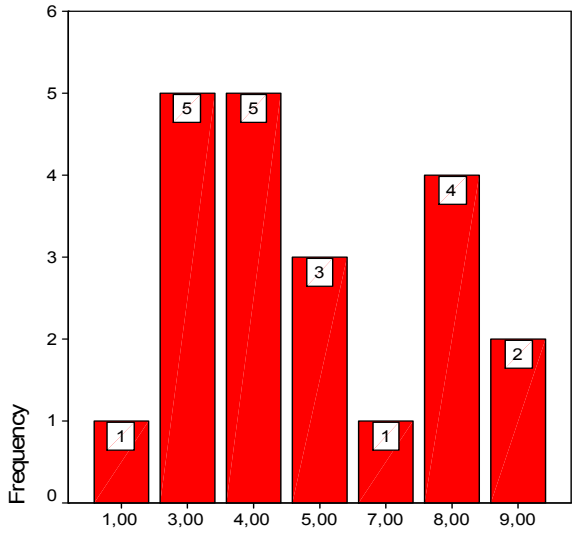
Experimental Group



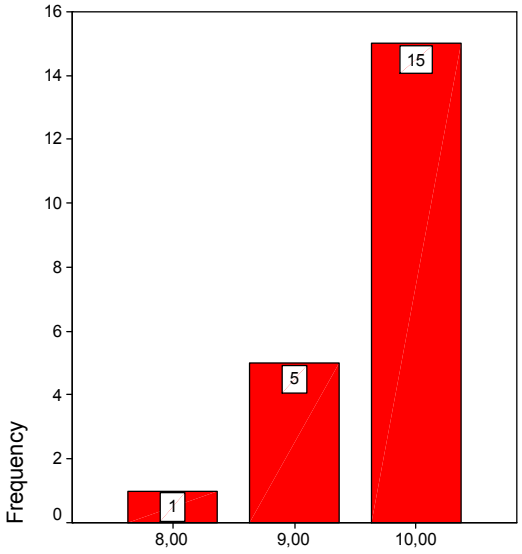
These graphs show no significant difference between the control and experimental groups when studying the first unit (p=0.073>α=0.05).

Figure 15. Results of Unit 2 (10 questions)

Control Group



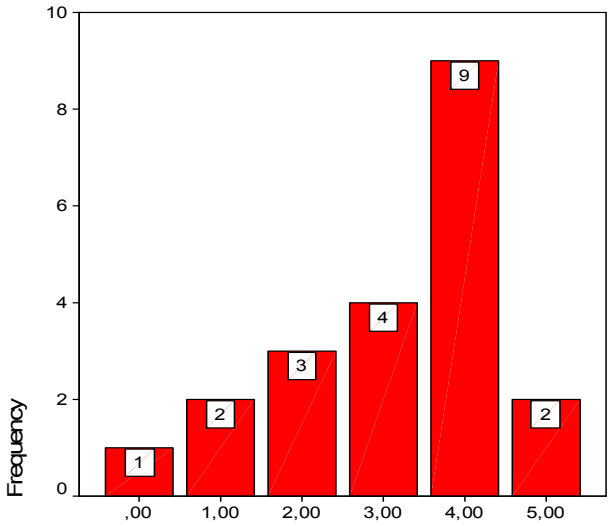
Experimental Group



These graphs show a significant difference between control and experimental groups (p=0.000<a=0.05) from unit 2 onwards.

Figure 16. Results of Unit 3 (5 questions)

Control Group



Experimental Group

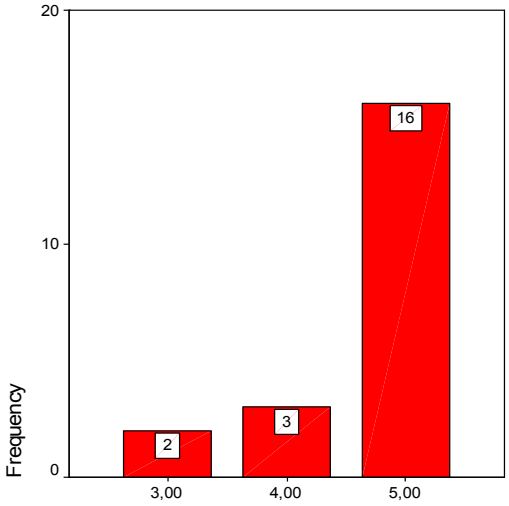
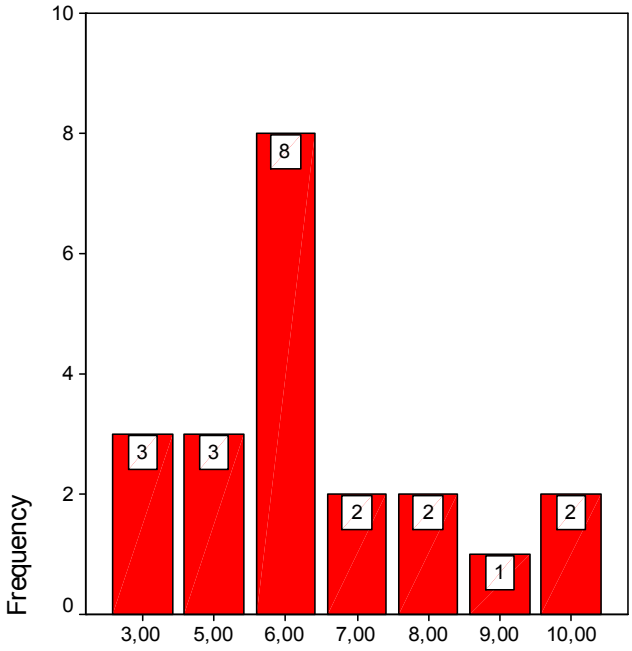


Figure 17. Results of Unit 4 (10 questions)

Control Group



Experimental Group

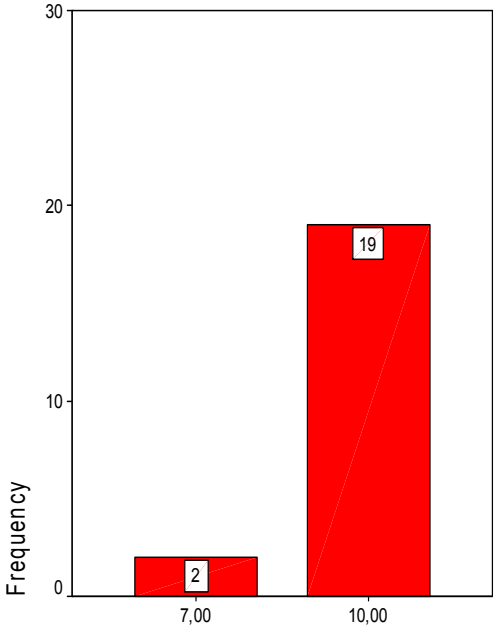
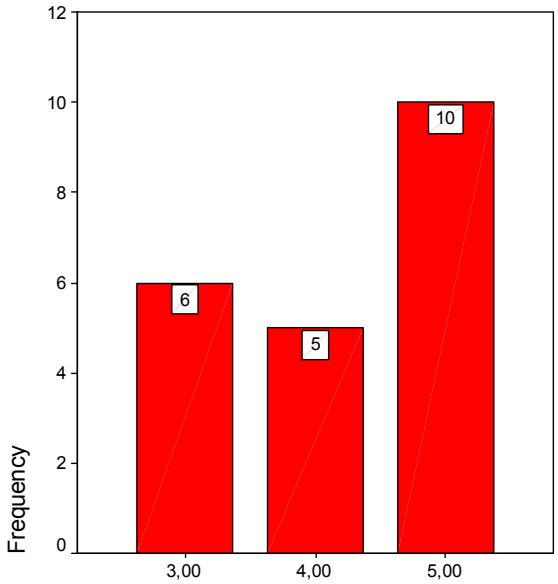


Figure 18. Results of Unit 5 (5 questions)

Control Group



Experimental Group

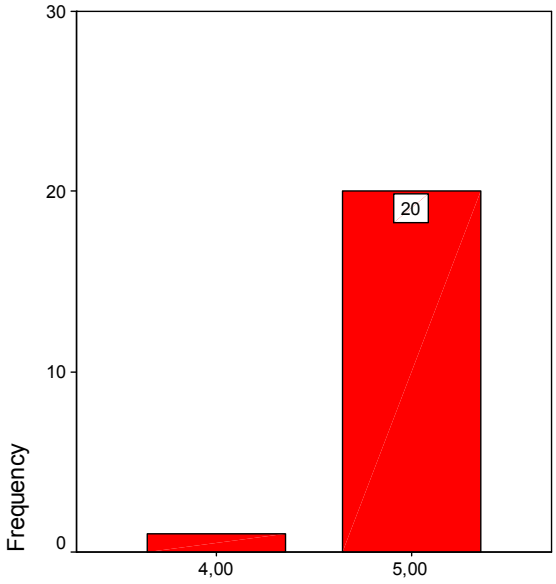
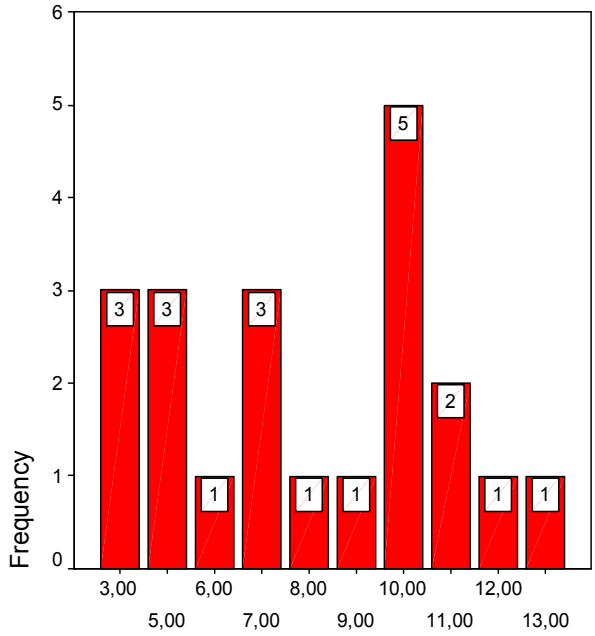


Figure 19. Results of Unit 6 (14 questions)

Control Group



Experimental Group

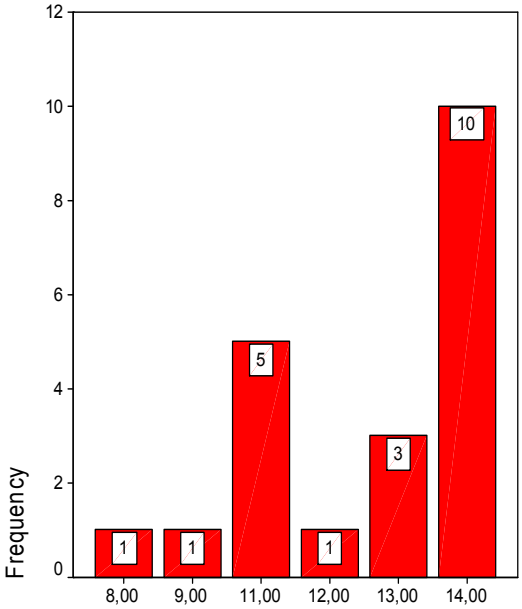
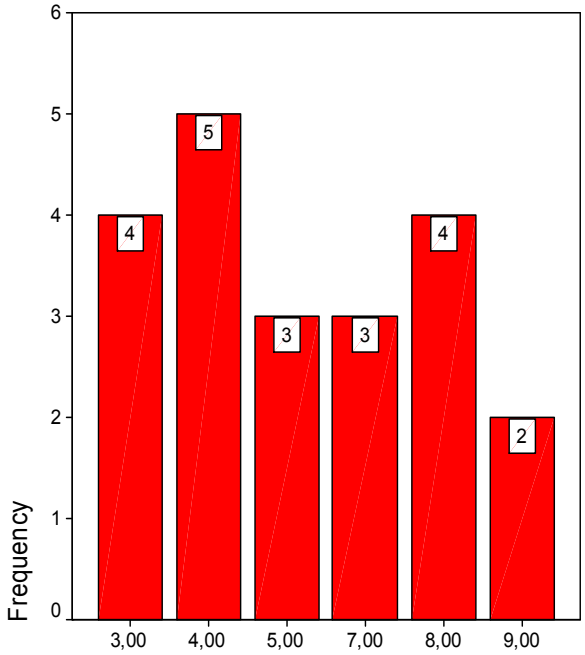


Figure 20. Results of Unit 7 (15 questions)

Control Group



Experimental Group

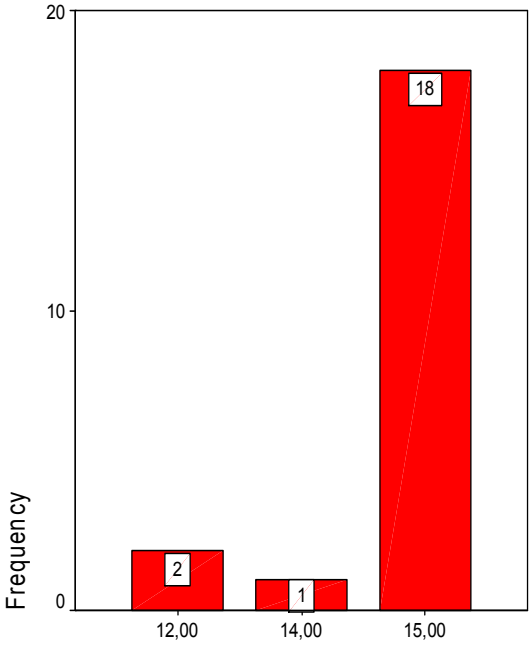
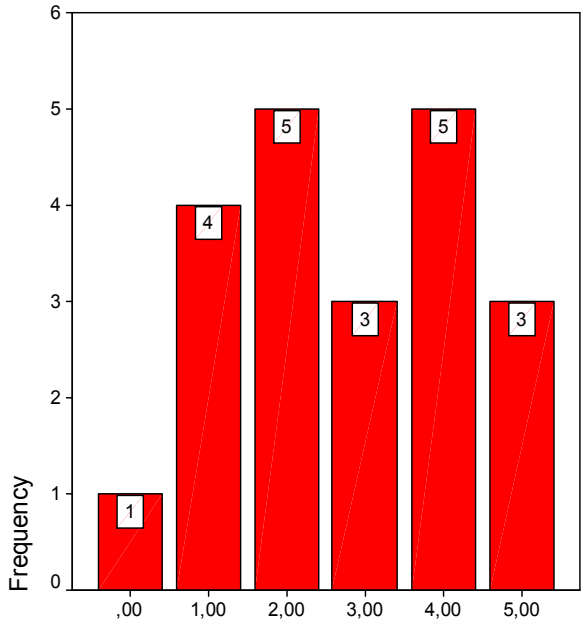


Figure 21. Results of Unit 8 (5 questions)

Control Group



Experimental Group

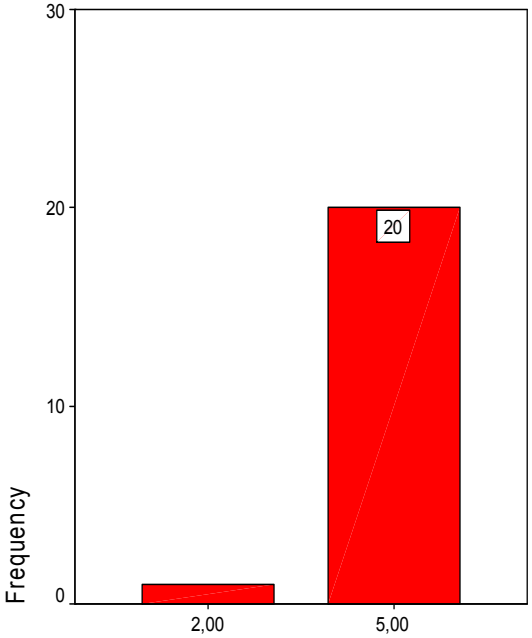
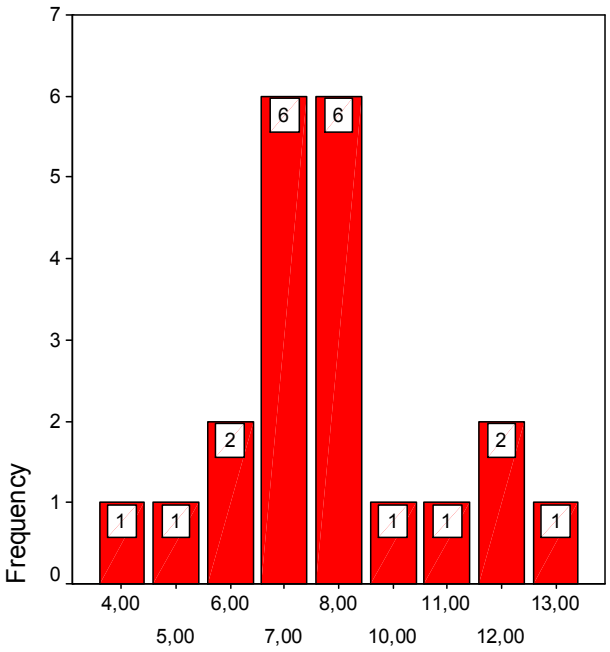


Figure 22. Results of Unit 9 (15 questions)

Control Group



Experimental Group

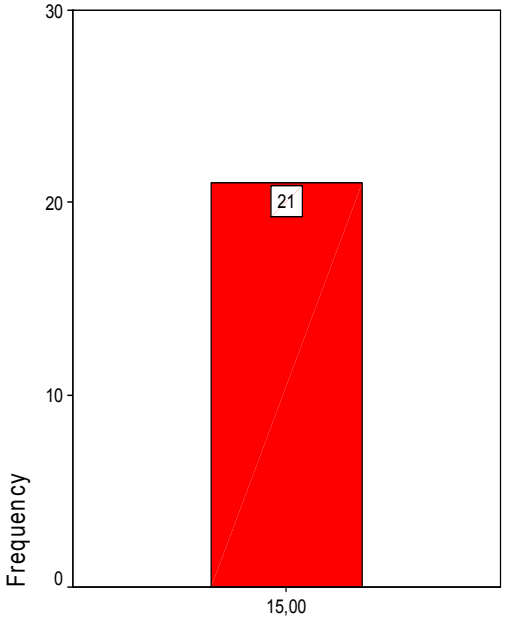
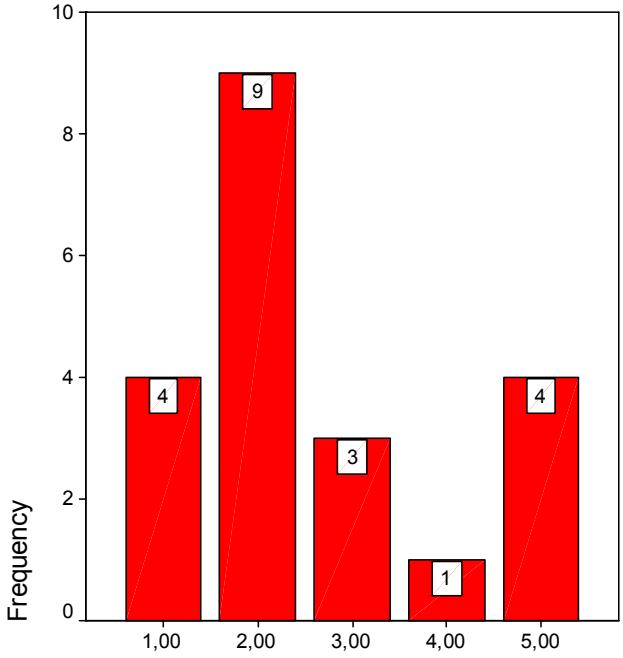


Figure 23. Results of Unit 10 (5 questions)

Control Group



Experimental Group

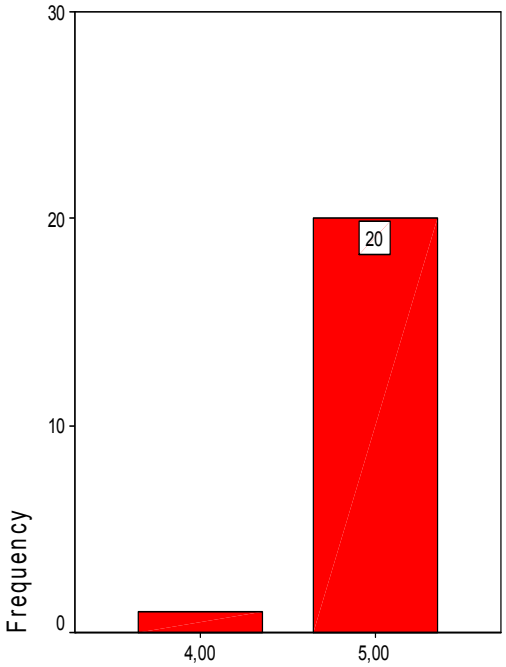


Table 14. Kruskal Wallis Scores of 10 Units of Groups

Units	Number of	Groups	N	Mean	Median	Mode	Chi – Square	Sig.
Unit 1	5 Questions	Control Group	21	4.5238	5.0000	5.00	4.258	0,073
		Experimental Group	21	4.8571	5.0000	5.00		
Unit 2	10 Questions	Control Group	21	5.1429	4.0000	3.00	29.958	0,000
		Experimental Group	21	9.6667	10.000	10.00		
Unit 3	5 Questions	Control Group	21	3.1429	4.0000	4.00	17.824	0,000
		Experimental Group	21	4.6667	5.0000	5.00		
Unit 4	10 Questions	Control Group	21	6.2381	6.0000	6.00	26.214	0,000
		Experimental Group	21	9.7143	10.000	10.00		
Unit 5	5 Questions	Control Group	21	4.1905	4.0000	5.00	11.714	0,000
		Experimental Group	21	4.9524	5.0000	5.00		
Unit 6	14 Questions	Control Group	21	7.8571	8.0000	10.00	21.541	0,000
		Experimental Group	21	12.5238	13.000	14.00		
Unit 7	15 Questions	Control Group	21	5.6190	5.0000	4.00	33.537	0,000
		Experimental Group	21	14.6667	15.000	15.00		
Unit 8	5 Questions	Control Group	21	2.7619	3.0000	2.00	23.824	0,000
		Experimental Group	21	4.8571	5.0000	5.00		
Unit 9	15 Questions	Control Group	21	8.0476	8.0000	7.00	35.390	0,000
		Experimental Group	21	15.0000	15.000	15.00		
Unit 10	5 Questions	Control Group	21	2.6190	2.0000	2.00	24.420	0,000
		Experimental Group	21	4.9524	5.0000	5.00		

By looking at the results in Table 14., we can say that there was not a significant difference in terms of first unit between experimental and control groups. By contrast, significant differences were seen between the scores of experimental and control groups in terms of other units except the first one. This means that 10 units showed the effectiveness of the treatment on post-test scores. By the help of these units students found opportunity to practice their listening skills by their own materials, control group with tape recorders and experimental group with computers. Finally, the participants in experimental group were more successful in these units and this means that computers were effective on their treatment. When you look at the Appendix F, you can also see the extra calculations about 10 unit results of both groups.

4.5. Results of Gender Differences of Groups

There was no significant difference in the pre-test scores between females and males in both control and experimental groups or between genders in the post-test scores in both groups. Therefore, we cannot claim about a real difference between genders. Students were randomly assigned to the B classes at the beginning of the first semester by Placement Exam and the groups were randomly assigned too. So, we can conclude that gender differences did not play a role in the effects of computer-assisted language learning on listening comprehension ability. The experimental group showed progress during the experiment that indicates that computer assisted language learning had an effect on the listening comprehension abilities of learners as a whole not particularly females or males. Likewise, the listening level of learners was the same at the beginning of the experiment. Learners come from different cities but their age, listening ability, language level and university departments did not make any real difference for this experiment. This was indicated by the lack of significant difference between learners in the pre-test stage of the study.

We will also see that there was no difference between genders too in the following tables.

4.5.1. Pre-test and Post-test scores of Gender Differences within Groups

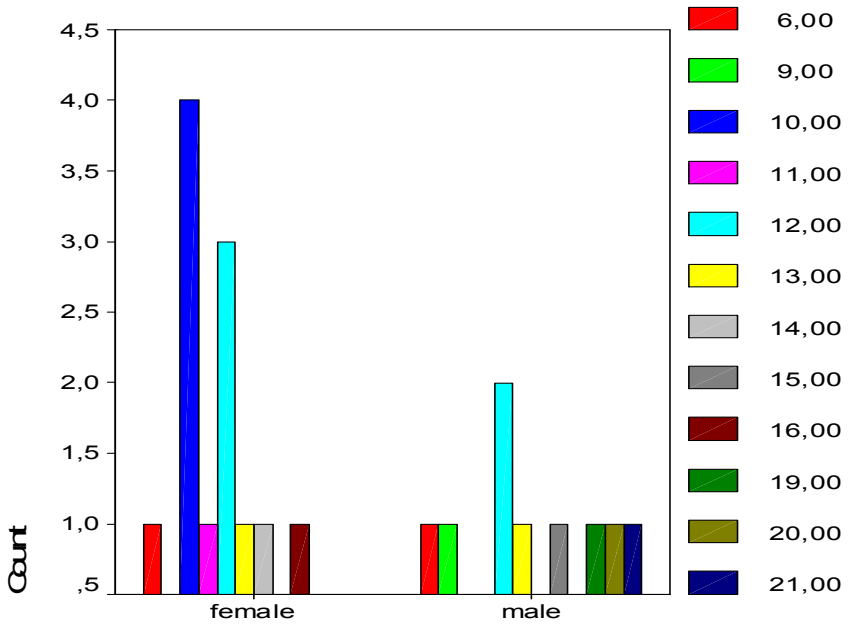
Table 15. Pre-test Scores of Genders Differences of Groups

	Number of Questions		N	$\overline{X}$	Z	Sig.
Pre-test	Female	Experimental Group	11	12,82	-0.773	0.942
Pre-test	Male	Experimental Group	10	12,30		
Pre-test	Female	Control Group	12	11,33	-1.365	0.172
Pre-test	Male	Control Group	9	14,11		

P=<0.05 (Z= 1.96)

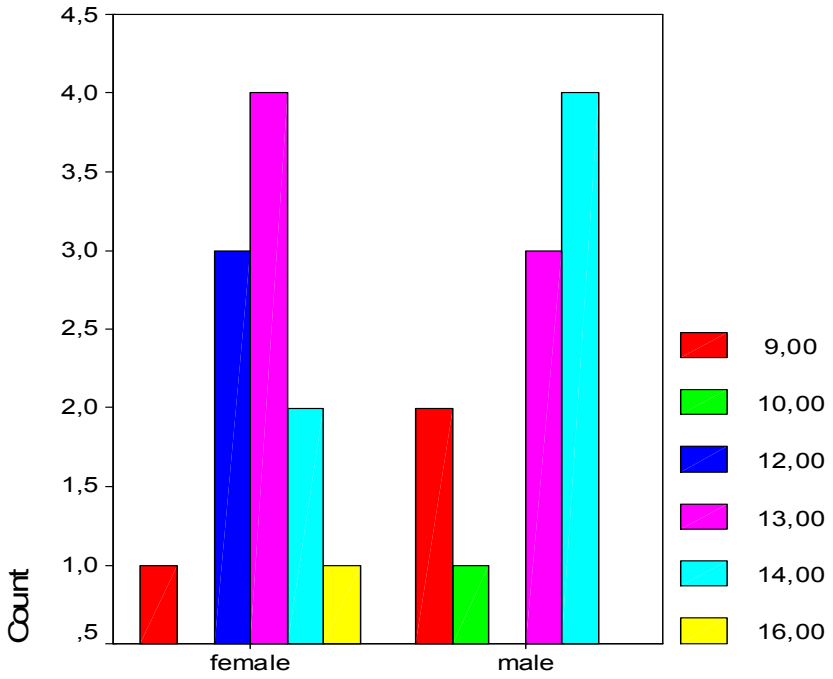
The pre-test mean score of females in experimental group was 12.82 and 12.30 for males. Though the scores of females were higher than the males', this was not a significant difference (p=0.942>a=0.05). In addition, the pre-test mean score of females in control group was 11.33 and the pre-test mean score of male was 14.11. Although males were more successful than females, no significant difference was seen between the pre-test scores of females and males in the control group (p=0.172>a=0.05).

Figure 24. Pre-test Gender Differences within Control Group



The highest score of a female was 16 and a male was 21. The lowest score of a female and a male were six. Four females gave 10 and three females gave 12 correct answers while two males gave 12 correct answers. In short, although female results were higher than male results, we cannot claim a significant difference between the pre-test results of females and males in control group.

Figure 25. Pre-test Gender Differences within Experimental Group



A female achieved the highest score (of16) while four males gave 14 right answers. The second highest score by two females was 14 and it was 13 by three males. Next, four females gave 13 correct answers and one male gave 10 correct answers. Lastly, three females did 12 score and one female did 9 and nine correct answers were given by two males too. Overall, there is no significant difference in terms of pre-test scores between males and females in the experimental group.

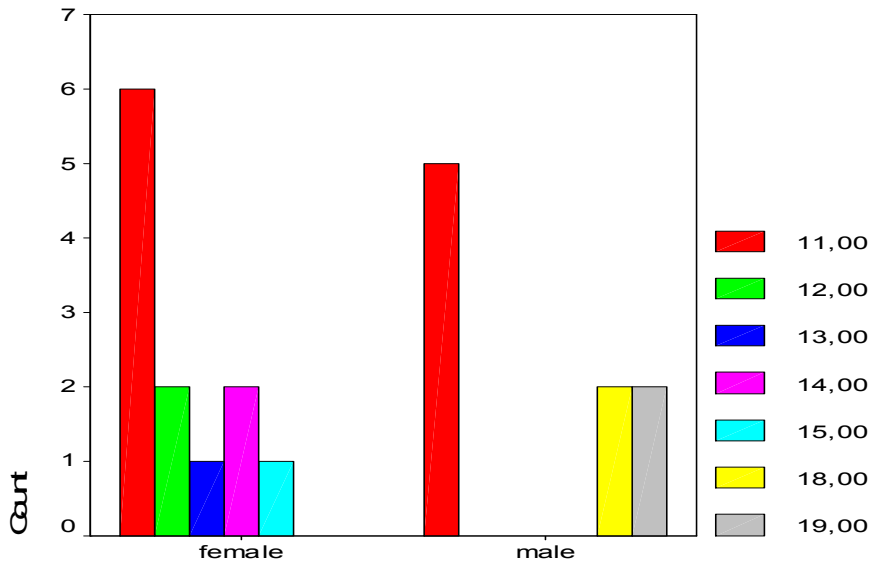
Table 16. Post-test Scores of Gender Differences of Groups

	Number of Questions		N	$\overline{X}$	Z	Sig.
Post-test	Female	Experimental Group	11	17.91	-1.558	0.119
Post-test	Male	Experimental Group	10	16,30		
Post-test	Female	Control Group	12	12,17	-0.692	0.489
Post-test	Male	Control Group	9	14,33		

P=<0.05 (Z= 1.96)

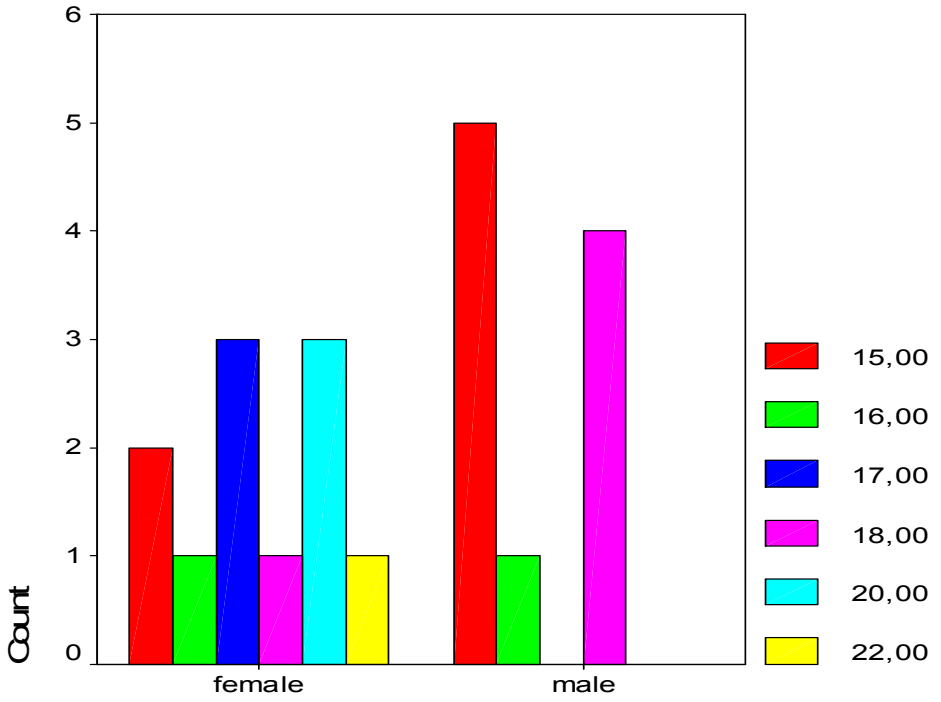
While the post-test mean score of females in the experimental group was 17.91, the post-test mean score of males was 16.30. This means that the post-test scores of females were higher than the post-test scores of males in experimental group but this difference was not significant. (p=0.119>a=0.05) The post-test mean score of females in control group was 12.17 but the males' mean score was 14.33. This means that males in control group were more successful than females but this was not a significant difference. (p=0.489>a=0.05). Consequently, the results show no concrete difference between the two genders and this means that CALL has the same effect on both females and males.

Figure 26. Post-test Gender Differences within Control Group



According to the post-test results of control group, the highest female score was 15 only by one girl and it was 19 by two males. Second highest score was 18 for two males and 14 by two females. Next, one female got 13 score and two of them got 12 score. Finally, the lowest score of females was 11 by six of them and it was again 11 by five males. In brief, there is no significant difference between the post-test scores of females and males in the control group.

Figure 27. Post-test Gender Differences within Experimental Group



Post-test scores of experimental group show no significant difference between the scores of females and males. As seen in this graph, one female had the highest score of 22 and four males got the highest score of 18. Three females gave 20, one gave 18, and three of them gave 17, another on student gave 16 and lastly two females gave 15 correct answers to the questions. On the other side, one male gave 16 and five males gave 15 correct answers. Appendix G contains further analysis of concerning the gender results of both groups.

4.6. Results of Attitude Questionnaire of the Experimental Group

An attitude questionnaire was given to the experimental group to determine the attitudes of the subjects towards computer assisted learning. The maximum score possible was 30 but when we look at the 3th question and the 7th question, we can see that these questions are negative that should be crossed as 'no' so the maximum score should be 26 given the nature of these questions. See appendix G for details.

The results of the questionnaire were analyzed by scoring the answers on three point response scale: Yes (3), Sometimes (2) and No (1). The scores of each student were calculated and their mean score was taken. The collected scores were later transposed to a 100 percent point scale. The mean of the questionnaire was 24.00. When we consider the maximum score of 26, which resembles a positive attitude towards computer assisted learning then we can say that the experimental group showed a positive attitude. This finding was similar to the finding of Aşkar, Yavuz and Köksal[1], the mean score of the same attitude questionnaire was 26.38 and it was 26.79 in the study of Şentürk[2] who used the same questionnaire. When you look at the Appendix H, you can also see the extra calculations about questionnaire results of experimental groups.

[1] Aşkar, P., Yavuz, H., and Köksal, M., ibid, p49.
[2] Şentürk, H., ibid, p46.

Table 17. Attitude towards CALL Questionnaire, with Percentages of Responds

Attitute Scale Item		Yes	Sometimes	No
1.While studying with computers, the time passes quickly.	Frequency	18	3	0
	(%)	85.71	14.28	0.00
2. I learn quickly while studying with computers.	Frequency	15	5	1
	(%)	71.42	23.80	4.76
3. I feel uncomfortable while studying with computers.	Frequency	0	4	17
	(%)	0.00	19.04	80.95
4. Learning with computers increases my success.	Frequency	16	5	0
	(%)	76.19	23.80	0.00
5. Learning from computers increases my confidence.	Frequency	11	6	4
	(%)	52.38	28.57	19.04
6. Computers make me eager to study more.	Frequency	12	9	0
	(%)	57.14	42.85	0.00
7. At first, learning with computers seems enjoyable but later I am bored.	Frequency	5	12	4
	(%)	23.80	57.14	19.04
8. Instruction with computers is very enjoyable.	Frequency	18	3	0
	(%)	85.71	14.28	0.00
9. I would like to learn all the courses with computers.	Frequency	6	8	7
	(%)	28.57	38.09	33.33
10. I learn easily with colorful graphics and animation.	Frequency	17	3	1
	(%)	80.95	14.28	4.76

(Taken from Aşkar, Yavuz and Köksal, 1992)

Question 1 asked whether the students thought that time passed quickly while studying with computers. 85.71% of students answered ‘yes’ and 14.28% of students answered ‘sometimes’, none of the students answered ‘no’

For the second question most of the students felt that they learn quickly while studying with computers. 71.42% of students answered ‘yes’, 23.80% of students answered ‘sometimes’ and only one student answered ‘no’.

Question 3 asked if students feel uncomfortable while studying with the computer. While 80.95% of students answered ‘no’ and 19.04% of students answered ‘sometimes’, none of the students answered ‘yes’ to question 3. Question 4 shows that none of them think that learning with computers do not increase their success, with 76.19% of students answering ‘yes’ and 23.80% of students answered ‘sometimes’, none of the students answered ‘no’.

For the fifth statement, 52.38% of students think that learning from computers increases their confidence and 28.57% of students answering

“sometimes” and only four students think that learning from computers does not increase their confidence.

The 6th question asked if computers make them eager to study more, 57.14% of students answered ‘yes’ and 42.85% of students answered ‘sometimes’, no one said ‘no’. Question 7 asked if students think that at first learning with computers seems enjoyable for them but later becomes boring. 23.80% of students said ‘yes’ and 19.04% of students answered ‘ no’ but 57.14% of students answered ‘sometimes’. On the other hand, in question eight, none of the students think that instruction with computer was not enjoyable. 85.71% of students think that instruction with computers was enjoyable.

CHAPTER V

5. DISCUSSION

This study was motivated by some research questions related to CALL listening instruction. It was intended to show whether or not computer assisted listening instruction had an effect on the listening comprehension proficiency of learners. The goal was to investigate how beneficial CALL could be for a second language learner and whether or not a learner would show any improvement in performance. In addition to this, another aim of this study was to evaluate the students' attitudes towards computer-assisted learning.

Participants in the study were placed in two groups an experimental and a control group. None of the groups received any listening instruction outside of the study during the experimental period. It was not exactly known how much listening instruction participants had received prior to their involvement in the study although they had been placed in the same level according to their Placement Exam at the beginning of the first term. Moreover, by looking at the results in Table 8., the pre-test scores showed that there was no significant difference the groups ($p=0.415>a=0.05$).

After the pre-test, the experimental group studied in a language laboratory with computers and the control group took classes in a traditional classroom with tape recorder. The experiment lasted 4 weeks in which ten units of listening activities were given to both groups, using the same content materials in the two different formats. At the beginning of the study, there was no significant difference between the two groups in terms of their performance in the first unit scores. However, a significant difference emerged between the experimental and control group in the rest of the units. The experimental group showed significantly greater progress during the treatment after the first unit.

Finally, statistical analysis of the post-test showed us that the 24 hours of computer assisted study had a positive affect on the experimental group's achievement in the post-test. As indicated in Table 10. the experimental group scored higher than the control group ($p=0.000<a=0.05$) meaning that the computer assisted treatment given to the experimental group created a significant difference between the groups. The mean difference of 0.0476 in pre-test was raised to 4.0477

in post-test scores. We can say that computer assisted instruction did create an effect on listening skills of students when compared with the control group which received traditional classroom listening instruction. When computers are used in language instruction, the learning pace is faster. In this study, we can conclude that the computer assisted listening instruction affected the experimental group's learning pace greatly in a positive manner compared with traditional listening instruction.

We also looked at the comparative results between genders and there was no significant difference between females and males in the pre-test. However, when we compare females in control group with males in experimental group in terms of their post-test results, we see that there was no significant difference between them but females in the control group were more successful. On the other hand, females in the experimental group were more successful than males in control group and a significant difference was seen between them. We can conclude that females scored more than males in both groups but only one significant difference was seen between the post-test scores of females in experimental group and males in control group.

Finally, an attitude questionnaire given to the experimental group showed they had a positive attitude towards computer assisted learning (Table 17.). All the students thought that time passed quickly while studying with computers. In addition, most of the students felt that they learned quickly while studying with computers. None of them thought that learning with computers did not increase their success and none of them thought that instruction with computer was not enjoyable. This means that they felt comfortable that is they were more self-confident while studying with the computer than working in the classroom and had real fun while exercising listening on the computer. We can only assume that the positive attitude of the experimental group would have a positive effect on their tests.

CHAPTER VI

6. CONCLUSION

6.1. Summary of the Study

Computer assisted language learning has many effects on listening comprehension. There are some problems in the traditional teaching of listening comprehension with cassettes or audio CDs; these include the differences of ability and learning styles between individual students in the class and the difficulty in giving positive feedback. Computer Assisted Language Learning can help to solve these problems in order to make listening comprehension more effective and can provide visual materials and contexts for students to look at or read while listening presenting visual and audio materials by one machine.

It is a fact that every learner has different learning capacity, related to the learner's previous language experience. Rivers states that students understand spoken material in different ways since they have different language levels.[1] Learners panic when they cannot complete the tasks in the classroom, which can never be tailored for their exact level of ability and therefore their ability to discriminate sounds and word groupings decreases. Although some strategies can be suggested to learners who learn less quickly than others do, learning differences are likely to remain. Problems in the listening classroom arise because of the limitations of audio recordings on tape or CD. Students have to follow instructions and work alongside the other students in the class even though the recorded text may be too fast for one group and too slow for others. Some learners have the ability to understand the whole text at the first listening or two, while teachers often say that they have to replay passages to one or two students because they cannot understand the text and may want to listen repeatedly. This then causes the other students to lose concentration and become distracted by other things in the class, so individualized instruction is nearly impossible in a listening class. Learners cannot listen to the text the exact number of times that they need to and cannot stop the text whenever they want. However, they can do this in computer-assisted language learning classes. In front of the computer, the learner is free and he or she can listen to the text several

[1] Rivers, W. M., 1968, ibid, p53.

times and can stop the parts in which she has difficulties in understanding and replay them again and again. As Ahmad, Corbett, Rogers and Sussex stated;

> *One of the most obvious and accessible benefits of CALL is its capacity to provide personalized and self-paced learning. This allows students of varying ability enough flexibility to find their own level, which is a boon to slow learners, and fast learners who need remedial and extension exercises respectively. Students who are reluctant classroom learners may also benefit.*[2]

Visual Input is another important factor in listening comprehension. Visual supported listening materials help learners to interpret what they hear, just as they do in real life listening. According to Ur, if listening-material is colourful, humorous, and dramatic or in motion it increases students' motivation and concentration.[3] Chastain stated that 'teachers should strive from the first day of class to make input comprehensible through the use of visuals and actions.'[4] Computers, unlike tapes, present several visual materials in the form of text, graphics, audio, and video. This means that computer assisted listening activities are more realistic and motivating.

Positive feedback plays an important role in listening comprehension. Ideally, immediate feedback must be given by teachers and it must focus on the meaning of the text. This may be possible in reading and writing but in listening giving immediate feedback is quite difficult. According to Ur 'the student's results need to be checked immediately after he has finished, when what he has heard is still echoing somewhere in his mind and there is still a possibility of hearing it again.'[5] If teachers give feedbacks late, learners can lose their interest. It is difficult to provide positive feedback in the following lesson because it is impossible to replay the tape or re-speak to the learner. On the other hand, the computer also provides positive and immediate feedback. Ahmad explains this as follows;

> *Each student response receives a reply from the computer, virtually instantaneously, with appropriate feedback in the form of comments, assessment and*

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[2] Ahmad, K., Corbett, G., Rogers, M. and Sussex, R., ibid, p116.
[3] Ur, P., **Teaching Listening Comprehension**, Cabridge University Press., 1984, p80.
[4] Chastain, K., **Developing Second Language Skills: Theory and Practice**, Boston: Houghton Mifflin Company, 1988, p284.
[5] Ur, P., ibid, p81.

guidance. ... The learner is corrected the first time a mistake is made. The rest of the exercise, rather than perpetuating the error, can serve to practice the correct version.[6]

Students' control of learning, immediate feedback, and non-existence of negative psychological effect, which may follow face to face negative feedback, could be considered benefits of CALL instruction. It was found that students have control of learning while using computers for language learning. Immediate feedback has a positive effect on learning speed because students do not want to be corrected in front of class. They can study on their own with computers and see their mistakes on their own too. There is not a negative psychological effect of computers, and students are in favour of them. Computers provide individual work rather than group work and this is beneficial while learners are studying listening materials.

As a general conclusion of this study, the use of CALL systems for listening instruction is proposed. This type of instruction considerably increases learners' motivation. Since computers provide immediate feedback, students could work on their own, and a teacher could spend more time with weaker students. Shortly we can say that computer-assisted language learning plays an effective role in listening comprehension. Using computers in education is more enjoyable and motivates learners more effectively as a result; learners can also improve their computer skills.

6.2. Conclusion

With the increasing number of listening materials that appear day after day in the Internet, both language teachers and language learners should not overlook the importance of listening comprehension skills. Listening skills are the prerequisite skills for the development of speaking skills and no one can speak a language unless one can understand it. In this way, listening comprehension is a very important fact, which can be improved by computers more effectively.

The intent of this thesis was to investigate three experimental research questions. The participants in the study were 42 students in the Department of Foreign Language Compulsory Preparatory Programme of Çaycuma Vocational

[6] Ahmad, K., Corbett, G., Rogers, M. and Sussex, R., ibid, p6.

School in Zonguldak Karaelmas University who were aged between 17 and 24. They were divided into two classes: control group (traditional class) and experimental group (computer-assisted class). The participants were randomly assigned to the groups. Experimental group (11 females and 10 males) and control groups (12 females and 9 males) consisted of 21 participants each since the language laboratory for experimental group was available for that number. The experimental group received computer-assisted instruction in a language laboratory while the control group received traditional listening comprehension instruction in the classroom with a textbook and an audio tape. The textbook was prepared from the content of the computer program used by the experimental group.

The training lasted 4 weeks and the instructor met the groups 6 hours each week. Before the treatment started, a pre-test was given to determine the listening comprehension level of the subjects although they were placed according to their level of scores in Placement Exam at the beginning of the first term. Next, both groups studied 10 units of material in the 24 classroom hours. After the study, an attitude questionnaire was given to the experimental group in order to reveal their attitudes towards computer-assisted learning. Lastly, a post-test was given to the students. The post-test and pre-test were the same in content to determine if there was an effect of computer-assisted listening instruction on listening comprehension ability after the given treatment.

Three research questions were asked in this experimental study. The first research question examined the pre-test scores, the second one examined the post-test scores, and the last research question found out the attitudes of students in experimental group towards CALL.

Research question 1

Is there a significant difference in terms of the gain scores on the pre-listening achievement test between the learners instructed by Call and the learners receiving traditional instruction?

There was no statistically significant difference between control and experimental groups. Mann Whitney independent U test indicated that the level of students' listening were the same in both groups.

Research question 2

Is there a significant difference in terms of the gain scores on the post-listening achievement test between the learners instructed by CALL and the learners receiving traditional instruction?

There was a quantifiable, significant difference between the control and experimental groups. Mann Whitney independent U test indicated that students in experimental group showed progress after the treatment. This means that computer-assisted instruction could have an effect on the speed of learning and on learners' listening comprehension skills. In traditional classrooms, students just listen to a passage or a dialogue for one or two times and they cannot concentrate on the listening instruction because of the environment or other students or the material. However, with the help of computers, a learner could practice as much as he could. Students in experimental group devoted much more time to the listening instruction while studying the material. This might be an explanation for the difference between two groups.

Research question 3

What are the learners' attitudes towards the use of CALL for listening activities? Which one do they prefer? (According to questionnaire)

The attitude questionnaire given to the experimental group showed that students who studied with computers had positive attitudes towards CALL. The majority of the participants found CALL motivating and they liked the idea of using computers in their effort to learn a language. They reported that it was a good experience to learn from computers and they would like to receive more computer-assisted instruction in their lessons. There are several reasons for the participants to prefer CALL system such as studying as much as they could; spending more time on the sections they are having difficulty in, getting immediate feedback, having visual instructions, their control of learning.

Consequently, we can say that computer-assisted instruction is more useful if we look both from the point of the learner and from the point of success. We can see the effect of computer-assisted language learning on learners' listening comprehension abilities.

6. 3. Suggestions for Further Research

As we described in Chapter III, the length of the treatment was 26 hours and this duration can be extended to whole year. The findings of this kind of research could reveal different answers to the effectiveness of computer assisted language learning or instruction.

In addition, other computer software could be used in these kinds of experiments because computer technology is improving very rapidly and new designed language learning software packages are regularly being presented for the needs of learners and teachers.

Moreover, other language skills like reading, writing, speaking, and grammar could be investigated and used as experimental studies. The effect of computer assisted language learning could be researched in these language skills.

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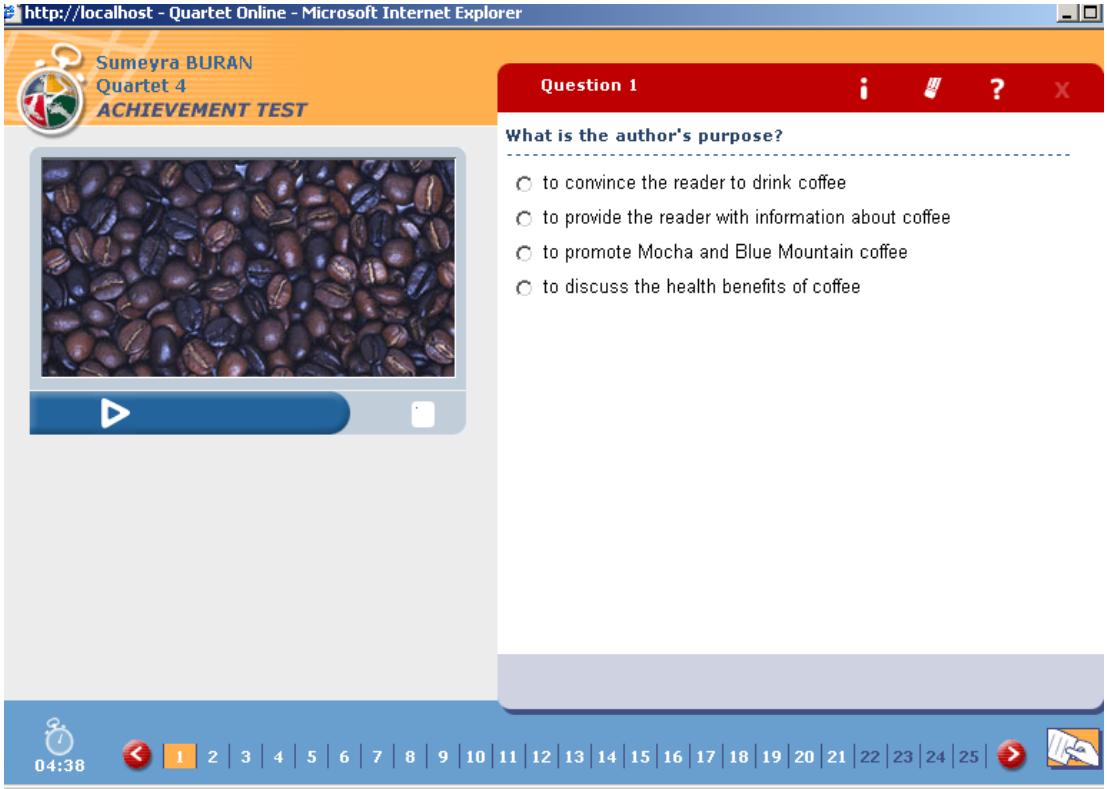
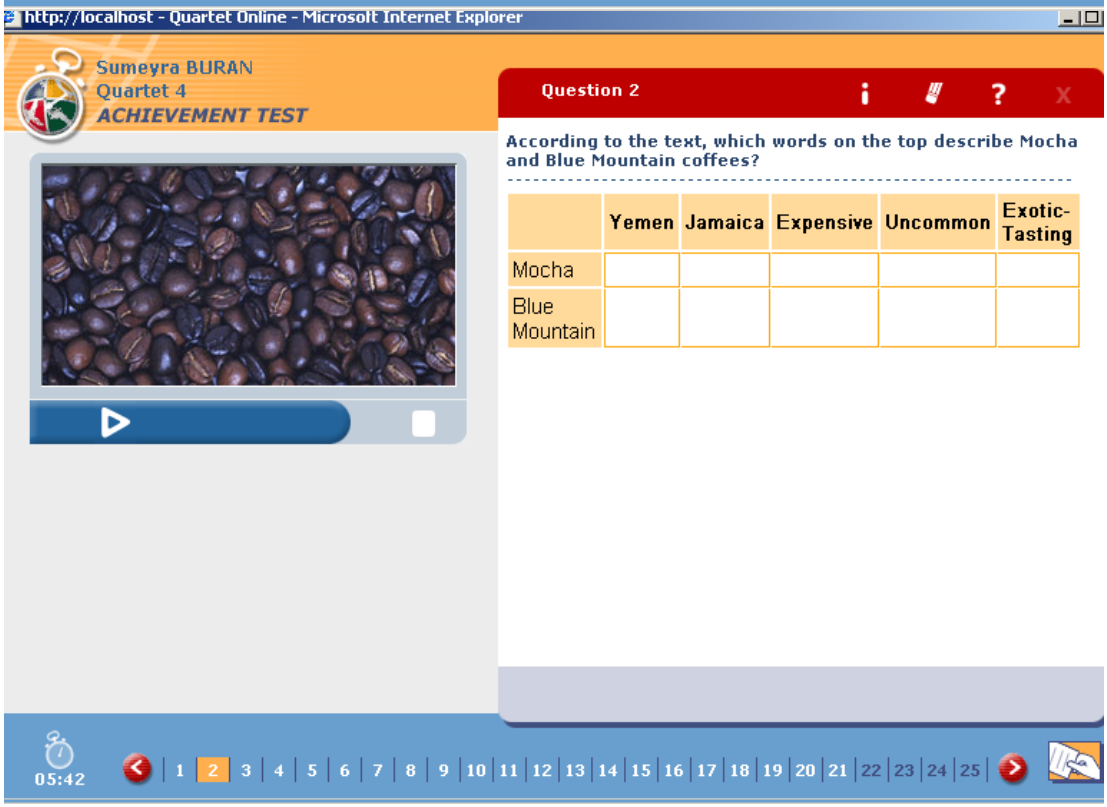
APPENDICES

APPENDIX A

(Pre-test/post-test Questions)





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Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST

Question 3

Complete the sentences.

1) Yemen Mocha was the only commercial coffee for _____ years.
2) Coffee was first cultivated _____ years ago in _____.
3) All coffee is grown within _____ miles of the equator.
4) Blue Mountain coffee is from _____.

500	1,000	200
Jamaica	Arabia	

06:23

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25

http://localhost - Quartet Online - Microsoft Internet Explorer

Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST

Question 4

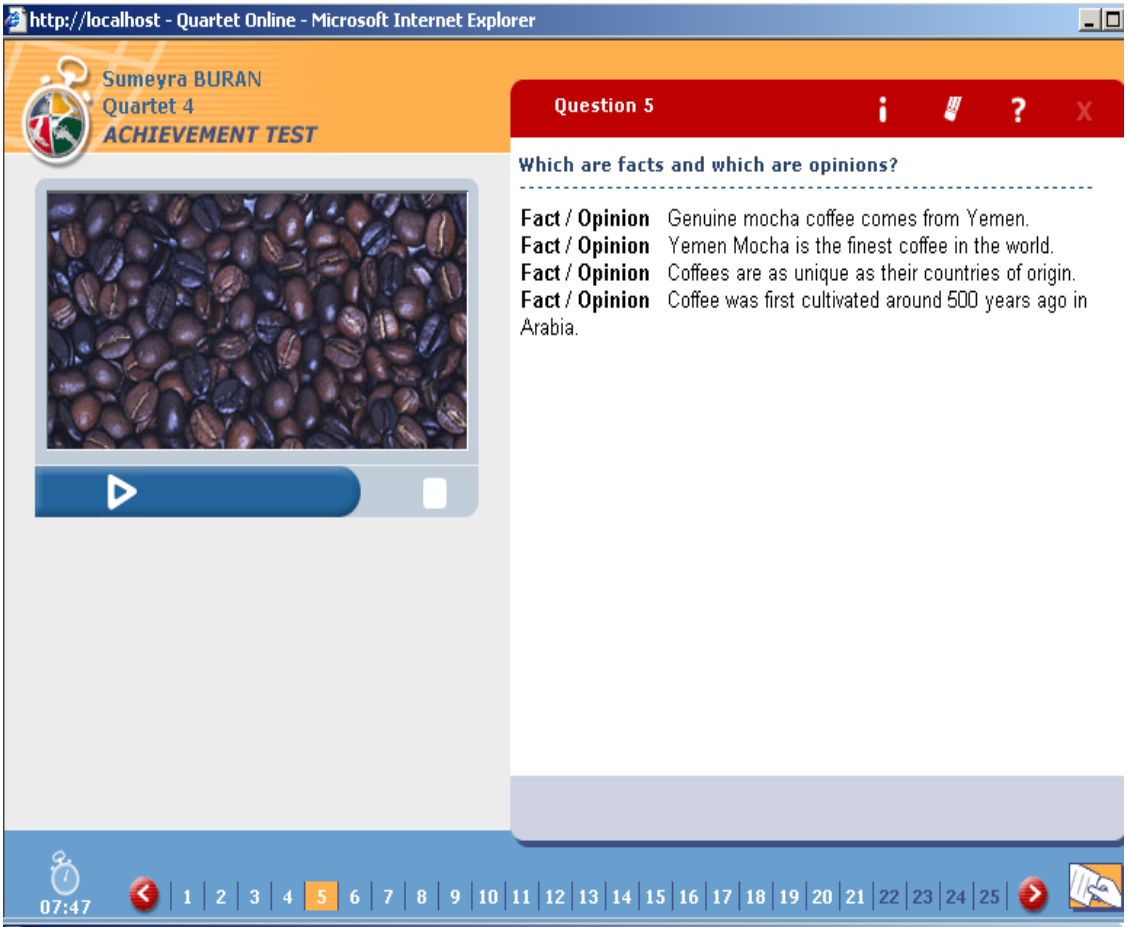
Look at the second to last sentence in the text. What does *it* refer to?

"This coffee is less common than some of the other kinds of coffee, so *it* can be expensive."

- coffee
- Blue Mountain coffee
- Yemen Mocha
- Jamaica
- a coffee lover

07:01

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25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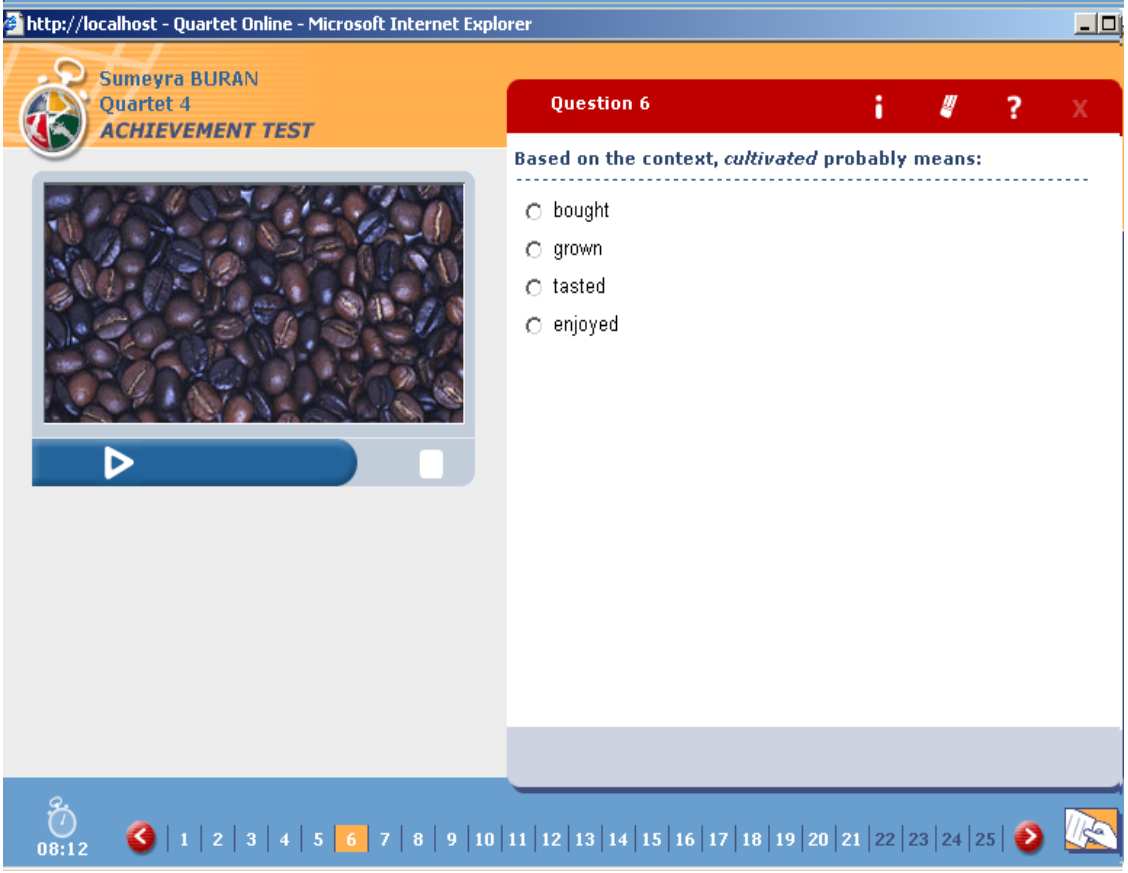
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 5
Which are facts and which are opinions?
Fact / Opinion Genuine mocha coffee comes from Yemen.
Fact / Opinion Yemen Mocha is the finest coffee in the world.
Fact / Opinion Coffees are as unique as their countries of origin.
Fact / Opinion Coffee was first cultivated around 500 years ago in Arabia.
07:47
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25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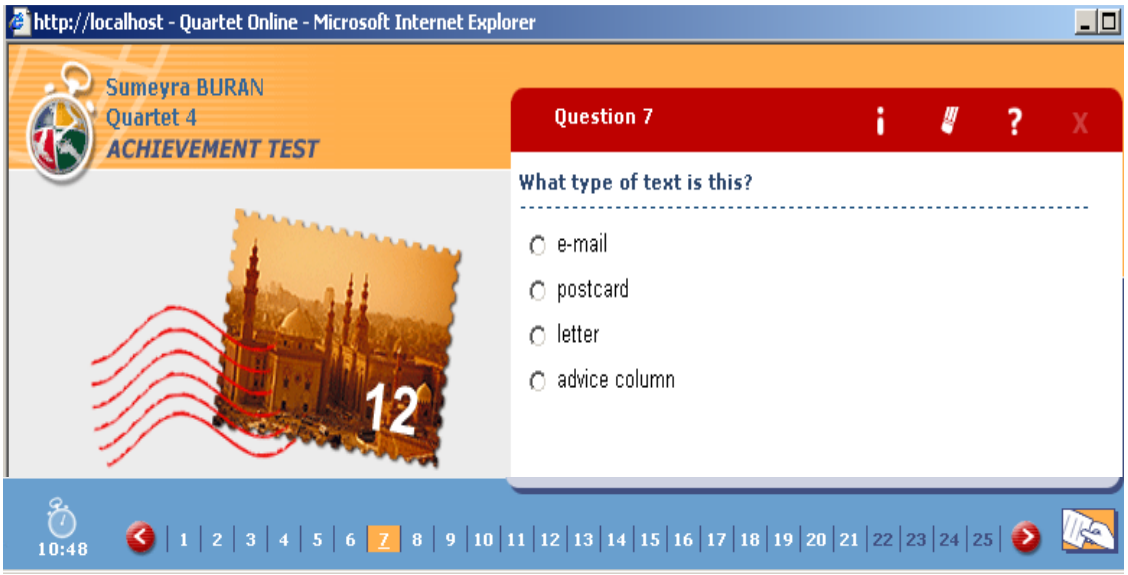
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 6
Based on the context, cultivated probably means:
bought
grown
tasted
enjoyed
08:12
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25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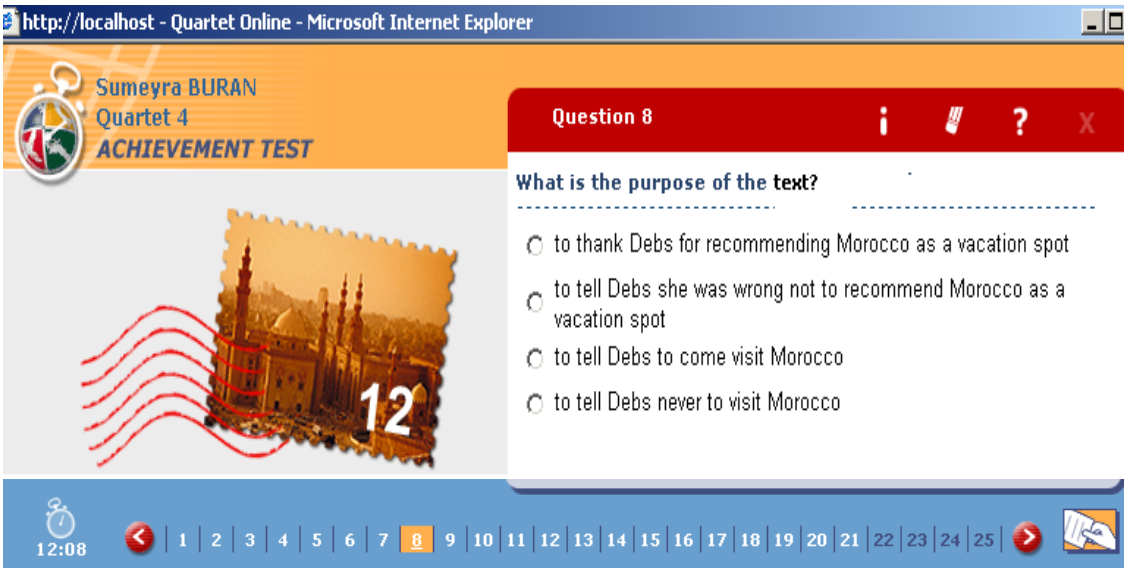
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 7
What type of text is this?
e-mail
postcard
letter
advice column
12
10:48
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25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Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 8
What is the purpose of the text?
to thank Debs for recommending Morocco as a vacation spot
to tell Debs she was wrong not to recommend Morocco as a vacation spot
to tell Debs to come visit Morocco
to tell Debs never to visit Morocco
12
12:08
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25


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Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 9
What's the main thing Sam tells Debs about?
the beautiful countryside in Morocco
the city of Casablanca
the mosque he saw in Casablanca
the pictures he took on his trip
12
13:04
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25


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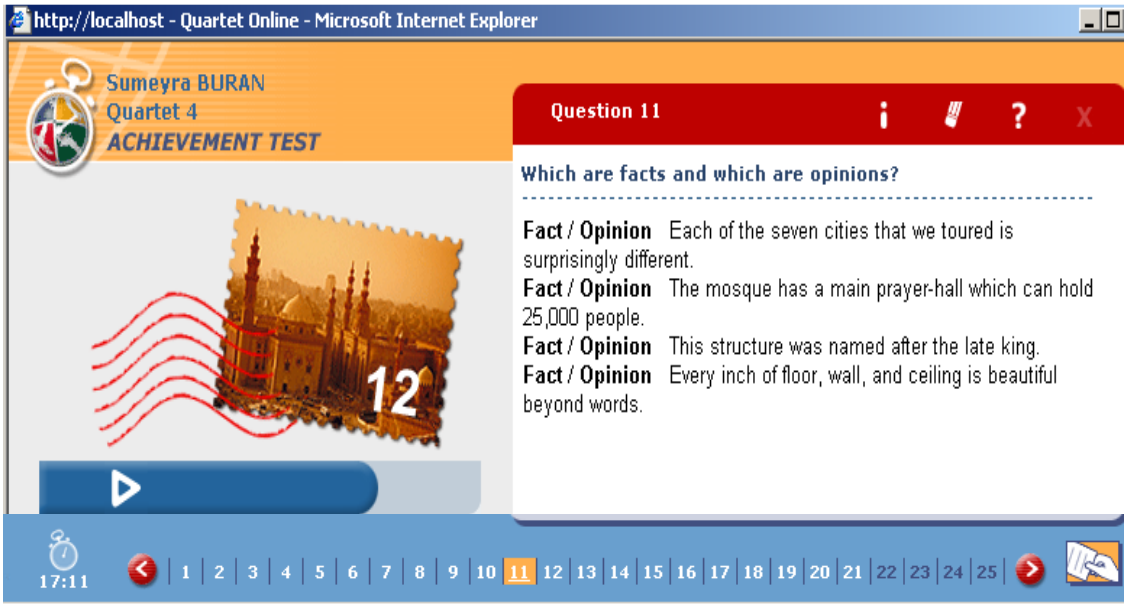
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 10
Complete the paragraph.
Sam visited _____ different cities on his trip to Morocco. He still wants to visit _____. In _____ he saw a beautiful mosque. He told Debs that the main prayer hall of the mosque is _____ feet long and _____ feet wide. It can hold _____ people. Sam took _____ rolls of pictures of the mosque.
Marrakech
Casablanca
3
7
650
325
25,000
12
13:51
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25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Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 11
Which are facts and which are opinions?
Fact / Opinion Each of the seven cities that we toured is surprisingly different.
Fact / Opinion The mosque has a main prayer-hall which can hold 25,000 people.
Fact / Opinion This structure was named after the late king.
Fact / Opinion Every inch of floor, wall, and ceiling is beautiful beyond words.
12
17:11
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25


http://localhost - Quartet Online - Microsoft Internet Explorer
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 12
Based on the context, we can assume that monotonous must mean:
interesting and exciting
boring and repetitious
worthwhile
hard to get to
12
18:11
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25


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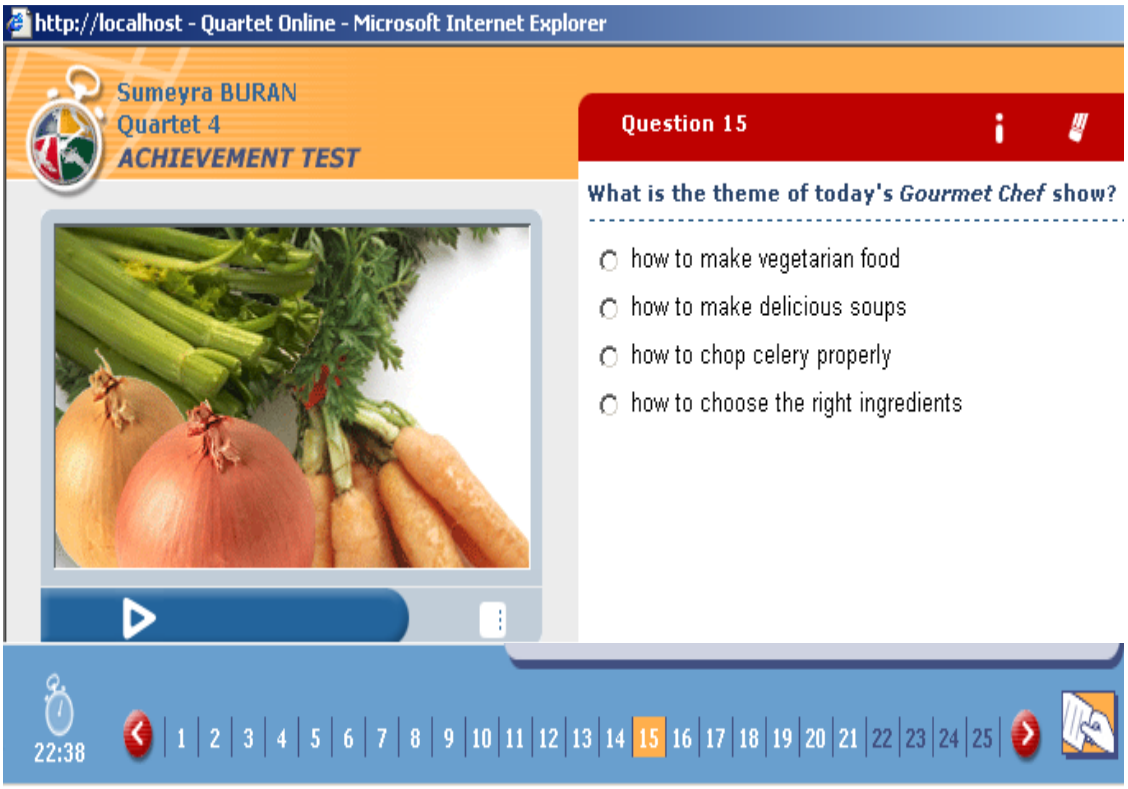
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 13
Choose the correct verb form to make the sentences correct.
To: Sam
From: Debs
Cc:
Subject: I'm jealous!
Dear Sam,
OK, so I'm not always right. I'm glad you have / are having such a wonderful time. You usually find / are finding interesting places and things to do in a new country. I, on the other hand, often am complaining / complain a lot when I travel. Right now, though, I am jealous. I sit / am sitting in an Internet café writing to you. The city is hot and crowded. Work is busy. I want / am wanting to go on vacation too! Have a great time, and remember to take lots of pictures. You take / are taking such wonderful shots.
I miss you,
Debs
12
20:12
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25


http://localhost - Quartet Online - Microsoft Internet Explorer
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 14
Complete the dialogue.
Sam: Hi Debs, It's Sam!
Debs: Sam! You're back!
Sam: No, not yet! (1) _____ you from a cellular phone we rented.
Debs: What are you doing?
Sam: (2) _____ the Menara gardens in Marrakech. It is beautiful here. Steven and I are looking at beautiful orchards and olive groves. At this time of day, tourists often (3) _____ to the gardens. But today it's quiet.
Debs: That's great! You know I love gardens. I (4) _____ the Menara gardens in Marrakech. They are lovely.
Sam: We'll be back on Saturday. Get ready to see some pictures!
1 2 3 4
I call We are visiting are coming am missing
I'm calling We visit came miss
I called We will visit come was missing
12
21:40
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25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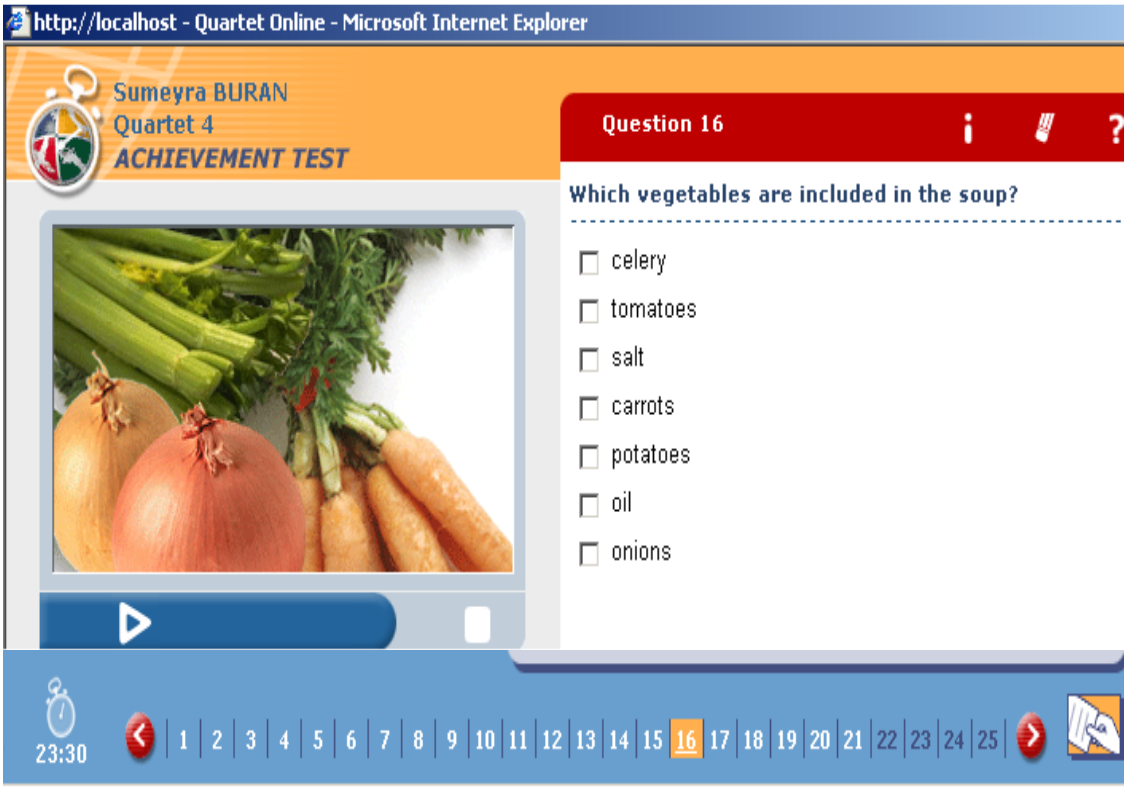
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 15
What is the theme of today's Gourmet Chef show?
how to make vegetarian food
how to make delicious soups
how to chop celery properly
how to choose the right ingredients
22:38
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25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Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 16
Which vegetables are included in the soup?
celery
tomatoes
salt
carrots
potatoes
oil
onions
23:30
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25


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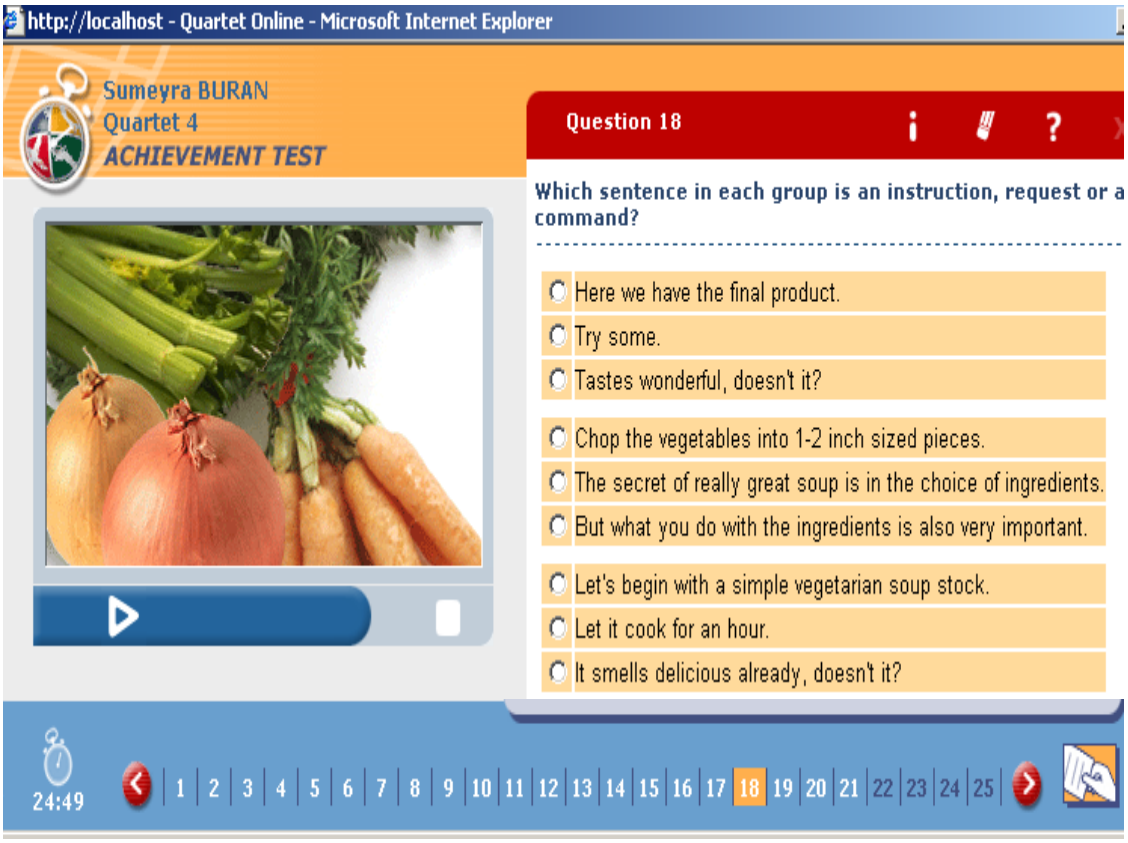
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 17
Match the words that go together in the text.
radio
soup
final
celery
chopped
stalk
vegetables
product
show
stock
24:10
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25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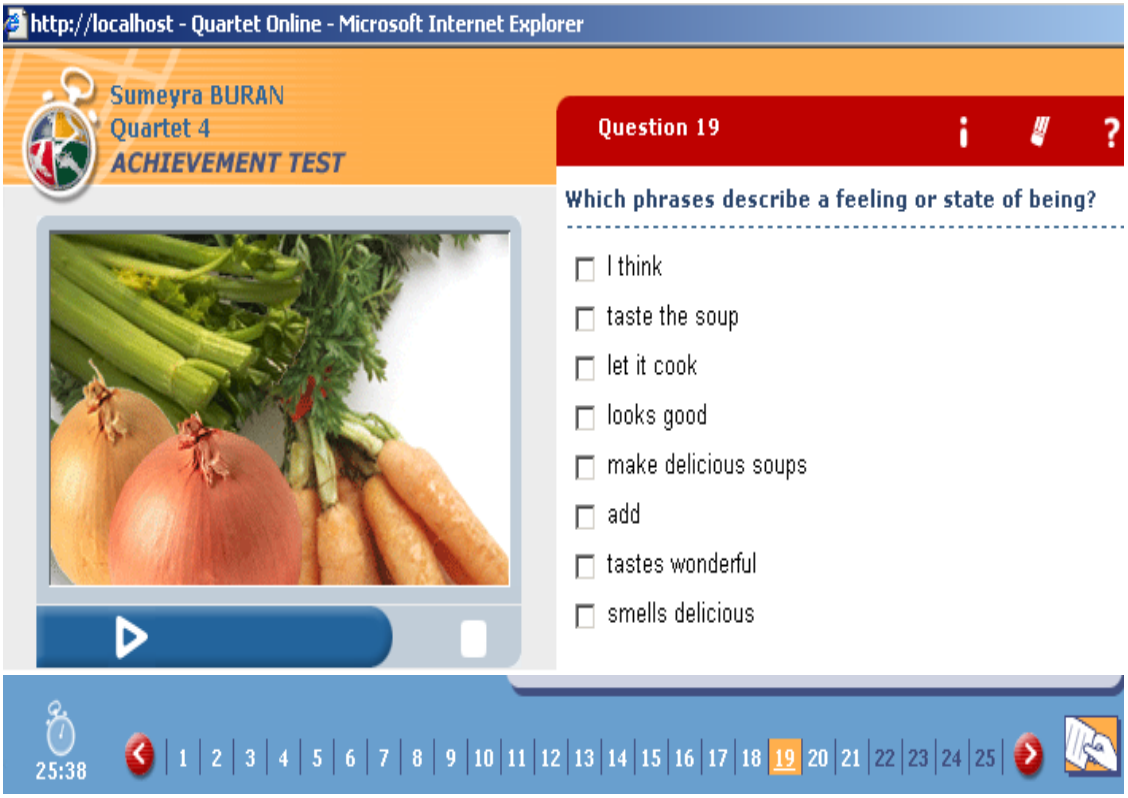
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 18
Which sentence in each group is an instruction, request or a command?
Here we have the final product.
Try some.
Tastes wonderful, doesn't it?
Chop the vegetables into 1-2 inch sized pieces.
The secret of really great soup is in the choice of ingredients.
But what you do with the ingredients is also very important.
Let's begin with a simple vegetarian soup stock.
Let it cook for an hour.
It smells delicious already, doesn't it?
24:49
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25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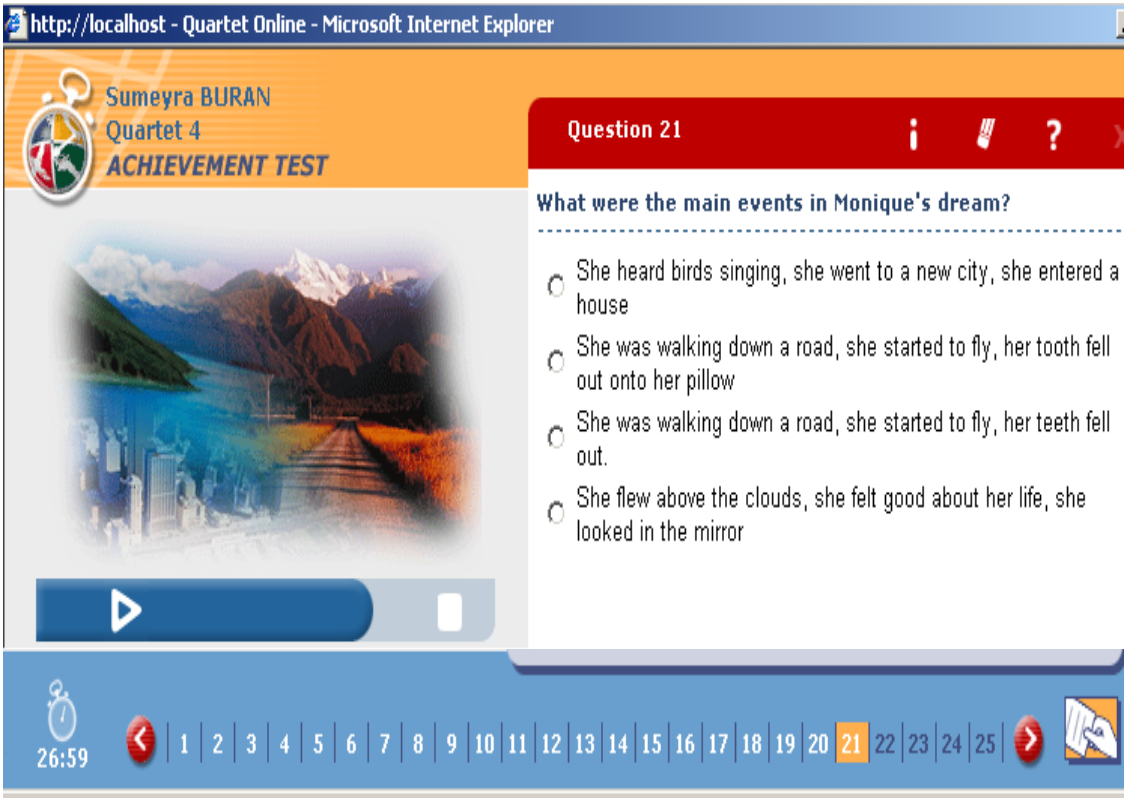
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 19
Which phrases describe a feeling or state of being?
I think
taste the soup
let it cook
looks good
make delicious soups
add
tastes wonderful
smells delicious
25:38
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25


http://localhost - Quartet Online - Microsoft Internet Explorer
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 20
Put the words from the text into groups.
Vegetables
Seasoning
celery
pepper
bay leaves
carrots
salt
onions
26:21
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25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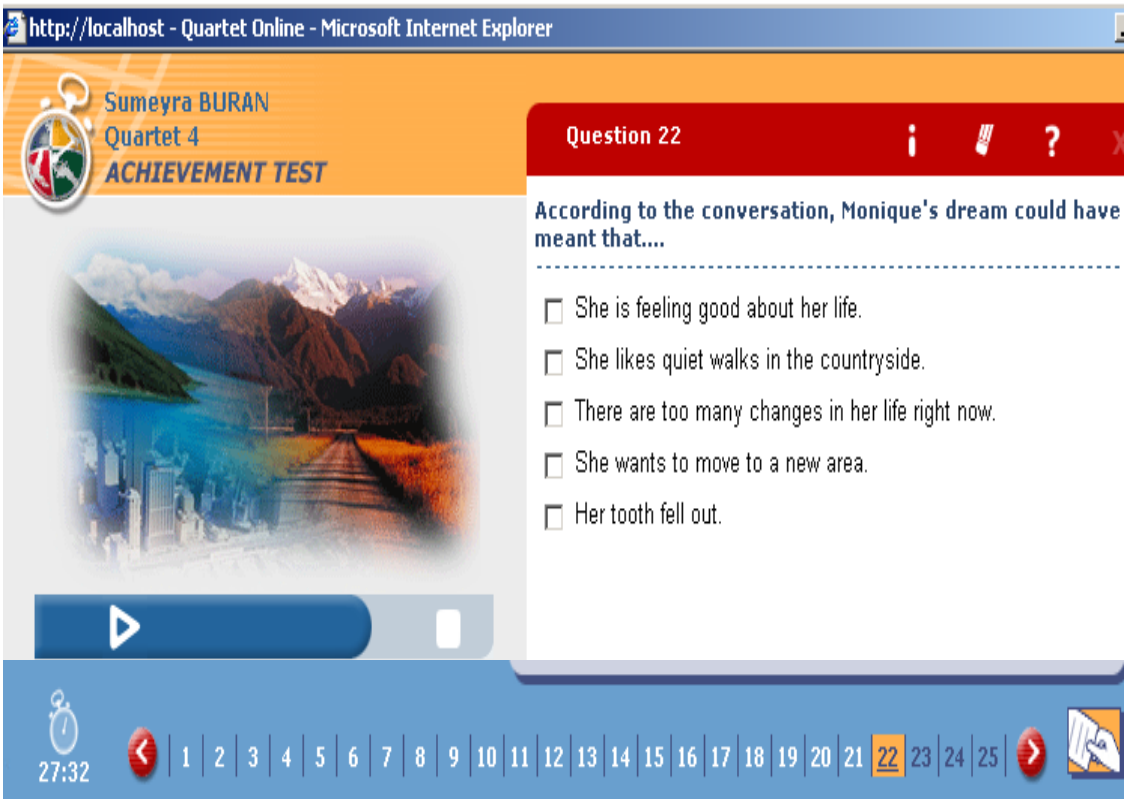
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 21
What were the main events in Monique's dream?
She heard birds singing, she went to a new city, she entered a house
She was walking down a road, she started to fly, her tooth fell out onto her pillow
She was walking down a road, she started to fly, her teeth fell out.
She flew above the clouds, she felt good about her life, she looked in the mirror
26:59
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25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Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 22
According to the conversation, Monique's dream could have meant that....
She is feeling good about her life.
She likes quiet walks in the countryside.
There are too many changes in her life right now.
She wants to move to a new area.
Her tooth fell out.
27:32
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25


http://localhost - Quartet Online - Microsoft Internet Explorer
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 23
Put the sentences into groups.
Actions completed in the past
Actions that continue in the past
I lifted my arms up and flew like a bird.
I was walking down a long country road.
I landed near a large house.
The birds were singing.
My tooth was sitting on my pillow.
I walked in the front door.
28:10
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
http://localhost - Quartet Online - Microsoft Internet Explorer
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 24
Complete the paragraph.
Monique (1) _____ another interesting dream last night. This time, she dreamt she (2) _____ through the forest when suddenly, she (3) _____ a noise behind her. It sounded like an animal. She tried to run, but she couldn't move. She was trying to scream, but she (4) _____ .The cat (5) _____ next to her, purring in her ear.
1 2 3 4 5
have was walking hear woke up sat
had walked heard was waking up sits
was having walk was hearing wake up was sitting
28:48
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
http://localhost - Quartet Online - Microsoft Internet Explorer
Sumeyra BURAN
Quartet 4
ACHIEVEMENT TEST
Question 25
Complete the sentences with the correct word form.
1) I am (1) _____ of flying because I don't trust airplanes.
2) My new job lets me live very (2) _____ .
3) That house on the corner has always been a (3) _____ .
4) I wish there were more (4) _____ in my life. Everything is so boring.
1 2 3 4
fear comfort mystery change
fearful comfortable mysterious changeable
fearless comfortless mysteriousness changes
fearfully comfortably mysteriously changeably
29:22
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Scripts of Texts

1) Coffee Around the World

Coffee was first cultivated around 500 years ago in Arabia. It grows well in tropical climates all over the world, but all coffee is grown within 1.000 miles of the equator.

People grow coffee in places as different as Jamaica, Brazil, Indonesia, India, Arabia, Ethiopia, and Uganda. Coffees are as unique as their countries of origin. Some types of coffee are mellow and rich.

Other coffee beans are spicier. One famous kind of exotic-tasting coffee is called mocha. Genuine mocha coffee comes from Yemen. Yemen mocha was the first and only commercial coffee available in Europe for over 200 years. Some people think that it is the finest coffee in the world.

Other coffee lovers disagree. They think that Blue Mountain coffee, grown in Jamaica, is just as good as mocha. This coffee is less common than some of the other kinds of coffee, so it can be expensive.

Whatever kind of coffee you choose, you should try to buy it as fresh as you can!

2) Dear Debs

Dear Debs,

You were wrong and I was right. This tour is totally worthwhile, although I must admit that the countryside is a bit monotonous. (They say it’s much more interesting around Marrakech, but we aren’t going there until next week.)

Each of the seven cities that we toured is surprisingly different, but I am writing particularly to tell you about our visit to Casablanca. As I write this, I am sitting in a coffee next to the mosque you see on the back of this card.

You know that I love visiting mosques, and this one is particularly special. This gorgeous structure was named after the late king. It has a main prayer-hall about 650 feet long and 325 feet wide and can hold 25.000 (yes, 25.000!) people. Every inch of floor, wall, and ceiling is beautiful beyond words.

I took three rolls of pictures as that when I come home you will be able to see all the details! Steven is even taking a picture of me now, writing you this card! Until then, take care and don't work too hard.

Lots of Love,
Sam

1) Gourmet Chef Radio Show

Good morning and welcome to The Gourmet Chef radio show this morning, our show will focus on how to make a variety of delicious soups to impress your guests. Let's begin with a simple vegetarian soup stock.

To begin, take two white onions, two celery stalks, and two carrots. Chop them into 1-2 inch sized pieces. I think the secret of really great soup is in the choice of ingredients. But what to do with the ingredients is also very important. Take this celery, for example. If you chop he slices too small, they will dissolve. But you don't want he celery pieces to be too large, either.

Next, heat a teaspoon of oil in a large pot. Add the chopped vegetables with a teaspoon of pepper and a teaspoon of salt. Now add seven strands of parsley leaves, two bay leaves, and 6-8 cups of water. Bring to a boil and then reduce the heat to low. It smells delicious already, doesn't it? Let it cook for an hour, then gently strain the soup stock from the vegetables.

Here we have the final product. Try some. Tastes wonderful doesn't it?

2) Dream

Monique: Stan! I had the strangest dream last night.

Stan: Tell me about it.

Monique: I dreamt that I was walking down a long country road. The birds were singing, and the air smelled fresh.

Stan: Sounds good so far. What happened next?

Monique: I lifted my arms up and flew like a bird, above the clouds, through towns and cities and over lakes. I felt no fear at all.

Stan: Well, flying dreams mean that you feel comfortable with your life.

Monique: True, but that's not all. I landed near a lake, mysterious house. I walked in the front door, went over the mirror, and looked at myself. And suddenly…

Stan: Suddenly what?

Monique: My teeth fell out!

Stan: That's supposed to mean that there are too many changes in your life.

Monique: That might be true. But when I woke up in the morning, one of my teeth was sitting on my pillow!

APPENDIX B
(Informed Consent)

Dear student,

This is to request your participation in a research study to explore teaching methods to language learning.

Your participation in this study is voluntary, and you may withdraw at any time. You are requested to sign the informed consent form before the study begins. The information you provide will be kept confidential. Only the researcher will see the completed forms. Your department and name will be used in this study. By the help of your participating in this study, you will contribute to the improvement of language learning courses in the future. There are no risks, but participating will require some of your time. However, this study will be done during your course hours so; you are not needed for extra attending to school except your course hours. Please sign and keep a copy of this form as an explanation of the study. If you have any questions, please contact the researcher at the following address:

Sümeyra Buran
Department of Foreign Language Compulsory Preparatory Programme of Çaycuma Vocational School in Zonguldak Karaelmas University.

APPENDIX C

(Pre-test Outputs of SPSS)

Mann-Whitney Test

Ranks				
	Groups	**N**	**Mean Rank**	**Sum of Ranks**
Pre-Test Scores of Groups	**Experimental**	21	23,02	483,50
	Control	21	19,98	419,50
	Total	42		

Test Statistics(a)	
	Pre-Test Scores of Groups
Mann-Whitney U	188,500
Wilcoxon W	419,500
Z	-,815
Asymp. Sig. (2-tailed)	,415
a Grouping Variable: Groups	

APPENDIX D
(Post-test Outputs of SPSS)

Mann-Whitney Test

Ranks				
	Groups	**N**	**Mean Rank**	**Sum of Ranks**
Post-Test Scores of Groups	**Experimental**	21	28,83	605,50
	Control	21	14,17	297,50
	Total	42		

Test Statistics(a)	
	Post-Test Scores of Groups
Mann-Whitney U	66,500
Wilcoxon W	297,500
Z	-3,934
Asymp. Sig. (2-tailed)	,000
a Grouping Variable: Groups	

APPENDIX E

(Pre-test and Post-test Outputs of SPSS)

Group Statistics

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Pre-test	Control Group	21	12,5238	3,98270	,86910
	Experimental Group	21	12,5714	1,88604	,41157
Post-test	Control Group	21	13,0952	2,94796	,64330
	Experimental Group	21	17,1429	2,08052	,45401

Test Statistics(a)

	Pre-test	Post-test
Mann-Whitney U	188,500	66,500
Wilcoxon W	419,500	297,500
Z	-,815	-3,934
Asymp. Sig. (2-tailed)	,415	,000

a Grouping Variable: siniflar

Descriptive Statistics					
	N	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
Pre-Test Score of Experimental Group	21	12,57	1,886	9	16
Post-Test Score of Experimental Group	21	17,14	2,080	15	22

Ranks				
		N	**Mean Rank**	**Sum of Ranks**
Post-Test Score of Experimental Group - Pre-Test Score of Experimental Group	**Negative Ranks**	0(a)	,00	,00
	Positive Ranks	21(b)	11,00	231,00
	Ties	0(c)		
	Total	21		
a Post-Test Score of Experimental Group < Pre-Test Score of Experimental Group				
b Post-Test Score of Experimental Group > Pre-Test Score of Experimental Group				
c Post-Test Score of Experimental Group = Pre-Test Score of Experimental Group				

Test Statistics(b)	
	Post-Test Score of Experimental Group - Pre-Test Score of Experimental Group
Z	-4,030(a)
Asymp. Sig. (2-tailed)	,000
a Based on negative ranks.	

Descriptive Statistics					
	N	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
Pre-Test Score of Control Group	21	12,52	3,983	6	21
Post-Test Score of Control Group	21	13,10	2,948	11	19

Ranks				
		N	**Mean Rank**	**Sum of Ranks**
Post-Test Score of Control Group - Pre-Test Score of Control Group	**Negative Ranks**	9(a)	9,39	84,50
	Positive Ranks	11(b)	11,41	125,50
	Ties	1(c)		
	Total	21		
a Post-Test Score of Control Group < Pre-Test Score of Control Group				
b Post-Test Score of Control Group > Pre-Test Score of Control Group				
c Post-Test Score of Control Group = Pre-Test Score of Control Group				

Test Statistics(b)	
	Post-Test Score of Control Group - Pre-Test Score of Control Group
Z	-,778(a)
Asymp. Sig. (2-tailed)	,437
a Based on negative ranks.	

APPENDIX F

(10 Units of Outputs of SPSS)

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
Chi-Square	4,258	29,958	17,874	26,214	11,714
Df	1	1	1	1	1
Asymp. Sig.	,039	,000	0,000	0,000	0,000

Test Statistics

	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10
Chi-Square	21,541	33,537	23,874	35,390	24,420
Df	1	1	1	1	1
Asymp. Sig.	0,000	0,000	0,000	0,000	0,000

a. Kruskal Wallis Test

b. Grouping Variable: Groups

Ranks

	Group Students	N	Mean Rank	Sum of Ranks
Unit 1 Score of Groups	**Experimental**	21	24,40	512,50
	Control	21	18,60	390,50
	Total	42		

Ranks

	Groups	N	Mean Rank	Sum of Ranks
Unit 2 Score of Groups	**Experimental**	21	31,57	663,00
	Control	21	11,43	240,00
	Total	42		

Ranks				
	Groups	**N**	**Mean Rank**	**Sum of Ranks**
Unit 3 Score of Groups	**Experimental**	21	29,07	610,50
	Control	21	13,93	292,50
	Total	42		

Ranks				
	Groups	**N**	**Mean Rank**	**Sum of Ranks**
Unit 4 Score of Groups	**Experimental**	21	30,52	641,00
	Control	21	12,48	262,00
	Total	42		

Ranks				
	Groups	**N**	**Mean Rank**	**Sum of Ranks**
Unit 5 Score of Groups	**Experimental**	21	26,64	559,50
	Control	21	16,36	343,50
	Total	42		

Ranks				
	Groups	**N**	**Mean Rank**	**Sum of Ranks**
Unit 6 Score of Groups	**Experimental**	21	30,19	634,00
	Control	21	12,81	269,00
	Total	42		

Ranks				
	Groups	**N**	**Mean Rank**	**Sum of Ranks**
Unit 7 Score of Groups	**Experimental**	21	32,00	672,00
	Control	21	11,00	231,00
	Total	42		

Ranks				
	Groups	**N**	**Mean Rank**	**Sum of Ranks**
Unit 8 Score of Groups	**Experimental**	21	29,93	628,50
	Control	21	13,07	274,50
	Total	42		

Ranks				
	Groups	**N**	**Mean Rank**	**Sum of Ranks**
Unit 9 Score of Groups	**Experimental**	21	32,00	672,00
	Control	21	11,00	231,00
	Total	42		

Ranks				
	Groups	**N**	**Mean Rank**	**Sum of Ranks**
Unit 10 Score of Groups	**Experimental**	21	29,88	627,50
	Control	21	13,12	275,50
	Total	42		

Ranks				
	Groups	**N**	**Mean Rank**	**Sum of Ranks**
Total Scores of Groups	**Experimental**	21	32,00	672,00
	Control	21	11,00	231,00
	Total	42		

Mean Ranks

Groups		N	Mean Rank
Unit 1	Control Group	21	18.60
	Experimental Group	21	24.40
	Total	42	
Unit 2	Control Group	21	11.43
	Experimental Group	21	31.57
	Total	42	

Unit 3	Control Group	21	13.93
	Experimental Group	21	29.07
	Total	42	
Unit 4	Control Group	21	12.48
	Experimental Group	21	30.52
	Total	42	
Unit 5	Control Group	21	16.36
	Experimental Group	21	26.64
	Total	42	
Unit 6	Control Group	21	12.81
	Experimental Group	21	30.19
	Total	42	
Unit 7	Control Group	21	
	Experimental Group	21	11.00
	Total	42	32.00
Unit 8	Control Group	21	13.07
	Experimental Group	21	29.93
	Total	42	
Unit 9	Control Group	21	11.00
	Experimental Group	21	32.00
	Total	42	
Unit 10	Control Group	21	13.12
	Experimental Group	21	29.88
	Total	42	

Median Test

Frequencies

		Groups	
		Control Group	Experimental Group
Unit 1	>Median	0	0
	<=Median	21	21
Unit 2	>Median	0	15
	<=Median	21	6
Unit 3	>Median	2	16
	<=Median	19	5
Unit 4	>Median	2	19
	<=Median	19	2
Unit 5	>Median	0	0
	<=Median	21	21
Unit 6	>Median	2	14
	<=Median	19	7
Unit 7	>Median	0	21
	<=Median	21	0
Unit 8	>Median	0	0,
	<=Median	21	21
Unit 9	>Median	0	21
	<=Median	21	0
Unit 10	>Median	0	0
	<=Median	21	21

APPENDIX G

(Gender Outputs of SPSS)

Ranks

	Control Group	N	Mean Rank	Sum of Ranks
Pre-test	famale	12	9,42	113,00
	male	9	13,11	118,00
	Total	21		
Pos-test	famale	12	10,25	123,00
	male	9	12,00	108,00
	Total	21		

Test Statistics(b)

Contol Group	Pre-test	Post-test
Mann-Whitney U	35,000	45,000
Wilcoxon W	113,000	123,000
Z	-1,365	-,692
Asymp. Sig. (2-tailed)	,172	,489
Exact Sig. [2*(1-tailed Sig.)]	,193(a)	,554(a)

a Not corrected for ties.
b Grouping Variable: kontcinsiyet

Ranks

	Experimental Group	N	Mean Rank	Sum of Ranks
Post-test	1,00	11	12,95	142,50
	2,00	10	8,85	88,50
	Total	21		
Pre-test	1,00	11	10,91	120,00
	2,00	10	11,10	111,00
	Total	21		

Test Statistics(b)

Experimental Group	Post-test	Pre-test
Mann-Whitney U	33,500	54,000
Wilcoxon W	88,500	120,000
Z	-1,558	-,073
Asymp. Sig. (2-tailed)	,119	,942
Exact Sig. [2*(1-tailed Sig.)]	,132(a)	,973(a)

a Not corrected for ties.
b Grouping Variable: deneycinsiyet

APPENDIX H

(Attitude Questionnaire)

Frequency Table

While studying with computers the time passes quickly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sometimes	3	14,3	14,3	14,3
	Yes	18	85,7	85,7	100,0
	Total	21	100,0	100,0	

I learn quickly while studying with computers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1	4,8	4,8	4,8
	Sometimes	5	23,8	23,8	28,6
	Yes	15	71,4	71,4	100,0
	Total	21	100,0	100,0	

I feel uncomportable while studying with computers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	17	81,0	81,0	81,0
	Sometimes	4	19,0	19,0	100,0
	Total	21	100,0	100,0	

Learning with computers increases my success

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sometimes	5	23,8	23,8	23,8
	Yes	16	76,2	76,2	100,0
	Total	21	100,0	100,0	

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	4	19,0	19,0	19,0
	Sometimes	6	28,6	28,6	47,6
	Yes	11	52,4	52,4	100,0
	Total	21	100,0	100,0	

Learning from computers increases my confidence

Computers make me eager to study more

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sometimes	9	42,9	42,9	42,9
	Yes	12	57,1	57,1	100,0
	Total	21	100,0	100,0	

At first, learning with computers seems enjoyable but later I'm bored

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	4	19,0	19,0	19,0
	Sometimes	12	57,1	57,1	76,2
	Yes	5	23,8	23,8	100,0
	Total	21	100,0	100,0	

Instruction with computers is very enjoyable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sometimes	3	14,3	14,3	14,3
	Yes	18	85,7	85,7	100,0
	Total	21	100,0	100,0	

I would like to learn all the courses with computers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	7	33,3	33,3	33,3
	Sometimes	8	38,1	38,1	71,4
	Yes	6	28,6	28,6	100,0
	Total	21	100,0	100,0	

I learn easily with colorful graphics and animation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1	4,8	4,8	4,8
	Sometimes	3	14,3	14,3	19,0
	Yes	17	81,0	81,0	100,0
	Total	21	100,0	100,0	

Descriptive Statistics 1

	N	Minimum	Maximum	Mean	Std. Deviation
Toplam	21	19	27	24,00	2,168
Valid N (listwise)	21				

Descriptive Statistics 2

	N	Minimum	Maximum	Mean	Std. Deviation
While studying with computers the time passes quickly	21	2	3	2,86	,359
I learn quickly while studying with computers	21	1	3	2,67	,577
I feel uncomportable while studying with computers	21	1	2	1,19	,402
Learning with computers increases my success	21	2	3	2,76	,436
Learning from computers increases my confidence	21	1	3	2,33	,796
Computers make me eager to study more	21	2	3	2,57	,507
At first, learning with computers seems enjoyable but later I'm bored	21	1	3	2,05	,669
Instruction with computers is very enjoyable	21	2	3	2,86	,359
I would like to learn all the courses with computers	21	1	3	1,95	,805
I learn easily with colorful graphics and animation	21	1	3	2,76	,539
Valid N (listwise)	21				

CURRICULUM VITAE

Sümeyra BURAN was born in Denizli in 1982. She graduated from Atatürk University, Faculty of Art and Sciences, Department of English Language and Literature in 2005. She worked as an English teacher at Kocetepe Primary School between 2005 and 2006. She has been an English instructor at Zonguldak Karaelmas University since 2006. She has started her MA on 'The effects of Computer Assisted Language Learning on Listening Comprehension Ability' in the Department of English Language and Literature at Atatürk University in 2005 and completed in 2008.