ÇUKUROVA UNIVERSITY
THE INSTITUTE OF SOCIAL SCIENCES
Department of English Language Teaching

AN EVALUATION OF ON-LINE LANGUAGE COURSE AT ADANA VOCATIONAL SCHOOL OF ÇUKUROVA UNIVERSITY

Şükrü Çetin İLİN

Advisor: Assist.Prof.Dr.Jülide İNÖZÜ

MASTER OF ARTS

ADANA – 2006

Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Müdürlüğüne,

Bu çalışma, jürimiz tarafından İngiliz Dili Eğitimi Anabilim Dalında **YÜKSEK LİSANS TEZİ** olarak kabul edilmiştir.

Başkan …….
Yrd.Doç.Dr.Jülide İNÖZÜ
(Danışman)

Üye…….
Doç.Dr.Hatice SOFU

Üye…….
Assist.Prof.Dr.Osman ASLAN

Yukarıdaki imzaların, adı geçen öğretim elemanlarına ait olduklarını onaylarım.10/10/2006

Prof.Dr.Nihat KÜÇÜKSAVAŞ
Enstitü Müdürü

ÖZET

ÇUKUROVA ÜNİVERSİTESİ ADANA MESLEK YÜKSEKOKULU'NDA VERİLEN UZAKTAN YABANCI DİL EĞİTİM PROGRAMININ BİR DEĞERLENDİRMESİ

Şükrü Çetin İLİN

Yüksek Lisans Tezi, İngiliz Dili Eğitimi A.B.D.
Danışman : Yrd.Doç.Dr.Jülide İNÖZÜ
Eylül, 2006 146 sayfa

Bu çalışma, Çukurova Üniversitesi Adana Meslek Yüksekokulu'nda verilen uzaktan yabancı dil eğitim programının genelde kabul gören uzaktan eğitim standartlarına uyup uymadığını araştırmaktadır. Ayrıca, programda eğitim alan öğrencilerin bu program hakkındaki fikirlerini de incelemekte ve var olan problemleri tanımlayarak bunlara çözümler sunmayı hedeflemektedir.

Bu amaç doğrultusunda bir takım veri toplama yöntemleri kullanılmıştır. İlk olarak, öğrencilerden araştırmacıya programın etkinliğinin tartıştıkları mesajlar göndermeleri, daha sonra programı farklı açılardan değerlendirdikleri bir ankete cevap vermeleri istenmiş ve programla ilgili sorunları saptamak üzere görüşmeler yapılmıştır. Son olarak, uzaktan eğitim öğrencilerinin öğrenci işleri forumuna gönderdikleri mesajlar programın güçlü ve zayıf yanlarını ortaya çıkarmak amacı ile analiz edilmiştir.

Çalışma sonuçları, öğrencilerin öğretmen ve yöneticilerle iletişimde, öğrenmeyi destekleyici ek materyallerde, görsel-işitsel desteklerde eksikliklerin yanı sıra sınav süreçlerinde ve kargo hizmetlerinde sorun yaşadıklarını ortaya koymuştur.

Anahtar Kelimeler: Uzaktan eğitim standartları, uzaktan yabancı dil eğitim programı, uzaktan eğitim öğrencisi.

ABSTRACT

AN EVALUATION OF ON-LINE LANGUAGE COURSE AT ADANA VOCATIONAL SCHOOL OF ÇUKUROVA UNIVERSITY

Şükrü Çetin İLİN

Master of Arts, Department of English Language Teaching
Advisor : Assist.Prof.Dr.Jülide İNÖZÜ
September, 2006 146 pages

This study explores whether the e-language learning programme offered in Çukurova University Adana Vocational School meets the commonly accepted standards for e-learning. In addition, it investigates what the recipients think about the effectiveness of this programme and the problems they encounter as well as offering solutions from the students' point of view.

In order to achieve this aim, various instruments were used. First of all, students were asked to send messages to the researcher and comment on the effectiveness of the e-language learning programme, and then a questionnaire by which the students evaluate the programme from different perspectives was administered. Next, they were interviewed to identify the weaknesses and strengths of the programme. Finally, the messages which the e-learners sent to the student affairs forum throughout the term were analyzed.

The results reveal that the students face certain problems such as lack of interaction and communication with their teachers and school administrators, supplementary materials that would enhance their learning process, audio-visual aids together with problems regarding exam procedures and cargo services

Key Words: E-learning standards, e-language learning programme, e-learners.

ACKNOWLEDGEMENTS

This study has been possible with the contribution of many people in various ways.

First of all, I would like to express my deepest gratitude to Assist.Prof.Dr.Jülide İnözü, my advisor, for her expert comments, support and help throughout the preparation of this study. I am indebted to her for her willingness to edit and proof read my thesis and also being in my examining committee.

Secondly, I am indebted to Assoc.Prof.Dr.Hatice Sofu not only for being in my examining committee but also for her encouragement, support and valuable comments on this study.

I also wish to thank Assist.Prof.Dr.Osman Aslan for his sincere interest, supportive attitude and readiness to share his source with me. I would also like to express my thanks to him for being in my examining committee.

I would like to extend my sincere thanks to e-Learners who participated in this study. With their invaluable contribution to my study, this research has been possible.

I owe special thanks to Pelin Kökcü from Student Affairs in Adana Vocational School, for her help while analyzing my SPSS data. Without her help, the analysis of the data obtained would have taken much longer.

I would like to express my heartfelt appreciation to Assoc.Prof.Dr.Zuhal Okan and Assist.Prof.Dr.Rana Yıldırım for their encouragement and support throughout this study.

I extend my thanks to my colleagues, Dr.Suat Delibalta, Mesut Özonur and Haşim Özkurt for everything we shared through the phases of this study.

I also thank to our dear children Kaan and Nisan for their patience and understanding throughout this study.

Last, but not the least, I would like to express my warm thanks to my wife Assist.Prof.Dr. Gülden İlin, whom I learnt a lot, not only for her unfailing interest, encouragement and support throughout but also for all her help whenever I needed. I would also like to express my heartfelt thanks to her for her editing and proof reading my thesis. With her expert advice, presentation of the ideas in my thesis has been more meaningful. Without her understanding, patience, and help, this study would never have been completed.

TABLE OF CONTENTS

CHAPTER 3

METHOD

CHAPTER 4

DATA ANALYSIS AND RESULTS

CHAPTER 5

CONCLUSION

ABBREVIATIONS

ADL	Advanced Distributed Learning
AGR	AICC Guidelines and Recommendations
AICC	Aviation Industry CBT Consortium
ANSI	American National Standards Institute
ARM	Architecture and Reference Model
ASP	Application Service Provider
BBS	Bulletin Board System
CAI	Computer Assisted Instructions
CAL	Computer Aided Learning
CBT	Computer Based Training
CP	Content Packaging
DRI	Digital Repositories Interoperability
DCMI	Dublin Core Metadata Initiative
DKE	Digital Knowledge Environment
DOD	US Department of Defence
DOI	Digital Object Identifier
FTP	File Transfer Protocol
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
IBT	Internet Based Training
IEC	International Electrotechnical Commission
IEEE	Institute of Electronic & Electrical Engineering
IMS	Instructional Management System
IPR	Intellectual Property Rights
ISBN	International Standard Book Number
ISO	International Standards Organization
ITS	Intelligent Tutoring System
JTC	Joint Technical Committee
KMS	Knowledge Management System

KT	Knowledge Transfer
LCMS	Learning Content Management System
LIP	Learner Information Packaging
LMS	Learning Management System
LOM	Learning Object Metadata
LRN	Microsoft® Learning Resource iNterchange
LTSA	Learning Technology Systems Architecture
LTSC	Learning Technology Standards Committee
LTSM	Learning and Tutoring Support Management
OC	Omnipresent Computer
OOD	Object Oriented Design
PMP	Platform and Media Profiles
QTI	Questions and Test Interoperability
RLO	Reusable Learning Object
RI O	Reusable Information Object
SCA	Sharable Content Asset
SCO	Sharable Content Object
SCORM	Shareable Courseware Object Reference Model
SME	Small and Medium Enterprise
TCP/IP	Transmission Control Protocol/Internet Protocol
UI	User Interface
UML	Unified Modelling Language
URL	Universal Resource Locator
VC	Virtual Classroom
WBT	Web Based Training
WG	Working Group
WWW	World Wide Web

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 Background to the Study

Over the past five decades, technology has increasingly been changing our lives in education like in all other areas such as medicine, business, banking and even household jobs. By the emergence of the desktop computer, Computer Aided (Assisted) Learning (CAL) and Computer Based Training (CBT) started to be used for teaching purposes. This was a highly structured approach to teaching skills that had its roots in the training programmes designed to address skill shortages in the armed services in the Second World War. Because of this pedigree both CAL and CBT, either software or CD ROM based, have been highly successful at teaching skills that was easily measured. They provided individually paced repetition and feedback that helped to develop an unselfconscious approach to doing things well in a particular context. These programmes were new forms of learning that were offered to the learner and they tended to rely on extrinsic motivation in the form of short-term rewards (Flood, 2002).

With the increasing demand for education, and the improvements in technology, a new mode of delivery has now been in use for the last decade. This is e-Learning, in other words, a new medium for instruction offered through the Internet by institutions and companies. There are countless incidents for e-Learning where people benefit from the conveniences of this new means. For example, nowadays by e-Learning programmes, a person can prepare for a certification exam, a training manager can use e-Learning in addition to classroom-based instruction, a vendor salesperson might respond to questions on the types of products they produce, with “e-Learning “(Steed, 1999).

Regarding education, today we see that a great number of universities all around the world have been dealing with e-Learning. For example, Old Dominion University in the United States of America has been using e-Learning for over 80.000 students via four campuses in four different regions of the country. Similarly, Hong Kong Open University in China, Walden University in America and Eckert Schools in Germany where students take various certificate programmes can be given as other examples for

e-Learning. In our country, likewise, three years ago the first e-Learning programme opened in Sakarya Vocational School of Sakarya University where all the students were and still are e-Learners. This new trend gradually spreaded throughout our country and today universities such as Mersin, and Çukurova have been offering instruction in various subjects as well as languages by e-Learning programmes.

As e-Learning is relatively a new phenomena in our country, these programmes offered by the universities are still in progress, and are going through changes for better learning outcomes. In the same way, Adana Vocational School of Çukurova University, where approximately 140 e-Learning students have been enrolled for two years, has its own weaknesses and strengths in terms of the instruction it has been offering to its e-Learners. Thus, this programme seems to be worth investigating regarding its e-Language Learning programme in order to identify probable problems and offer solutions to them as well as underlying the powerful sides of the programme, if any, for allowing those who are dealing with e-Learning benefit from these.

To conclude, this descriptive study attempts to draw a general framework of e-Language Learning programme of Adana Vocational School, Çukurova University, in the light of the recipients' views on the effectiveness, relevance, and contribution of students' professions.

1.2 Statement of the Problem

E-learning or Electronic Learning is the delivery of educational content via any electronic media, including the Internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV, CD-Rom, interactive CDs, and computer-based training (Tastle 2005, p.241). E-learning is distributed in many different forms of educational programs including online courses, web enhanced learning and Distance Education. E-Learning is generally web-based allowing for flexibility as it is easily accessed via the internet.

In our country, traditional courses in vocational schools were formed on the basis of the requirements set by the MEB-YÖK Programme Improvement Project in 2002. Similarly, all e- Learning programmes are the electronic versions of these traditional courses on the internet. The course books written according to this programme are used also by the e-learners. This may not be causing problems with

some courses such as Atatürk's Principles or Computer Science. However, language teaching is different from the others because interaction plays an important role. Thus, we may need more than books and a lesson room where the students are expected to enter for four hours a week in e-language learning. When we consider some probable technological problems that prevent students from benefiting from this opportunity, it appears that there may be a lot more to be done for e-language Learning programmes.

1.3 The Aim and Scope of the Study

This study aims at drawing a general framework of the e-language learning programme offered at Ç.Ü. Vocational School by comparing and contrasting its features with the commonly accepted criteria in this field as well as taking into account the e-Learners' views of the programme. It further tries to find out how the e-Learners evaluate the programme regarding its effectiveness and relevance to their future applications in their fields. In addition, it aims to identify the probable problematic issues and offer solutions to these problems. In order to achieve the aims, the study seeks answers to the following research questions:

1. Does the e-Language Learning programme offered in the Ç.Ü. Adana Vocational School meet the commonly accepted technical criteria for e-Learning?
2. What do students who receive this instruction think about the effectiveness and usefulness of this program?
3. What are the problematic issues regarding e-Language Learning programme from the students' point of view?
4. What probable solutions can be offered to these problems?

1.4 Assumptions and Limitations

This study attempts to draw a general picture of what really is going on in the e-language learning programme of Ç.Ü. Adana Vocational School. In order to achieve this, the study adopts a descriptive manner by which e-Learners' point of view can be reflected directly in the findings. As mentioned above, through the study, there is an intense contact with the learners. That is, the e-Learners were given a questionnaire by which they evaluated certain aspects of the programme, and then, a group of randomly

selected students were interviewed on the basis of the answers they gave to the questionnaire questions. Additionally, they were asked about the problems they encountered during language their courses. Their views on how to overcome these problems were also elicited. However, due to some problems emerged during exam period when the participant students were given the questionnaire and interviewed, not all the students were reached. This respect constitutes the weak side of the study. However, to compensate this weakness, the questionnaire and interview questions were displayed on the students' forum and students were asked to participate in the study through the net. Thus, data were collected from 100 students out of total number of 140 e-Learners.

1.5 Operational Definitions

AICC	Aviation Industry CBT Committee. The AICC sets guidelines in the development, delivery, and evaluation of e-learning programs. These guidelines are developed for the aviation industry, but are widely adopted in a variety of other industries.
Assessment	The process used to systematically evaluate a learner's skill or knowledge level
Asynchronous Learning	"Asynchronous" refers to instruction that is not constrained by geography or time. Everyone involved in an asynchronous activity performs his or her part on his or her own time. Examples are self-paced courses taken via the Internet or CD-ROM, Q&A mentoring, online discussion groups, and email.
Blended Learning	A combination - or blend - of different online learning modes, or of online and in-person learning. Blended learning is becoming increasingly common with the availability of both synchronous and asynchronous web-learning options. An example may be a course that consists of an asynchronous web module that covers content

	and a follow-up synchronous module that allows participants to apply the content. Or an in-person initial session followed by synchronous web sessions and asynchronous online discussions.
E-learning	A term used to describe electronically delivered learning methods such as CD-ROM, web-based learning, online assessments, web-based reinforcement tools, and online coaching.
Evaluation	Any systematic method for gathering information about the impact and effectiveness of learning. Evaluation results can be used to improve the offering, determine whether the learning objectives have been achieved, and assess the value of the offering to the organization.
Instructional Design	Also known as instructional systems design; it is the analysis of learning needs and systematic development of instruction. Instructional design models typically specify a method, that if followed will facilitate the transfer of knowledge, skills and attitude to the recipient or acquirer of the instruction.
Just In Time	Characteristic of training in which learners are able to access the information they need exactly when they need it.
Learning Content Management System (LCMS)	A software application (or set of applications) that manages the creation, storage, use, and reuse of learning content. LCMSs often store content in granular forms such as learning objects.
Learning Management System (LMS) or Knowledge	Software that automates the administration of training. The LMS registers users, tracks courses in a catalog, records data from learners; and provides reports to management. An LMS is typically designed to handle courses by multiple publishers and providers. Most current LMS' also now incorporate LCMS functions.

Management System (KMS)	
Self-Paced Instruction/ Learning	Learning that is taken at a time, pace, and place chosen by the participant. Generally, there is no interaction (synchronous or asynchronous) with a trainer.
Shareable Content Object Reference Model (SCORM)	A set of specifications that, when applied to course content, produces small, reusable learning objects. SCORM-compliant courseware elements can be easily merged with other compliant elements to produce a highly modular repository of training materials.
Synchronous Learning	Instruction that is led by a facilitator in real time. Examples of synchronous interactions include traditional trainer-led classrooms, conference calls, instant-messengers, video conferences, whiteboard sessions, and synchronous online classrooms/classroom software.

CHAPTER 2

REVEW OF RELEVANT LITERATURE

2.1 What is e-Learning?

E-learning can be described as instructional content or learning experiences delivered, or enabled by electronic technology. Web-based training, sometimes called Internet-based training or online training, is an innovative approach of distance learning. It builds on Computer-Based Training (CBT) which is transformed by the technologies and methodologies of the Internet and the WWW (Steed, 1999).

E-Learning, distance learning and on-line learning, though sometimes used interchangeably, do not mean the same. When we search for the definitions, we come across various explanations for each. For example, Exploring a New Frontier report by WR Hambrecht.Co.(2000) identifies the differences between e-Learning and on-line learning. E-Learning, as the report suggests, represents the whole category of technology-based learning, while on-line learning is synonymous with web-based learning, which in this case, on-line learning can be said to be a subset of e-Learning. E-Learning is the delivery of content via all electronic media, including the Internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM. The term e-Learning is used synonymously with technology-based learning. However, terms like e-Learning, technology-based learning, and web-based learning are defined and used differently by different organizations and user groups. Moreover, use of these terms is constantly changing, as the world of e-Learning evolves. On the other hand, distance learning has more to do with text-based learning and courses conducted via written correspondence (E-Learnframe Report, 2000).

Regarding the applications, levels of sophistication of online learning vary. A basic on-line learning programme includes the text and graphics of the course, exercises, testing, and record keeping, such as test scores and bookmarks. Such a programme includes animations, simulations, audio and video sequences, peer and expert discussion groups, on-line mentoring, links to material on a corporate intranet or the web, and communications with corporate education records. The term on-line learning is used synonymously with web-based learning or Internet-based learning.

In contrast to computer-based training, which delivers learning material on CD-ROM's, for e-Learning, Internet and intranets are used. Materials are accessed via a standard web browser, and instructors communicate with their students via email, chat, or discussion forum. We should not confuse e-Learning with downloaded computer-based training because its content is stored on a web-server and accessed on-demand.

E-Learning fits into two categories as synchronous or asynchronous learning over the Internet, intranet, extranet or other Internet-based technologies. Synchronous e-Learning imitates a classroom, which means classes take place in real-time and connect instructors and students via streaming audio or video or through a chat room. Asynchronous e-Learning lets a student access pre-packaged training on his own time, working at his own pace and communicating with the instructor or other students through e-mail. E-learning includes a number of different delivery methodologies within it including self-paced content, virtual classrooms, simulations, on-line chats, threaded discussions, and the like. This is supposed to lead to a new effective and convenient way of learning (E-Learnframe Report, 2000).

2.2 History of Computer Technology in Learning

The use of technology in learning has a long history. The term e-Learning, which takes advantage of the connectivity of computer, is about 10 years old. Technology use in education started with programming which consisted of drills and practices, and then computer-based training (CBT) with multimedia came into use after programming. Internet based training (IBT), followed by e-Learning were newer practices of techology in education, and finally social software which has a free ad open content came into existence. There are four major phases in the history of using computers in education. These phases, according to Leinonen (2005) are:

- Late 1970's - early 1980's: programming, drill and practice;
- Late 1980's - early 1990's: computer based training (CBT) with multimedia;
- Early 1990's: Internet-based training (IBT);
- Late 1990's - early 2000: e-Learning;

As he further states that, Late 2000: Social software + free and open content is still to come.

2.3 The History of e-Learning

The development of the e-Learning revolution arose from a number of other 'educational revolutions'. Four such revolutions cited by Billings and Moursund (1988) are:

- the invention of reading and writing
- the emergence of the profession of teacher/scholar
- the development of moveable type (print technology)
- the development of electronic technology

When discussing the 'beginnings' of e-Learning we should note that valid tools of e-Learning also include technologies such as calculators, VCRs, radio and bulletin board systems (BBS). All of these developments have contributed to ideas concerning the uses of the e-Learning systems.

Computer Assisted Learning projects first began in the late 1950's and yielded research that suggested computers were a valuable addition to traditional instruction or education. The discourse of early electronic education centred on teaching students to use computer-programming languages like BASIC. The realisation that learning a computer language was diverting valuable time away from conventional subject matter caused a paradigm shift in the 1980s and the current trend of application packages began.

2.4 Why do we need e-Learning?

Web Based Training and its newer and more general synonymous term "e-Learning**"** are two of today's mostly used words in the academic and business worlds. For decision-makers, they mean new ways of learning that are cheaper than traditional courses and they allow students to control the process of learning. In e-Learning, students are supposed to have the control on their own time, place and the pace to learn. However, as Dietinger (2003) argues, two questions immediately arise concerning the meaning of e-Learning and whether it is the best way of instruction.

2.4.1. What exactly does e-Learning mean?

In his opinion, the first question can only be answered partly and vaguely because it is still under heavy discussion what exactly e-Learning should look like, and different opinions even exist about what components it consists of. He roughly lists what an e-Learning programme should consist of as follows:

- At least one or more e-Learning students who try to achieve a special learning goal
- E-Learning content, multimedial and interactive, which represents or at least describes the learning subject, the learning objectives and guidelines on how to achieve them.
- An e-Learning environment, which works as an interface between the students and their learning objectives and provides different means to achieve the learning goal.

Usually the e-Learning environment can be accessed using a web browser over the Internet or intranet and supports several learning strategies and different ways of interaction, communication and collaboration. Additionally e-Learning environments often include administration and management utilities and interfaces to other systems to support the organizational part of learning as well.

In fact, what really e-Learning means is the learning part, and it needs to be complemented by e-Teaching. Both terms can be summarized under the term e-Education. However because most people understand e-Learning as the overall process, e-Education is used as a synonym to e-Learning.

2.4.2 Is it really the best way to acquire new knowledge?

The answer to second question in Dietinger's opinion, is that e-Learning is not the best way to acquire new knowledge yet but it has the potential to be the most efficient one for many situations, if it is used in the right way.

In traditional learning situations, a teacher who trains and guides students whom he knows quite well. Direct face to face communication between teacher and students (and among students) allows to immediately react to requirements of students (questions,

speed of teaching etc.). Thus, the teacher can individually respond to each of the students and motivate them. Also all necessary illustration material is available that the students can use to understand the teaching subject more quickly and there are plenty of possibilities to practice and test they already learnt and use knowledge gained to solve problems with it.

This ideal situation will most probably lead to a very efficient learning process, no matter whether the learning goal is just storing some facts, carrying out processes, or whether they are as complex as finding new solutions for difficult problems of a certain category (the learning subject) (Dietinger, 2003 p.19).

However, although it sounds like an ideal learning environment, in reality it may not be usable due to one or some of the following reasons:

- It is limited to a very small number of similar students
- Usually the teacher and the students do not know each other well enough
- It is time and place dependent
- It is very expensive because of the one to one or one to few relations between teacher and students and the enormous investment in time.

Additionally new requirements such as life long learning and just-in-time learning arise out of short development and deployment cycles and continuously changing working profile. These all come together, and a need for a new way of learning to emerges. E-Learning can be a reasonable way to meet this need.

2.5 Advantages and Disadvantages of e-Learning

E-Learning, in spite of its various advantages, does not seem to completely substitute the traditional classroom-based education as it has disadvantages at the same time. In fact, everyone is used to the classroom environment, as well as to direct communication and interaction with other students and the instructor. However, especially because of the fast-moving life people have been living, classroom-based teaching has become somewhat troublesome for some learners. Commuting to classes from workplace is time-consuming and also commuting costs are high. From the pedagogical point of view, for the instructor it is impossible to teach at a pace that suits every individual student participating a course. Last but not least, the growing popularity and availability of the Web seem to form an ideal basis for transmitting

training material over the Internet. In addition to these advantages, e-Learning makes it possible to gain education without being on campus. Individuals in various places can effectively communicate with co-workers or instructors without being in the same room. Students, on the other hand, can learn at home in a relaxed atmosphere or at the working place. The main benefit here is saving time and costs. When studying at workplace or at home, neither time for traveling has to be spent, nor do travel or accommodation costs arise.

Beside time and costs, with e-Learning, learners can access training at the time which suits them best, such as during breaks or when the learner is relaxed and can adjust the speed of learning according to their needs like their powers of comprehension. Differences in students' types, learning preferences, and studying strategies may cause problems in traditional classroom teaching. In e-Learning, this problem does not even arise.

Another advantage of free choice of learning time takes effect especially in adult education. Students can access information when they have time to study and at the time when new knowledge is needed. This is also known as Just-In-Time learning or learning on demand. Moreover, students only acquire as much knowledge as they need, rather than acquiring knowledge which may never be used.

Learners also benefit from proceeding through training at their own pace. Learning speed can be adapted according to learning ability or urgency of need of new knowledge. Self-paced training is likely to be completed faster than single-paced classroom teaching. Studies have shown savings in training time of between 30 and 70 percent (Steed, 1999).Two important parts of e-Learning are communication and collaboration. Especially synchronous communication like chat, and audio or video conference, requires learners to be online at the same time. Even asynchronous communications, like discussion forum, are more or less time dependent as contributions should be answered within a limited period of time to be useful.

In addition to the above mentioned pluses of e-Learning, the use of the Internet for distribution of learning material has various advantages. To illustrate, internet connections are becoming affordable and are already widely available day by day. Courses are installed on a server and learning content is accessed via a web browser. Therefore, no significant expenditure on new hardware or software is required to receive such an education. Moreover, this technology is completely cross platform as web browsers are available for most major computer platforms. This ensures easy and

worldwide distribution of learning material, and reduces the distribution costs associated with training in other media.

As course material is stored centrally on a server, consistency of presentation is guaranteed. Courses are presented exactly in the same way to every student. If changes of learning content are needed to be made, they are made on the server and students always access the most up-to-date courseware. Finally, in case of a test, students receive their results within seconds of completion (Dietinger, 2003).

As especially in higher education the computer has become an essential part for today's students, the use of the Web appeals to the way students now prefer to learn. Besides, visuals become more influential as television, computer and video games, or books on CD-ROM's or DVD's have been more popular than ever before. According to numerous research efforts on the effects of different types of media, retention of learning content is higher if different types of media are combined. An essential factor or maybe the essential factor for content retention is interaction. The multimedial and interactive nature of WBT content not only meets these facts, but also improves motivation.

With e-Learning it is possible to adapt the learning content to individual levels of prior knowledge and learning styles. This is also known as adaptive learning which makes the learning process more efficient. After determining the learners' skills and knowledge by pre-tests and gaining information about the progress already made, the system decides automatically what content should be offered next. Systems, which support such features, are called Intelligent Tutoring Systems (ITS).

Numerous research efforts on the effect of media on learning have shown that different media types have different efficiencies in terms of what a learner can recall. Especially the combination of media has very different efficiencies. In general from 100 % of the learning material (facts) we can remember 10 % through reading, 20 % through hearing, 30 % through seeing, 40 % through hearing and seeing, 80 % through hearing, seeing and doing, in other words, interacting. E-Learning combining all these within itself, can be considered as an effective way to teach.

Furthermore, server based e-Learning environments also make it possible to monitor every transaction made by a student. Information about the progress can be stored on a server to provide a detailed report how a learner behaves within a system. It can be determined whether a student has problems or already is an expert on a special

area. Thus, the system can offer special help to motivate students, which have difficulties, or provide additional information to talented learners.

As the final advantage of e-Learning programmes, we may refer to (Steed 1999), who compared and contrasted Asymetrix learning systems with traditional instructor-led learning regarding their costs. The analysis shows that in computer-based training, and all web-based training, considerable amounts of saving are estimated over instructor-led training during the first year of implementation. Cost savings become even more dramatic in the second year due to lower cost of training development.

In spite of all the advantages e-Learning programmes bear, they also have certain disadvantages. Probably the main drawback of such programmes is that face to face interaction is missing. Such a contact is in the nature of human being and can be replaced neither by chatting nor by videophone. In some cases, this may demotivate the trainees. This problem can be overcome by mixing online seminars with real face to face meetings to introduce all members and synchronize their learning progress. In addition, creating a team of learners working for the same goal and supporting each other an internal pressure for progress and success can be put on all members. In case of very difficult materials, wrapping the primary learning goal into a different and more motivating story, which is easier to understand may help (Holzinger & Maurer, 1999).

Beside lack of personal contact, some students may find it demotivating to read from display as they may deem it more tiring and uncomfortable compared to reading from books. Better technology is already available and will continue to improve the quality of reading from display. Good TFT displays provide higher reading comfort with more brightness and contrast at a high refresh rate. Moreover, new technologies like E-Ink, (Electronic Ink) (Jacobson, 1977) are currently under development.

In addition to technical aspects, computers have not yet replaced the printed book as the traditional reading media. Besides, people are used to read from books. Books are natural and easy to handle, especially when being away from home. In order to handle this problem, various research have been conducted, and as Maurer & Sapper, (2001) point out in the future Omnipresent Computer (OC) may replace the book as "the reading media".

Auringer (2005) states that studies have shown that quite a high percentage of online learners do not finish a course. Carr (2000) notes that dropout rates are often 10 to 20 percentage points higher in distance education courses than in traditional courses. This is also due to the fact that especially adult trainees are often interested in obtaining

only specific knowledge rather than in completing the whole course. After having obtained the desired knowledge they simply drop out of the course. However, the main reason for the low finishing rate seems to be the lower motivation of trainees in distance learning compared to classroom based teaching. Non-involvement in classroom communities may have a role on the decreased motivation, which in turn, leads to dropouts.

As Moore (1993) argues distance is the psychological barrier between learners and instructors. Nevertheless, Rovai (2002) believes that it is possible to build learning communities in virtual classrooms at levels that are comparable to traditional classrooms. As a prerequisite for learning communities, he supports the need for the presence of a tutor which not only answers questions concerning the learning matter, but also plays the role of a moderator to ensure equal opportunities for all participants. Another critical factor for the success of learning communities is the community size. Groups from eight to 30 students have shown to be adequate. For special tasks, larger groups can be broken up into smaller groups in order to engage students meaningfully in a variety of learning activities.

As another disadvantage of e-Learning programmes, we may put forward the issue that the installation and configuration of modern e-Learning systems is a complex task including not only the technical part, but also the organizational concept. However, wih adequate authoring tools, the development time can be minimised. Designers and developers of e-Learning environments have to place more stress on usability, consistency and modularity, keep it simple and intuitive. Users should enjoy using the system. The advantages of the system must be clearly visible for all involved roles (learner, trainer, author, administrator and the decision makers who pay for all of this).

To conclude for the advantages and disadvantages of e-Learning programmes, we see that there are a lot of problematic issues about e-Learning. Still, we see that none of these disadvantages can overweigh the advantages e-Learning programmes bear.

2.6 Requirements for e-Learning

There are certain requirements for e-Learning. These are functional requirements such as learning management systems, learning content management systems, learning and tutoring support management and non-functional requirements

such as technical requirements, quality requirements and usability and accessibility requirements.

2.6.1 Functional Requirements

An e-Learning system needs to provide features that support the overall learning process including administration and organizational issues and an integration into other IT systems and infrastructure. In addition to that it needs to be useful to support tasks that are closely related to learning such as human capital management, resource management and knowledge management (Dietinger, 2003).

2.6.1.1 Learning Management Systems

Dietinger (2003) states that e-Learning systems are understood as Learning Management systems (LMS) which mainly focus on administrative aspects of educational processes and on content delivery. LMS offer support for planning, organizing and managing learning such as course catalogues and registration, event schedules, assessment services, keeping learner records, organizing group and individual learning paths.

The most important functions and parts of an LMS are:

- Personalized learner portal: This module provides the personalized entry to the whole system and views to the most important personal information.
- Course catalogues and registration: These enables learners to access catalogue offerings, register, and enrol in the offerings. It also handles notifications, schedule changes and drop policies and defines gathered skills when mastering the courses.
- Database of student records, with user-profile. Core components of this module are:
    - Learner records: contain stored information about the learner, such as job title, organization, location and skills acquired. These cannot be edited by the user directly.
    - Learner tracking: Learner tracking tracks a learner's planned learning and progress through e-Learning offerings by recording the history, and

current status. A learning diary can also track all articles created and documents uploaded by the trainee.

  - Skill gap analysis and personal performance reports: visualize the actual skill profile of a certain user, the target skill profile to reach a certain new position and the potential gap between these two. The gap can be closed by mastering appropriate courses.
  - Management reporting tools: With these tools the teachers can access a learning plan/history for each direct report in their reporting chain. They can approve registration and add to the learners' future learning plans. They can also review the learners' progress for both offerings and assessments.

- Assessment services: Pre- and post-assessments are integrated with learning content to deliver a comprehensive curriculum that provides feedback to both learners and teachers and adds value to the overall learning experience.
- Resource Management: assigns classrooms and instructors for instructor-led training and virtual events, managing the schedules for equipment, facilities, rooms, and instructors and storing additional attributes such as the number of trainees booked for a course to define the size of the room
- Administration management: All other administrative tasks which an LMS can support:
  - Easy administration of users, teams, courses, resources and the system itself. Import of user and group information and integration into external directory services have to be supported.
  - Course management: creating, modifying, removing, trainee specific assigning and monitoring of courses.
  - System management: Configuration, load and failure reports, resources monitoring of the system.
- Interconnectivity with VC, LCMS, and enterprise applications (Dietinger, 2003).

2.6.1.2 Learning Content Management Systems

Recently a new term describing a different kind of e-Learning systems is introduced: Learning Content Management Systems (LCMS). It contains similar features

as Content Management System but adapted to the needs for e-Learning. Its main task is to store and structure of content files in the database, manage revisions and modifications, and ensure that content is tagged for easy retrieval and reuse.

Some of its key features are:

- A Learning Object Repository which supports different granularities of objects, such as :
    - Content Assets, the most granular type of objects, are raw media such as photographs, illustrations, diagrams, animations, audio and video files, applets or simple text documents.
    - Reusable Information Objects (RIOs) are classified as a concept, fact, principle or procedure and are usually described by metadata which give some hints about the (re-)use of the object. To support reuse, RIOs already contains metadata to describe them.
    - Reusable Learning Objects (RLOs) are data formed by assembling a collection of relevant reusable information objects to teach a common job task on a single learning objective and are self contained, like course chapters.
    - Learning Components are a result of bundling and sequencing several learning objects together, such as courses or lessons. The courses and the lessons are sometimes handled at different levels because a course can consist of multiple lessons as in Autodesk Content Strategy Molecular Model View (Hodgins, 2001).
    - A Learning Environment is the combination of several learning components together with learning support services, such as communication and collaboration tools.
- Meta-tagging for search capabilities according to approved standards such as Learning Object Metadata (LOM). Meta tagging supports the creation of metadata by tagging wizards and tools which can provide automatic extraction or conversion of metadata. The meta tagging is tightly integrated into the repository. It is important to note that there exist two different kinds of metadata:
    - Metadata which is steadily bound to the data object, such as creation date, size, type.
    - Metadata which provides information about the use of the object, because data can be used in various ways and in different contexts.

- Workflow services
    - Workflow services offer generic learning content development, review and release workflows, with the flexibility for each workgroup to select variables to customize to their requirements.
    - A mandatory component of all workflows is registering content and baseline metadata into the repository before releasing the content.
- Collaborative authoring and editing is tightly integrated with the Workflow services and the Learning Object Repository and
    - provides all of the traditional content management functions for learning and content objects, including
        - creation/upload, modification, copying, moving, linking and removing
        - version control,
        - notifications, history and reporting of changes,
        - fine grained access control with users, groups and role handling down to the level of single documents to provide personalized training content and even
        - full text searching in addition to metadata and keyword searching
        - advanced features like multiple language support and link management
    - offers import/export and conversion of various content types and complete packages.
- Authoring
    - Form-based authoring tool for online created content. Ideally this tool has a built-in quiz tool included, which can be used to create the following types of tests:
        - single/multiple choice
        - image map questions
        - list matching questions
        - randomized and calculated questions
        - timed quizzes
        - fill in-the-blank tests
        - short answer tests

  - Tight integration of external authoring tools enables content creators to write more complex learning objects such as text, graphics, and assessment questions that can be seamlessly linked to any level of the learning hierarchy.
- Personalized and adaptive content delivery according to existing standards such as AICC, SCORM and IMS. The content delivery needs to be tightly integrated with an LMS to pass on all relevant activity and progress data such as assessment results to the according skill and record management modules of the LMS.

2.6.1.3 Learning and Tutoring Support Management

Due to its importance, the third system component which is usually integrated in parts in either LMS or LCMS is Learning and Tutoring Support Management (LTSM). It supports the learning process through tutoring, peer support, communication and collaboration between learners and/or trainers, ranging from simple e-mail, to forum and virtual classroom.

Important functions of LTSM are:

- Communication functions. Communication functions are classified in asynchronous and synchronous communication:
  - Asynchronous communication features are:
    - Mail
    - Mailing lists
    - Discussion forum
    - Question/answer dialogs
    - News ticker (one way, for information distribution)
  - Synchronous communication
    - Instant messaging
    - Text chat
    - Voice chat
    - Video conferencing
    - Shared whiteboard
    - Application sharing
    - Virtual community with avatars

    - Group browsing/follow me mode
    - Hand raising and/or voting functions

A full set of synchronous communication functions is often summarized under the term “Virtual Classroom”. In Virtual Classroom the teacher teaches a class of students completely synchronously like in instructor-based training, just virtually.

- Group work/collaboration
    - Shared/private annotation support for any document within the system
    - Shared/private book marking
    - Team forming
    - Participant list
    - Shared workspace
    - General workflow services
    - Recommender system functions: collaborative rating/voting of articles or documents
    - Calendar
    - Task list
    - Cognitive tool like mind mapping
    - Submission, reviewing and marking of assessments and exercises
    - Personal and team home pages which can be customized and modified by their owners.

All of the three mentioned systems should support all relevant e-Learning standards to ensure optimum integration with each others, because each one is a very important part and can not be left out of a complete e-learning environment.

According to Ravet (2001), a modern e-learning environment is a combination or unification of even more different systems. In addition to the mentioned three parts it should also contain a knowledge management system for capturing, organizing and disseminating knowledge, including the knowledge produced during the learning process.

2.6.2 Non-Functional Requirements

The non-functional requirements describe general conditions the software system must meet to satisfy the needs of the users and are not bound to the specific functions of the e-learning environment.

2.6.2.1 Technical Requirements

The technical requirements describe technical issues which must be fulfilled to successfully install, operate and maintain a software system. They can be divided into the following categories:

2.6.2.1.1 Operational Environment Required

The operational environment is the hardware and software environment where the system runs. More specifically it means the operating system and other software system interact with.

E-Learning platforms are client-server systems, therefore two different operational environments have to be supported. On the client side in addition to the operating system (such as Windows, Linux, Mac OS and specific versions/distribution of these) also the browser version is important because the system usually runs within the browser environment on the client side.

On the server side of special importance in addition to the operating systems are other software services with which the system has to integrate with relational database systems, directory services or other systems which complement the functionality of the e-Learning system.

2.6.2.1.2 Ensuring of performance and scalability

Due to its complexity and high first time implementation costs e-Learning environments are usually used by larger corporations or institutions or by application and learning service providers who offer their services to small and medium enterprises (SMEs). This means that such systems, apart from pilot installations, have to deal with large number of users in the range of several thousand up to several hundred thousand. In addition such a system is usually deeply integrated in organizational processes and thus mission-critical for business operations. These facts raise issues in

- network bandwidth consumption, which can be optimized by using caching and compression techniques for transmitting the web based user interface as well as the content data;
- special strategies for handling and separating such large numbers of users (i.e. it does not make sense to offer a selection list of several hundred users or more in a user interface for administration purposes);
- increasing the server performance by distributing the system over several entities and by using load-balancing mechanisms to switch between system parts of redundant functionality;
- stability, which means that the system does not only have any critical bugs but also does not break down under heavy/peak load or destroy data in such circumstances. In addition fail-over safe mechanisms have to be provided to ensure a long up-time even in the case of partial hardware failure.

2.6.2.1.3 Security

E-Learning systems contain a lot of very personal and business critical data which are very sensitive information and therefore needs to be protected against misuse and inappropriate access. The support of secure transmissions (such as https) between each part of the system and data encryption is therefore obvious requirements. Additionally measures have to be taken against hackers and denial of service attacks.

2.6.2.1.4 Customizability

Customizability and a modular system architecture specify to what degree system functions can be adapted, added or omitted completely and are additional requirements to ensure a system which is perfectly integrated in the customers IT infrastructure and corporate design and fulfils exactly that functionality the customer demands. Customization of look and feel can be done once for the whole system, personalized for groups of users (e.g. belonging to a certain department or a certain role such as trainers) or individually. Advanced systems support adaptive user interfaces where the UI changes according to the user's personal profile.

2.6.2.2 Quality Requirements

Fulfilling quality requirements and following a defined quality policy is an implicit requirement for every successful software production cycle. The first step to guarantee high quality software is to define a comprehensive quality policy. Proven standards and guidelines such as ISO 9000 can help and provide the additional advantage of the possibility for certification which increases reputation on the market and in an increasing number of cases is the prerequisite to take part in a call for tender (Dietinger, 2003).

The ISO 9000 series of standards represents the essential requirements that every enterprise needs to address to ensure the consistent production and timely delivery of its goods and services to the marketplace. The standards describe what requirements need to be met, not how they are to be met, therefore each industry sector and in detail each company has to define their special implementation rules including roles, processes and documents for quality management. Ideally the quality policy includes each department of a software company including research and development, support and maintenance, professional services, sales and finances, marketing and management. Consistency in production and reliability in delivery are as important as what an organization is selling in today's marketplace. It is essential to consistently meet all customers' expectations every time, to keep them satisfied and loyal. If an organization does not do this, the marketplace, and the customers, will take its business elsewhere.

If we focus on the quality policy for the software development process then the following work scenarios can be identified:

- Requirements definition: Here the user requirements including use cases, the operational environment, functional and non-functional requirements are defined
- Software requirements definition, analysis and planning: In this phase the user requirements will be analyzed and translated to software requirements and high level design including first rough project planning. Object oriented design (OOD) and the unified modelling language (UML) may offer a good structured approach here. A complex system may be split into several sub-systems with defined interfaces for easier handling and further sub-divided into modules.
- Detailed design definition: Here the detailed design of each sub-system and its modules is figured out and specified. Again OOD and UML are recommended.

- Development phase: In this phase the main development work will be done. Technologies and programming language which support the object oriented approach such as Java are advantageous.
- Integration and test phase: After each of the modules have been finished and tested independently within the development phase they need to be combined and tested as a full system.
- Delivery: If the system has passed all quality checks including the fulfilment of functional and non functional requirements it may be delivered to the customer.
- Maintenance phase: Even the best quality management can not guarantee 100% bug free code and in addition user requirements can be refined or extended upon use of the software. For these cases the quality policy also has to define appropriate procedures to handle the maintenance phase which closely works together with the quality policies for the support services.

2.6.2.3 Usability and Accessibility Requirements

Dietinger (2003) further states that perhaps the largest impact of all non-functional requirements on total user satisfaction can be summarized under the term usability. Usability has been defined within the ISO standard 9241 part 10 and part 11 as the suitability for use of a product. Crucial for the usability of a product are the following factors:

- Efficiency: the resources expended by a system's users in achieving accurate and complete task performance. An easy-to-use and understandable system reduces training, maintenance and support costs.
- Effectiveness: the degree to which a system fulfils its intended purpose and supports its users by enabling accurate and complete task performance. An effective system fulfils organizational objectives and yields improved operational efficiency, productivity, and customer service.
- Satisfaction: the user's perceived acceptability of the system. A system that supports the user and achieves high user satisfaction leads to increased job satisfaction, improved safety and health, and a reduction of costs.

IEEE defines Usability as the ease with which a user can learn to operate, prepare inputs for, and interpret outputs of a system or component.

Shortly, the degree of usability specifies how easy a system is to use by a certain user. The usability can be increased by following rules and guidelines primarily during the definition of the system architecture and the user interface design; however it is important to mention that usability has an impact on all stages of the software development process. In particular the system integration tests have to be extended by usability tests where the feature complete system is presented to users who do not know the system yet but who represent the later end-user through a similar skill and experience profile. The users have to fulfil several tasks with the new system and are asked to verbalize their thoughts, feelings, and opinions while interacting with the system. Every action and explanation will be recorded via video or screen cam and later on examined. This could again lead to a redesign of parts of the software or at least have an impact on the documentation.

2.7 Standards in the Field of e-Learning

E-Learning standardization efforts are made by a number of different consortiums of various types (research community, user and governmental organizations, or standards body) which concentrate on different aspects of e-Learning but which mostly work together in some direct or indirect way.

2.7.1 AICC – Aviation Industry CBT Committee

AICC is the oldest (since 1988) standardization consortium in the field of computer based training and e-Learning. It is an international association of technology-based training professionals and develops guidelines for the aviation industry in the development, delivery, and evaluation of Computer Based Technology (CBT) and related training technologies. As they had been the first dealing with standardizations they had a big impact on all industry sectors, not restricted to the aviation industry. Originally it had to deal with the requirements for operation systems, the standardization of hardware, icons and various document type formats like graphics, audio and video. All nine standards accepted by its members are summarized in so-called AGRs – AICC Guidelines and Recommendations and are supplemented by several white papers and technical documents.

As AICC was the first e-Learning standardization consortium it had a huge impact on later-forming consortia such as ADL-SCORM, IEEE/LTSC and IMS, which took over parts of the AICC results and developed them further. Up to now still many course content vendors follow AICC guidelines when creating their course ware and many e-Learning system producers support the AICC interfaces and import/export file formats (Dietinger, 2003).

2.7.2 Dublin Core Metadata Initiative

Dietinger (2003) further states that the Dublin Core Metadata Initiative (DCMI) is an organization dedicated to promoting the widespread adoption of interoperable metadata standards and developing specialized metadata vocabularies for describing resources that enable more intelligent information discovery systems. Its name comes from an initial workshop about metadata semantics in Dublin, Ohio 1995.

The Dublin Core metadata standard is a simple yet effective element set for describing a wide range of networked resources. The Dublin Core standard comprises fifteen elements, which can be refined to add richness of description. This was established through consensus by an international, cross-disciplinary group of professionals from librarianship, computer science, text encoding, the museum community, and other related fields of scholarship (DCMI UserGuide, 2000).

The following are the DCMI Elements :

1. Title: Typically, a Title will be a name by which the resource is formally known.
2. Creator: An entity primarily responsible for making the content of the resource. For example, authors in the case of written documents, artists, photographers, or illustrators in the case of visual resources.
3. Subject and Keywords: The topic of the content of the resource (keywords, key phrases or classification codes describing the topic of the resource).
4. Description: The content of the resource (abstract, table of contents, reference to a graphical representation of content or a free-text account of the content).
5. Publisher: An entity responsible for making the resource available
6. Contributor: An entity responsible for making contributions to the content of the resource.

7. Date: Typically, Date will be associated with the creation or availability of the resource. The best practice for encoding the date value is defined in a profile of ISO 8601 and follows the YYYY-MM-DD format.
8. Type: The nature or genre of the content of the resource. (The terms describing general categories, functions, genres, or aggregation levels for content.
9. Format: Format includes the media-type or dimensions of the resource such as size and duration. It also includes determining the software, hardware or other equipment needed to display or operate the resource.
10. Identifier: An unambiguous reference to the resource within a given context. The best practice is to identify the resource by means of a string or number conforming to a formal identification system such as the Uniform Resource Identifier (URI) (including the Universal Resource Locator (URL)), the Digital Object Identifier (DOI) and the International Standard Book Number (ISBN).
11. Source: A reference to a resource from which the present resource is derived.
12. Language: A language of the intellectual content of the resource. Recommended best practice is to use RFC 3066, which, in conjunction with ISO 639, defines two- and three-letter primary language tags with optional sub-tags. Examples include "Tur" or “Tr” for Turkish, "en" or "eng" for English, and "en-GB" for English used in the United Kingdom.
13. Relation: A reference to a related resource.
14. Coverage: The extent or scope of the content of the resource. Coverage include spatial location (a place name or geographic coordinates), temporal period (a period label, date, or date range) or jurisdiction (such as a named administrative entity).
15. Rights: Information about rights held in and over the resource. A Rights element will contain a rights management statement for the resource. The information of Rights encompasses Intellectual Property Rights (IPR), Copyright, and various Property Rights.

The discussions within the DCMI were one of the bases of, and had a large impact on, the most successful e-Learning standards of today: The Learning Objects Metadata standard, defining within the IEEE-LTSC workgroups, became the first official and formal e-Learning standard. Currently this standard has been passed over to ISO/IEC JTC1/SC36 to become an international standard.

2.7.3 IEEE LTSC – Learning Technology Standards Committee

The Learning Technology Standards Committee (LTSC) is chartered by the IEEE Computer Society Standards Activity Board to develop accredited technical standards, recommended practices, and guides for learning technology. The LTSC coordinates formally and informally with other organizations that produce specifications and standards for similar purposes. Over time up to 20 working groups have discussed different aspects of e-Learning. The following five are still active:

- P1484.1 Architecture and Reference Model WG
- P1484.11 Computer Managed Instruction (CMI) WG
- P1484.12 Learning Objects Metadata (LOM) WG
- P1484.18 Platform and Media Profiles WG
- P1484.20 Competency Definitions WG

The standards development is done via a combination of face-to-face meetings, teleconferences, and exchanges on discussion groups. Each of the working groups is headed by a Working-Group (WG) chair and the whole committee is governed by the five Sponsor Executive Committee officers (chair, vice-chair, treasurer, secretary and information officer).

2.7.3.1 Learning Objects Metadata (LOM)

Since June 12th 2002 LOM has been approved as an IEEE-SA standard and passed on to ISO/IEC JTC1/SC36 to become an international standard. LOM is based on the work of ARIADNE (see Chapter 2.10), IMS (see Chapter 2.7.5) and DCMI (see Chapter 2.7.2) and defines a structure for interoperable descriptions of learning objects of different granularities. A learning object is defined as any entity -digital or non-digital- that is used for learning and education.

Generally, the LOM descriptions are grouped in, life cycle, meta-metadata, educational, technical, rights, relation, annotation, and classification categories.

The purpose of this standard is to facilitate search, evaluation, acquisition, use, sharing and exchange of learning objects, for instance by learners or instructors or automated software processes such as course authoring and structuring tools.

LOM defines nine categories which group different data elements (Hodgins & Wason & Duval, 2002**,** p.72).

1. The General category groups the general information that describes the learning object as a whole, such as identifier, title, language, description, keyword, coverage, structure (underlying organizational structure of the learning object, e.g. atomic, linear or hierarchical) and aggregation level (level of granularity – from raw media up to a set of courses)
2. The Lifecycle category groups the features related to the history and current state of this learning object and those who have affected this learning object during its evolution. Elements are version, status, and contributors of state of object
3. The Meta-Metadata category groups information about the metadata instance itself (rather than the learning object that the metadata instance describes). E.g. a unique identifier for this record, the contributors of the metadata, the metadata schema and language
4. The Technical category groups the technical requirements and technical characteristics of the learning object. Elements are format (e.g. mime type), size, location (e.g. URL or URI), technical requirements, installation remarks, other platform requirements and duration.
5. The Educational category groups the key educational and pedagogic characteristics of the learning object. Included are interactivity type (active learning like an exercise and a simulation and passive learning like reading), learning resource type (narrative text, exercise, simulation, questionnaire, diagram, figure, graph, index), interactivity level (very low-very high), semantic density (degree of conciseness), intended end user role (teacher, author, learner, manager), context (school, higher education), typical age range, typical learning time, description and language.
6. The Rights category groups the intellectual property rights and conditions of use for the learning object. It consists of a cost field (yes/no), copyright (yes/no), and a description.
7. The Relation category groups features that define the relationship between the learning object and other related learning objects such as kind (nature of relationship - is/has part of, is/has version of, is/has format of, is referenced by, is based on, is basis for, requires, is required by), resource (target learning object resource) and description.

8. The Annotation category provides comments on the educational use of the learning object and provides information on when and by whom the comments were created. It contains an entity (people, organisation who created the annotation), date and description.
9. The Classification category describes this learning object in relation to a particular classification system. Elements are the purpose (e.g. skill level, competency, security level, educational level, discipline, idea, prerequisite, educational objective, accessibility and restrictions), a taxonomic path in a specific classification system, a description and keywords.

All LOM categories can be directly mapped to Dublin Core Metadata Initiative elements.

2.7.3.2 Computer Managed Instruction (CMI)

A standard for course structuring and sequencing and relating student performance to objectives was intended to be specified by a working group at the beginning, however, this was later on omitted or moved to other working groups.

Currently the standard consists of two active Project Authorization Requests (found at http://ltsc.ieee.org/wg1/1484-1.pdf):

- 1484.11.1 Data Model for Content to Learning Management System Communication, which describes the data model independent of its communication technology
- 1484.11.2 ECMAScript (language specification; implementations are JavaScript and Jscript) API for Content to Runtime Services Communication, which describes a JavaScript based application programming interfaces between an LMS runtime environment and the content objects. This standard is not only based on AICC, but also on ADL/SCORM and works in close cooperation with these two consortiums to make it a certified standard.

2.7.3.3 Architecture and Reference Model - Learning Technology Systems Architecture (LTSA)

This standard specifies a high level architecture for information technology-supported learning, education, and training systems that describes the high-level system design and the components of these systems. It aims to

- provide a framework for understanding existing and future systems,
- promote interoperability and portability by identifying abstract, high level system interfaces,
- incorporate a technical horizon (applicability) of at least 5-10 years while remaining adaptable to new technologies and learning technology systems.

Dietinger (2003) states that the architectural framework developed in this standard does not address the specific details of implementation technologies necessary to create the system components, or the management systems necessary to manage a learning technology system, i.e., the standard will facilitate the development of configuration guidelines for general learning technology systems.

2.7.3.4 Platform and Media Profiles

The main goal of this work group is to identify other standards or formats that might be relevant for e-Learning and browser platforms or media types. The standard does not describe technical details but limitations or enhancements to the referring standards. More specifically this standard deals with the following issues:

- 1484.18.1.*: Bundles of profiles: a browser with a specified set of capabilities (JavaScript, Java, HTML , CSS and media type support) and plug ins
- 1484.18.2.*: Markup Languages: various HTML, XML and style sheet versions
- 1484.18.3.*: Audio Formats: such as wav, real audio and mp3
- 1484.18.4.*: Video and Graphics Formats : avi, quicktime, mpeg, jpeg, gif, bmp, png, flash, shockwave, cgm
- 1484.18.5.*: Page Description Languages : PDF and Postscript
- 1484.18.6.*: Java : various JDK and JVM versions
- 1484.18.7.*: JavaScript : various JavaScript and ECMAscript versions
- 1484.18.8.*: Word Processing Formats: e.g. RTF, Microsoft Word, WordPerfect

- 1484.18.9.*: Presentation Graphics: e.g. Microsoft PowerPoint
- 1484.18.10.*: Speadsheet Formats: e.g. Microsoft Excel
- 1484.18.11.*: Document Services currently refers to DOM level 1 (http://ltsc.ieee.org/)

2.7.3.5 Competency Definitions

This standard specifies the mandatory and optional data elements that should be included in a competency definition as used in e-Learning systems, competence and skill gap analysis, learner and other competency profiles to allow the creation, exchange and reuse of competency definition records. This group works closely with the Learning Objects Metadata group because metadata which describes learning content contain one or more references to competency definition records that describe the learning objective for the content. The proposed base document for a draft standard suggests ten data elements in a competency definition (Otsyn, 1999), unfortunately this standard has not progressed very far but this topic has also been discussed within "IMS Reusable Definition of Competency or Educational Objective - Information Model" (see Chapter 2.7.5.2).

2.7.4 ISO/IEC JTC1 SC36 – Joint Tech Committee, Sub Committee 36 Standards for: Information Technology for Learning, Education and Training

The International Electrotechnical Commission (IEC) is the global organization that prepares and publishes international standards for all electrical, electronic and related technologies.

The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies from some 140 countries, one from each country, and was established as a non-governmental organization in 1947.

IEC and ISO have established a joint technical committee, the JTC 1. Its mission is to develop, maintain, promote and facilitate IT standards.

Sub committee 36 (SC36) of JTC1 develops international standards in information technology in the areas of learning, education, and training. It works together with numerous other sub committees, IEEE/LTSC, CEN/ISSS/WS-LT and the DCMI.

SC36 consists of five working groups:

- WG1 Vocabulary: The standard defines core terms used in information technology applications for learning, education, and training.
- WG2 Collaborative Technology: The goal of this standard is to establish a logical model for a generic collaborative learning environment and to provide a format for describing an instance of it. Also users are supported by defining specific sets of requirements and developers are guided in the creation of modular tools that follow this logical model.
- WG3 Learner Information: This standard is based on IMS LIP, the LTSC competency definition, PAPI and others.
- WG4 Management & Delivery: This standard provides a framework for data models and bindings for management and delivery systems that support learning, education and training. The working group has just recently formed.
- WG5 Quality Assurance & Descriptive Frameworks: This work group addresses describing and characterizing processes, components, and attributes related to the quality and architecture of IT-supported environments in the field of learning, education, and training. The WG5 also has just recently formed.

SC36 play an important role in the field of e-Learning standardizations once all working groups are fully established and important standards such as LOM have been approved by ISO (http:// jtc1 sc36.org).

2.7.5 Instructional Management Systems (IMS) Global Learning Consortium Inc.

IMS is developing and promoting open specifications for facilitating e-Learning activities such as locating, using and sequencing educational content enveloped and extended in an overall concept called learner design, tracking and reporting learner progress and performance, exchanging student records between different systems and making e-Learning accessible by people with disabilities.

IMS has two key goals:

- Defining the technical standards for interoperability of applications and services in distributed learning.
- Supporting the incorporation of IMS specifications into products and services worldwide. IMS promotes widespread adoption of specifications that will allow

distributed learning environments and content from multiple authors to work together.

IMS is a subscription based non-profit organization with members from educational, commercial, and government organizations, which is based in USA with a subsidiary in Europe.

The specifications currently available are introduced in the following.

2.7.5.1 Accessible Learning Applications

This is rather a set of guidelines than a specification on its own. It means to analyze the already existing solutions and standards and thus, to provide a framework which includes recommendations on how to use these approaches. It offers suggestions on how to extend these to target the distributed learning community and specifically address the challenges of on-line education. The guidelines also address several types of disabilities affecting vision, hearing, physical capacity, and cognitive skills because each disability presents unique challenges to computer users.

2.7.5.2 Reusable Competency Definitions or Educational Objective Specification

In this specification, the term competency is used in a very general sense that includes skills, knowledge, tasks, and learning outcomes. In order to enable interoperability of competency information among learning systems, the Reusable Definition of Competency or Educational Objective (RDCEO) specification defines an information model for describing, referencing, and exchanging definitions of competency (Auringer, 2005 p.70)

The information model which describes the core aspects of the specification contains the following elements:

- **Identifier:** a globally unique label to reference to competency in any other system.
- **Title:** a single mandatory text label for the competency or objective.
- **Description:** an optional human readable description of the competency.
- **Definition:** an optional structured description that provides a more complete definition of the competency or educational objective using a set of defined

sub-elements.

- **Metadata:** an optional meta-data record describing the RDCEO.

2.7.5.2 Content Packaging Specification

Auringer (2005) states that the IMS Content Packaging (CP) specification provides a functionality to describe and package learning materials, such as an individual course or a collection of courses, into interoperable, distributable packages. It is focused on defining interoperability of learning materials between different authoring tools, Learning Management Systems, and runtime environments. The CP specification describes data structures and defines a standardized set of structures that can be uses to exchange content.

Content to be exchanged is packaged in a single Package Interchange File (e.g., '.zip', '.jar', '.cab') which includes two major elements: a manifest file describing the content organization and the resources in a package, and the file resources described by the manifest file (see figure 2.1).

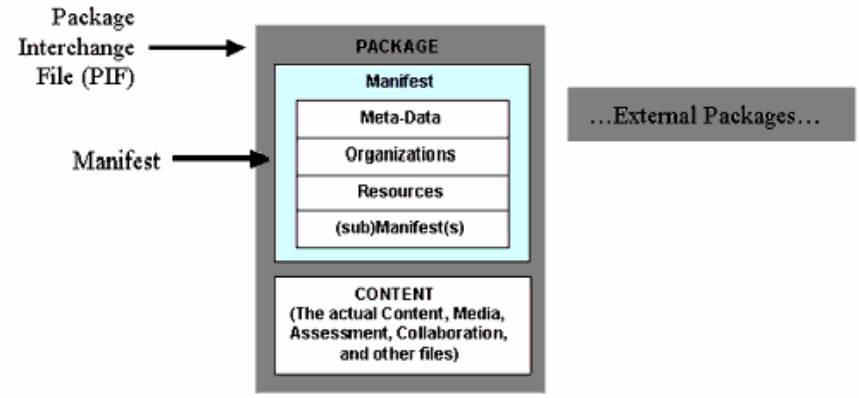

Figure 2.1 IMS Content Packaging Scope

The mandatory manifest file, describing the package by the means of XML, contains the following sections:

- **Meta-data section:** describes a manifest as a whole;
- **Organisation section:** describes zero, one, or multiple organizations of the content within a manifest;

- **Resources section:** contains references to all of the actual resources and media elements needed for a manifest, including meta-data describing the resources, and references to any external files;
- **Sub-Manifest:** one or more optional manifest files; A manifest file may be used flexibly since it can describe only a part of course, an entire course, or a collection of courses.

2.7.5.4 Digital Repositories Interoperability (DRI) Specification

The IMS Digital Repositories Interoperability (DRI) specification provides recommendations for the interoperation of the most common repository functions (Auringer, 2005). For this specification, digital repositories are defined as any collection of resources that are accessible via a network without prior knowledge of the structure of the collection. Repositories can contain actual assets or the meta-data that describe assets, whereas assets and the corresponding metadata need not to be located in the same repository.

The goal of DRI is to enable widespread access to digital repositories by learning environments and search portals. The core functions provided by this specification are:

- Search/Expose
- Gather/Expose
- Submit/Store
- Request/Deliver
- Alert/Expose

2.7.5.5 Enterprise Specification

The main objective of the Enterprise specification is to support interoperability between Learning Management Systems (LMS) and the following classes of Enterprise Systems:

- **Human Resource Systems** track skills and competencies and define eligibility for training programs.

- **Student Administration Systems** support the functions of course catalogue management, class scheduling, academic program registration, class enrolment, attendance tracking, grade book functions, grading and many other education functions.
- **Training Administration Systems** support course administration, course enrolment and course completion functions.
- **Library Management Systems** track library patrons, manage collections of physical and electronic learning objects, and manage and track access to these materials.

This specification focuses on exchanging data between systems residing within the same organization. Data exchange of the following four business process components is supported:

- Personal Profile Data Maintenance
- Group Management
- Enrolment Management
- Final Result Processing

(Auringer, 2005)

2.7.5.6 Enterprise Services Specification

Auringer (2005) states that the IMS Enterprise Services specification focuses on how systems manage the exchange of information that describes people, groups, and memberships between enterprise systems within the context of learning. This specification supersedes the original Enterprise specification which was based upon the description of the data model for the information to be exchanged. The Enterprise Services specification is extended by adding a series of behavioural models that define how the data models are to be manipulated.

2.7.5.7 Learner Information Packaging (LIP) Specification

The goal of the Learner Information Package (LIP) specification is to define how to exchange learner information among different learner information systems. Learner information is a collection of information about learners or producers of learning

content. The data model used by the LIP specification describes the characteristics of a learner, needed for the following purposes:

- Recording and managing learning-related history, goals, and accomplishments.
- Engaging a learner in a learning experience.
- Discovering learning opportunities for learners.

Packaged learner information includes structures based upon identifications, learning goals, qualifications, activities, transcripts, interests, competencies, affiliations, accessibility of the learner information, security keys, and relationship between the core components (Auringer, 2005 p.76).

2.7.5.8 Learning Design Specification

The IMS Learning Design specification provides a containment framework of elements that supports pedagogical diversity and innovation. Basically, the framework can describe any design of a teaching-learning process in a formal way. This specification supports the use of a wide range of pedagogies in on-line learning by providing a generic and flexible language. With this approach only one set of learning design and runtime tools are needed in order to support a wide range of pedagogies.

The Learning Design specification describes a model for learning design that contains three primary components:

- **Conceptual Model:** presents the vocabulary, the functional relationships between the concepts, and the relationship with IMS Content Packaging.
- **Information Model:** describes the IMS Learning Design elements.
- **Behavioural Model:** describes a set of runtime behaviours that delivery systems must implement (Auringer, 2005, p.77).

2.7.5.9 Meta-Data Specification

The IMS Learning Resource Meta-data specification describes the names, definitions, organization, and constraints of the IMS Meta-Data elements. The current version of this specification is based on the IEEE LTSC Learning Object Metadata (LOM) Working Draft 6.1 with a number of modifications and extensions.

2.7.5.10 Question & Test Interoperability Specification

The IMS Question & Test Interoperability (QTI) specification provides an extensible language that describes a data model for the representation of question (item) and test (assessment) data and their corresponding result reports. The QTI specification has been defined to enable interoperability of question, test, and result data between various systems.

The current version 2.0 Public Draft has the following key objectives:

- It defines a new information model with a new interaction model and a profile of XHTML to replace static material to enable more control over behaviour of positioning feedback. Another progress from version 1.0 is the addition of item templates to support cloning.
- It defines a method for putting QTI into content packages.

It describes a method for using QTI with Learning Design, Simple Sequencing, and the Computer Managed Instruction (CMI) data model (Auringer, 2005 p.78).

2.7.5.11 Simple Sequencing Information and Behaviour Model

This specification defines a method for describing the intended behaviour, such as branching or flow of learning activities, of learning content depending on learners' interactions with a course. Course authors may declare the relative order in which content elements are presented to the learner under specific conditions.

Dietinger (2003) states that this specification is called simple because more advanced branching techniques like artificial intelligence-based or schedule-based sequencing, adaptive learning are not included here, because the model itself is simple. Simple sequencing recognizes only the role of the learner and is not dependant on other actors.

Auringer (2005) states that the Simple Sequencing specification relies on the concept of learning activities which may be considered as instructional events embedded in content resources. A learning activity may include one or more child activities so that the intended learning experience is structured in a so-called *Activity Tree*. Each activity has an associated set of sequencing behaviours, defined by a specific

set of data attributes, so-called sequencing definitions, which describe how an activity is used to create the desired learning experience.

2.7.5.12 Vocabulary Definition Exchange

The IMS Vocabulary Definition Exchange (VDEX) specification defines a grammar for the expression of value lists of various classes to enable the exchange of such lists. The grammar permits the expression of machine-readable lists of terms or values, together with information that may help learners the understanding of meaning of terms. This specification can also be used to express not human language words, but abstract tokens for use in instances of IEEE LOM, IMS Metadata, IMS Learner Information Package, ADL SCORM (http://www.imsglobal.org).

2.8 Microsoft® Learning Resource iNterchange (LRN)

The Microsoft r Learning Resource iNterchange (LRN) is a commercial implementation of the IMS Content Packaging specification (see Section 2.7.5), IMS Meta-data specification (see Section 2.7.5.9), and the ADL SCORM specification (see Section 2.9). LRN addresses description, packaging, and runtime execution of learning resources in order to enable interchange and interoperability.

LRN is a tool for content assembly, not for content authoring. LRN packages the content that makes up a course into one single file. Basically, LRN consists of tools for creating, editing, and viewing LRN packages. The content files themselves can be created using the author's favourite tools (Auringer, 2005 p.83).

2.9 The ADL (Advanced Distributed Learning) Initiative & SCORM (Sharable Content Object Reference Model)

The Advanced Distributed Learning initiative was established by the US Department of Defence (DoD) in 1997 to develop a DoD-wide strategy for using learning and information technologies to modernize education and training and to promote cooperation between government, industry and academia to develop e-Learning

standardization. In the meantime it is supported by a number of other US governmental institutions and a large numbers of universities and commercial companies.

The ADL vision is to: “Provide access to the highest quality education and training, tailored to individual needs, delivered cost-effectively, anywhere and anytime.” Its goal is to provide an open architecture specification for a robust and dynamic Digital Knowledge Environment (DKE) by addressing:

- Embedded Training
- Job Performance Support Systems
- Simulation
- Multiplayer Online Gaming
- Intelligent Tutoring Systems
- Multi-language and Multi-cultural Capabilities
- Distributed Repositories and Digital Knowledge Libraries

Apart from the specifications ADL also currently provides three “Co-Labs” which serve as a public and private sector forum for cooperative research, development and assessment of new learning technology prototypes, guidelines and specifications. In addition to that so-called “Plugfest” events are organized by these Co-Labs approx. twice a year to bring together early adopters of their standard specifications to discuss and demo their implementations and by that get feedback about the practicality of the standards.

The standard specifications are summarized within the Sharable Content Object Reference Model, abbreviated as SCORM. SCORM defines a web based learning “Content Aggregation Model”, “Run-Time Environment” and “Sequencing and Navigation” for learning objects. In its version (1.2) three different levels of granularity of Los are distinguished:

- Assets, which are raw media files such as text, images, sound, web pages, assessment objects or other pieces of data that can be delivered to a web client. An asset can be described with Asset Metadata to allow for search and discovery within online repositories.
- Sharable Content Objects (SCOs) are a structured collection of assets with metadata applied and include a single launch-able resource that utilizes the SCORM Run-Time Environment to communicate with Learning Management Systems. SCOs are intended to be subjectively small units, such that potential reuse across multiple learning objectives is feasible.

- A Content Aggregation is a content structure which provides the mechanisms for defining the structure and sequence of learning resources that are presented to the user and mainly consist of a number of SCOs and Assets.

The SCORM 1.3 draft specification also introduces a fourth level, called

- Sharable Content Assets (SCAs). SCAs are mainly the same as SCOs but do not contain an interface for communicating with the LMS

SCORM 1.2 is mainly based on the following existing e-Learning standards with minor modifications:

- IEEE/LTSC CMI draft standard, which took over the JavaScript-API communication interface specification of AICC, for the SCO – LMS interaction process
- The IMS content packaging specification
- The IEEE/LTSC LOM specification in combination with the IMS metadata elements definition

The SCORM 1.3 version and SCORM 2004 include the support of the IMS Simple Sequencing concept with some minor changes.

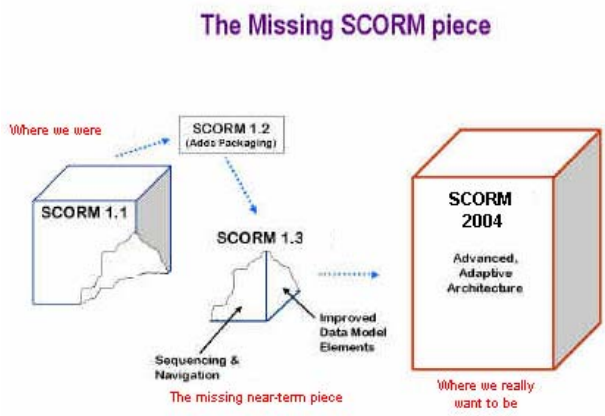

Figure 2.2 The Missing SCORM piece (taken from Official Website of SCORM)

SCORM assumes the existence of a suite of services called by some a “Learning Management System” and by others a “Learning Content Management System”, and formerly called a “Computer Managed Instruction” system.

Most web content consists of simple hyperlinks from one page to another. In the SCORM world, the LMS is "smart" and knows what is to be delivered to learner, when he/she has mastered a skill or competency, and can branch to the right content when

needed (e.g., for remediation). Regular web content and servers don't know how to do this.

SCORM is needed to standardize how to launch and track directed learning experiences, and to define the intended behaviour and logic of complex learning experiences so content can be reused, moved, searched for, and recontexualized.

SCORM is often described like a bookshelf housing volumes (specifications) that originated in other organizations including ARIADNE, AICC, IMS and IEEE. However, these specifications have been extended and additional detail and implementation guidance has been added (along with test software). SCORM is, therefore, more than just a collection of others work, though it directly relies on the source specifications.

SCORM 2004 2nd Edition has three parts:

- Overview – about the model, vision and future
- Content Aggregation Model – how to put learning content together so it can be moved and reused.
- Run-Time Environment – how content is launched and the learner's progress is tracked and reported back.

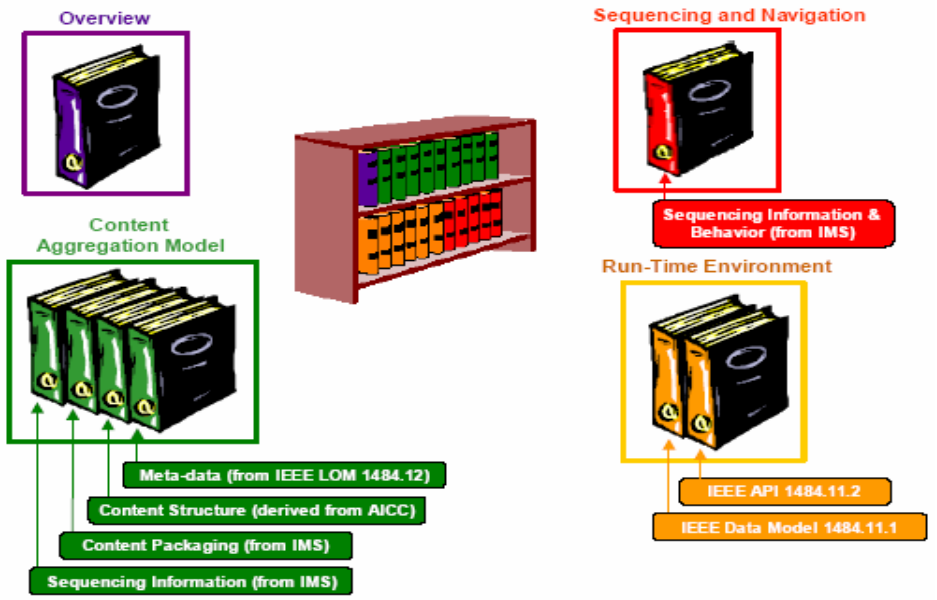

Figure 2.3 Sharable Content Object Reference Model. (taken from Official Website of SCORM)

Current version SCORM 2004 consists of three main parts which are described in the following:

2.9.1 Content Aggregation Model

Basically, the SCORM Content Aggregation Model (CAM) describes learning components being delivered. It defines how to package such components to make them exchangeable between systems. The definition further enables search and discovery facilities, and provides sequencing rules for the components, as well as responsibilities and requirements for building content aggregation (e.g., course, lesson, modules).

2.9.2 Run-Time Environment

A fundamental requirement of the SCORM is that learning content be interoperable across various systems regardless of the authoring tools used to create the content. The purpose of the SCORM Run-Time Environment (RTE) is to provide a mechanism for interoperability between Shareable Content Object - based learning content and Learning Management Systems. The SCORM RTE defines a common way to launch content, a common way for communication between content and an LMS, and data elements that are exchanged between an LMS and content.

2.9.3 Sequencing and Navigation

The SCORM Sequencing and Navigation (SN) defines a method how learning content may be sequenced depending on learner-initiated or system-initiated navigation events. In other words, the SCORM SN describes a representation method for the behaviour of intended learning experience, based on the results of learners' interactions with content objects and authored sequencing strategy. Course authors describe the branching and flow of content by a predefined set of learning activities which are structured by means of Activity Trees. The SCORM SN further defines how conformant LMSs interpret the sequencing rules in a consistent way.

2.10 Ariadne – Alliance of Remote Instructional Authoring and Distribution Networks for Europe

The ARIADNE foundation is the successor of a two phased European Community project within the 3rd framework program which focused on the creation and evaluation of tools for producing, managing and reusing of computer-based pedagogical elements (thus learning objects). In addition to that they also tried to build up a distributed resource sharing system which should contain a critical mass of reusable learning resources. One of their most important achievements was their work on defining metadata guidelines for the learning resources which were later the basis for IEEE LOM and therefore also for the metadata standards within IMS and SCORM.

Currently ARIADNE provides a Knowledge Pool System to its members, which is a European-wide distributed repository for learning and teaching resources, and documents relating to learning and teaching. It is sometimes also referred to as the "European Knowledge Pool".

CHAPTER 3

METHOD

3.1. Introduction

This chapter presents information about the research design, instruments, and procedures used for the elicitation of the participants' views on the research questions, selection of participants, the data collection procedures, and the methods for data analysis. The main issues investigated in this study are:

- Drawing a general framework of the e-language learning programme offered at Ç.Ü. Adana Vocational School by comparing and contrasting its features with the commonly accepted criteria in this field,
- Finding out how the e-Learners evaluate the programme regarding its effectiveness and relevance to their future applications in their fields,
- Identifying the probable problematic issues and offering solutions to these problems,
- Suggesting the ways or improving the e-language learning programme at Adana Vocational School of Çukurova University.

3.2. The Participants of the Study

The research conducted is a descriptive one. The aim is to explore the learners' views on the e-language learning programme at Adana Vocational School of Çukurova University, discuss the probable problematic issues regarding this programme and offer solutions to these problems.

Beside 6.200 students enrolled in the traditional courses at Adana Vocational School, there are 140 students, 96 of whom are the first graders receiving e-Learning courses via computer at Adana Vocational School of Çukurova University. In the e-Learning program at the Department of Computer Technologies and Programming of Adana Vocational School, there are three classes, two of them are the first grades, and one of them consists of second grade students. All of these students receive the language course, as the other courses, via the platform loaded on the web page of Adana

Vocational School of Çukurova University. 100 of these totally 140 e-Learners were reached and they participated in the study. None of these students have taken distance learning courses from other institutions before. However, they are students in the Department of Computer Technologies and Programming, therein they use computer programmes as experts and are able to reach any information on the web sites easily. In this respect, they are aware of the missing parts and the disadvantages of the programme.

The whole e-Learning population at the above mentioned school participated in the study. The age, gender, social and cultural backgrounds of the students were not taken into consideration. Thus, the student population was directly represented in the study.

3.3. Research Design

In the study, the participants' views on e-language learning programme at Vocational School were elicited by asking the e-Learners to indicate their views first with the messages they would send to the platform, then by means of a questionnaire, and face to face interviews, finally with the messages they sent to Student Affairs.

First, the participants were asked whether they had faced any problems during their e-language learning programme, what, in their opinions, the most important problems were, and how they managed to overcome these problems. This elicitation was realised by sending e-mails into their accounts in the students' forum to be explained. In addition, they were asked what the weaknesses and strengths of the platform used in the e-Learning were according to how perceived the issue (see Appendix 1). The participants described the weaknesses, strengths and the problematic sides of the programme as well as the course book written according to the aim of the MEB-YÖK Programme Improvement Project in 2002. Then, the participants' views were analyzed by means of content analysis.

Moreover, the participants were asked to fill in a questionnaire adapted from William Horton Consulting (2001) (see Appendix 2). This questionnaire evaluates the e-Learning programmes according to a commonly accepted set of criteria consisting of Technical Criteria, Content Criteria, Instructional Design Criteria, Practice and Feedback Criteria, Usability Criteria, Media Criteria, Navigation and Control Criteria

and Motivation Criteria. In addition to these criteria, the students were invited to add any additional opinions, if any, to the end of the questionnaire. Following that, the data gained were analyzed by means of SPSS statistical analysis programme.

In addition to the messages and the questionnaire, twenty of the whole e-Learning students were selected randomly for the interview. Their age, gender, social and cultural backgrounds were not taken into consideration. These 20 students were interviewed when they came to Adana for their final exams at the end of the term. They were asked about the problems they encountered during their e-language learning courses and their views on how to overcome these problems (See Appendix 3). These participants were also invited to talk about their general views for the e-language learning programme at Adana Vocational School.

The main topics of the interview were the course books, materials in the books, animations in the drills on the units section of the lesson page. They were also asked whether or not they met any difficulties, whether or not they needed a teacher while studying and how they solved these kinds of problems. In addition to this, they were asked what differences they found when they compared the atmosphere in the traditional courses in the classroom and the lessons they had in the e-Learning programme, as well as the advantages and disadvantages of these two forms of education. Then, the interview data were subjected to content analysis.

Finally, the messages which e-learners sent to the student affairs forum during the academic year were analysed. These messages were in the student affairs forum where the students' wrote with their own wish to complain about things, to share their negative or positive feelings, to talk about their fears, to ask for help, to help others, to consult their teachers or friends and the like. Shortly, these were the reflection of what really was going on in the e-learning programme and they seemed to be an invaluable contribution to the triangulation of the data. Totally, 380 messages were read and related 267 messages were subjected to content analysis to add richness to the study findings.

Table 3.1 The procedures followed in the study.

The Aim of the Study	Research Questions	Data Collection		Data Analysis
		Instruments	Freq	
To draw a general picture of the e-language learning programme offered at Ç.U. Adana Vocational School.	• Does DL Program offered to Ç.U Adana Vocational School meet commonly accepted technical criteria for e-Learning?	• Messages students sent to forum	*24	Content Analysis
To evaluate the e-Learning programme from the recipients' views regarding its effectiveness, relevance and contribution to their professions.	• What do students who receive this instruction think about the effectiveness and usefulness of this program?	• Questionnaire	*100	SPSS
To find out the e-Learning program analyzed in the light of the criteria set for applicable e-Learning standards such as AICC, LTSC, IMS or SCORM.	• What are the problematic issues regarding e-language learning programme from the students' point of view?	• Interviews with students	*20	Content Analysis
To identify the problems, if any, and offer probable solutions to these problems.	• What probable solutions can be offered these problems?	• Messages student sent to Student Affairs Forum	*380	

The Aviation Industry CBT Committee (AICC),
The IEEE Learning Technology Standards Committee (LTSC),
IMS (Instructional Management Systems) - The IMS Global Learning Consortium, Inc.
The Sharable Content Object Reference Model (SCORM)

The analysis of the messages in the forum the students sent, the data in the checklists and data in interview were analyzed as displayed in the table.

3.4 Data Collection

In this study, data were collected from the messages the participants (n:24) sent to the researcher, the administered questionnaire in which the participants (n:100) filled, the interviews which were held with totally 20 students, and finally from 380 messages

the students sent to the Student Affairs forum to correspond with each other, their teachers or the administrators.

3.4.1 Instruments

The instruments that were used for data collection in this study were the messages the twenty four students sent to the platform, the questionnaires for evaluating e-language learning programme in which a hundred students filled, the interviews held with 20 students and totally 380 messages sent by the e-Learners to the Student Affairs forum.

3.4.1.1 Students' Messages

In order to find out the most commonly-faced problem of the e-Learning programme, the students were asked what problems they had encountered during their study, and what, in their opinions, the weaknesses and strengths of the platform used in the e-Learning programme were. They were requested to answer these questions by sending e-mails into their accounts in the students' forum. (See Appendix 1). The aim of doing this was to identify the students' problems about the e-language learning programme and the course book written according to the aim of the MEB-YÖK Programme Improvement Project in 2002 and is still in use in this programme as well as other probable problems they might mention.

3.4.1.2 Questionnaires

The participants were asked to fill in a questionnaire adapted by William Horton Consulting (2001) (see Appendix 2), which evaluates the e-Learning programmes according to a commonly accepted set of criteria. 100 of the totally 140 e-Learners filled in the questionnaire. There were 37 questions in the questionnaire which attempts to evaluate the programme from the aspect of students. The first three of the 37 questions in the questionnaire consisted of Technical Criteria. The next three of the questions were related with Content and eight were about Instructional Design Criteria. Three other questions were designed to evaluate Practice and Feedback Criteria.

Usability Criteria were assessed by four questions. There were seven questions for Media Criteria. Four of the totally 37 questions were about Navigation and Control Criteria and finally, the last five questions in the questionnaire were for Motivation Criteria. In addition, the participant students were invited to add their personal opinions, if any, to the end of the questionnaire.

3.4.1.3 Interviews with the students

In addition to the messages and the questionnaire, twenty of the whole e-Learning students were chosen randomly for the interview. These twenty students were interviewed when they came to Adana for their final exam at the end of the second term. They were asked about the problems they encountered during their e-language learning courses and they managed to overcome these problems (See Appendix 3). These participants were also asked to talk about their general views for the e-language learning programme at Adana Vocational School. They took into consideration the course books, materials in the books, animations in the drills on the units sections of the lesson page. In addition, they were asked whether or not they met any difficulties, if any, and whether or not they needed a teacher while studying and how they solved these kinds of problems. Moreover, they were asked what differences they found when they compared the on-campus course atmosphere with the e-Learning atmosphere, and the advantages and disadvantages of both the e-Learning programme and the traditional courses in the classroom. Finally, the participant students were asked what suggestions, on the basis of their e-Learning experiences, they could give to improve the e-Learning programme.

3.4.1.4 The Messages in Student Affairs Forum

In order to bring more insight to the study, the messages sent to the student affairs forum were analysed. With the questionnaire the students evaluated different aspects of the e-Learning programme. With the interviews they mentioned the problems they faced during their education. They also filled in checklists on the similar issues. These were all done for data collection purposes for the study. However, the messages sent to the Student Affairs forum were the messages the students' wrote on their own wish to complain about things, to share their feelings, to talk about their fears, to ask for

help, to help each other, to consult their teachers or friends and the like. Shortly, these were the reflection of what really was going on in the e-Learning programme and they seemed to be an invaluable contribution to the triangulation of the data. Totally, 380 messages were read and related 267 messages were subjected to content analysis to add richness to the study findings.

CHAPTER 4

DATA ANALYSIS AND RESULTS

4.1 Analysis of Student Messages

An e-Learning programme consists of the texts and the graphics of the course, exercises, testing, test scores and books. Such a programme also includes animations, simulations, audio and video sequences, peer and expert discussion groups, online mentoring, links to material on the Web as well as communications with corporate education records. In our case, at Adana Vocational School of Ç.U. we have some of these features while we lack some others. Therefore, in addition to the questionnaire administered and the interview held, in order to have a deeper look at the e-Learning programme from the students' point of view, and find out how students cope with some necessary but missing aspects, volunteering students were asked to write about the problems they had experienced as members of the e-Learning community. They were also invited to offer solutions to these problems. Totally 24 students sent messages to the forum in the platform.

Among the answers given by the students, 36 items were directly related with the question addressed and these were subjected to content analysis. The results reached show that the problems e-Learners generally face can be put under five categories. These are problems they faced regarding the lack of audio-visual aids, difficulty level of books they had, the need they felt for Turkish explanations, the lack of sample exam questions and finally the lack of extra materials.

Table 4.1 Analysis of Students' Messages

n 24	Problems cited by the volunteer students in Student Forum				
	Lack of audio-visual aids	Difficulty level of books	Need for explanations in Turkish	Lack of sample exam questions	Lack of extra materials
Frequency	13	7	9	5	2

In terms of Audio-visual aids, the e-Learners say that they need to have CDs, videos and animations in order to understand the lessons like the students in traditional classes. The students have books and in addition, the units in the books are loaded into the lessons sections in the platform. They see the same things both in the book and in the platform. Therefore, the students have two forms of books, one is the book they are sent by mail and the other is the one they can see on the computer. The students can not find any extra information on the web about the subjects they have to learn. In other words, they can not, for example, have self study opportunities on the reading passages and as they can not listen to the texts, they can't learn how to pronounce the unknown words. Moreover, the animations of the units in the platform are not sufficient for the e-Learners. For example, they cannot evaluate themselves in the platform except by the exercises section. To overcome this problem, as the students suggest, more animations have to be added into the platform so that the e-Learners can practice the use of grammatical patterns, vocabulary and the like. Another problem cited by the respondents is that there are no videos for the e-Learners. In fact, by videos, they simply mean visual aids such as uploaded classes or a live camera in the traditional classrooms. They emphasise that they want to follow the lessons by means of a camera that is replaced into the classroom in English lessons while they are on line. This, in their opinion, is something to be easily achieved because the cost is not high. According to the complaints in the messages sent by the e-Learners, they need to have CDs, videos and animations of the units in order to learn English. Otherwise, they say that no one can learn English just by having a book or observing the same book in the platform.

In the heading of books, the students comment on the difficulties of the units, glossary and the colour of the book. The students say that they can't understand the grammar in the units because the units are very difficult. The traditional courses in vocational schools are formed on the basis of the requirements set by the MEB-YÖK Programme Improvement Project in 2002. Similarly, all e- Learning programmes are the electronic versions of these traditional courses in the platform by Internet. The course books written according to this programme are used also by the e-Learners. If the e-Learners have a chance to join into the traditional classes on line or if they have CDs or more animations in the platform, their views about the book may change. They also complain about the form of the books. Because of the high cost of printing colour books, the university has been printing the books in black and white for the last two terms that make the books fail the flick test at the very first sight. However, in spite of

all the negative comments it has been announced that all the books will be printed in black and white in future too.

In the third heading of the messages, as it is seen in Table 4.1, nine of the participants ask more explanations in Turkish. Some of the e-Learners find the texts and the exercises difficult because they don't have background in English. Here, the units are loaded into the lessons section in the platform weekly. The aim of this is to force the e-Learners to study weekly. After they have studied each unit, they are expected to join the lesson hours in the chat- room and ask the questions on what they don't understand. The teacher then will give explanations on the e-Learners 'questions. However, the students are not content with this because the chat-room sometimes shows ASP errors. Therefore, the students cannot participate in the discussions and ask anything to the teachers.

The heading of sample exam questions shows that the samples are not sufficient. In fact, the students are sent one or two sample exams, which contain 20 or 25 questions before the exams are administered and these questions are loaded into the files section in the platform. The e-Learners are expected to answer these questions in the files and send back to be checked. At the same time, if they have any questions about the files they will ask the teachers by e-mails or by participating the discussions in the chat-room. As in the third heading, the chat-room sometimes does not work and shows errors. The students still can pose questions by e-mails. According to the mails the e-Learners sent to the mailbox, no one has asked any questions until now.

In the last heading, extra materials, two of the 24 participants mention that they don't have a chance to join into the traditional classrooms. Therefore, they don't benefit from the extra materials used in the classrooms. In fact, the students are sent some additional materials into the files section as it is stated in the fifth heading. The e-Learners are expected to reach their teachers by means of the chat-room when they have problems. However, in most cases, they cannot manage this due to the technical problems with the chat-room.

4.2 Analysis of the Questionnaire

When the e-Learners came to Adana for their final exams, they were asked to fill in a questionnaire adapted from William Horton Consulting (2001) (see Appendix 2),

which evaluates the e-Learning programmes according to a commonly accepted set of criteria. There were 37 questions in the questionnaire to evaluate the programme from the aspect of students. The students were to choose one of the three options (Yes- Almost- No) for each of the questions on the questionnaire. The first three of the 37 questions in the questionnaire consisted of Technical Criteria.

4.2.1 Technical Criteria

Table 4.2 E-Learners' response to Technical Criteria 1.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	86	86,0	86,0	86,0
	Almost	9	9,0	9,0	95,0
	No	5	5,0	5,0	100,0
Total		100	100,0	100,0	

In the first question in Technical Criteria section, the students stated whether the e-Learning programme ran on their computers or not. Table 4.2 displays the given answers. According to the questionnaire respondents, of the 100 e-Learners, 86 had no problems regarding this issue. The number of the students who ticked "almost" for this question was 9 while 5 students stated that the e-Learning programme did not run on their computers.

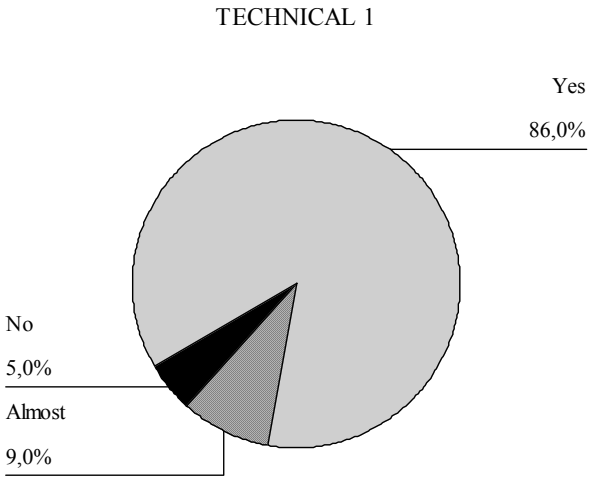

Figure 4.1 Pie chart for Question 1 of Technical Criteria

When we observe the chart for the first question of the technical criteria, we find out that the majority of the students (86) are content with the first question under consideration. The number of the students choosing “almost” for this question was 9. A small number of students (5) as seen in the chart faced problems with running the programme on their personal computers. In that respect, we may conclude that the programme is efficient.

Table 4.3 E-Learners’ response to Technical Criteria 2.

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	82	82,0	82,0	82,0
	Almost	15	15,0	15,0	97,0
	No	3	3,0	3,0	100,0
Total		100	100,0	100,0	

In the second question in Technical Criteria section, the students remarked on whether they could download the pages and other components quickly over their network connections or not. The given answers are displayed in Table 4.3. Of the 100 e-Learners, 82 had no problems with downloading the pages. The number of the students who chose “almost” for this question was 15 while 3 students stated that they could not download the pages and other components quickly over their network connections.

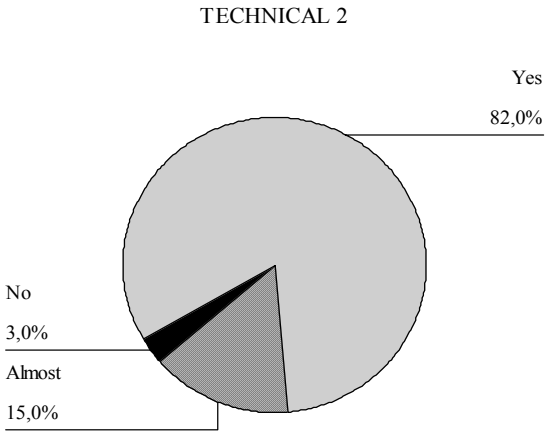

Figure 4.2 Pie chart for Question 2 of Technical Criteria.

In the pie-chart above for the second question in the technical criteria, we see that the majority of the students (82) are content with the second question under consideration. The number of the students (15), as seen in the chart, ticked “almost” for this question. A small number of students (3) faced problems with downloading the pages and other components over their network connections. Considering these findings, we may say that the e-Learning programme causes almost no problems for the learners in terms of downloading processes.

Table 4.4 E-Learners’ response to Technical Criteria 3.

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	64	64,0	64,0	64,0
	Almost	17	17,0	17,0	81,0
	No	19	19,0	19,0	100,0
Total		100	100,0	100,0	

In the third question of Technical Criteria section, the students pointed out whether they could take the course without having to obtain and install additional software or not. We see the given answers which are displayed in Table 4.4. Of the 100 e-Learners, 64 had no problems with taking the course without installing additional software. The number of the students choosing “almost” for this question was 17 while 19 students remarked that they could not take the course without having to obtain and install additional software on their computers.

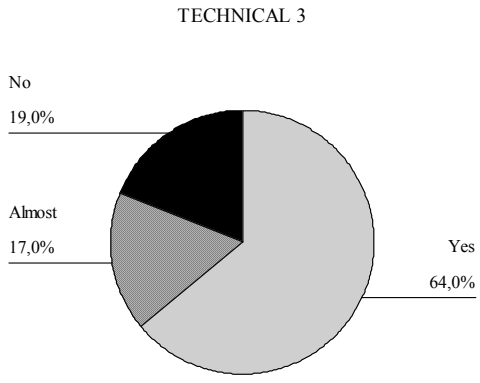

Figure 4.3 Pie chart for Question 3 of Technical Criteria

The pie-chart of the third question in the Technical Criteria section reveals that the majority of the students (64) are content with the question. The number of the students who ticked “almost” for this question was 17. Only 19 of the participants, as seen in the chart, faced problems with taking the course without obtaining and installing additional software on their computers. Taking these findings into account, we may say that the e-Learning programme is not problematic for the learners in terms of taking the course without having to obtain any installation software programmes on their personal computers.

Table 4.5 The statistical analysis of Technical Criteria.

		TECHNICAL 1	**TECHNICAL 2**	**TECHNICAL 3**
N	**Valid**	100	100	100
	Missing	0	0	0
Mean		1,1900	1,2100	1,5500
Std. Deviation		,5064	,4777	,7961

Table 4.5 reveals the statistical analysis of the three questions of the technical criteria. According to the table, the number of the respondents was 100, there were no missing respondents. The mean for the first question was 1,1900, the mean for the second question was 1,2100, and for the third question it was 1,5500. Standard deviation for the first question was ,5064, ,4777 for the second and ,7961 for the third question. If we list the values in order, the closest value of significance is the value of Technical 2.

4.2.2 Content Criteria

The next three of the questions in the questionnaire were related with Content Criteria.

Table 4.6 E-Learners' response to Content Criteria 1.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	32	32,0	32,0	32,0
	Almost	47	47,0	47,0	79,0
	No	21	21,0	21,0	100,0
Total		100	100,0	100,0	

In the first question in Content Criteria section, the students stated whether the material in the course was accurate and current or not. The given answers are shown on Table 4.6. According to the responses, 32 did not have problems regarding this specific issue. 47 students ticked "almost" for this question while 21 students deemed the material in the course as not accurate and current. The findings indicate that regarding the accuracy and currency of the course materials, there is more to do.

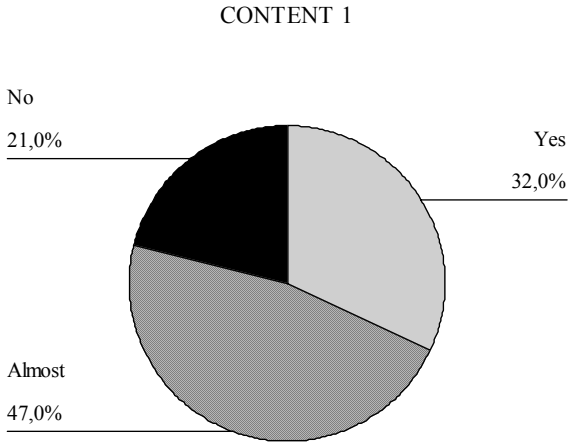

Figure 4.4 Pie chart for Question 1 of Content Criteria

The pie-chart for the first question in the Content Criteria section, we see that (32) students are satisfied with this aspect. Most of the students (47) used "almost" as an answer for this question. The rest of the students (21), as seen in the chart, faced problems with the material in the course which was not accurate and current in their opinion. Taking into account these findings, we may conclude that the the material was considered as almost accurate and current by the learners, still there is a need for more improvement.

Table 4.7 E-Learners' response to Content Criteria 2.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	20	20,0	20,0	20,0
	Almost	40	40,0	40,0	60,0
	No	40	40,0	40,0	100,0
Total		100	100,0	100,0	

In the second question in Content Criteria section, the students commented on whether the course covered the subject in sufficient breadth and depth to meet the e-Learners' objectives. On Table 4.7 above, we see that 20 of the participants believed that the course subject was in sufficient breadth and depth to meet their objectives. 40 of the students chose "almost" for this question. On the other hand, the remaining 40 students remarked that the course did not cover the subject in sufficient breadth and depth to meet their objectives. These may indicate that the e-Learners need more support within the course in order to meet their objectives.

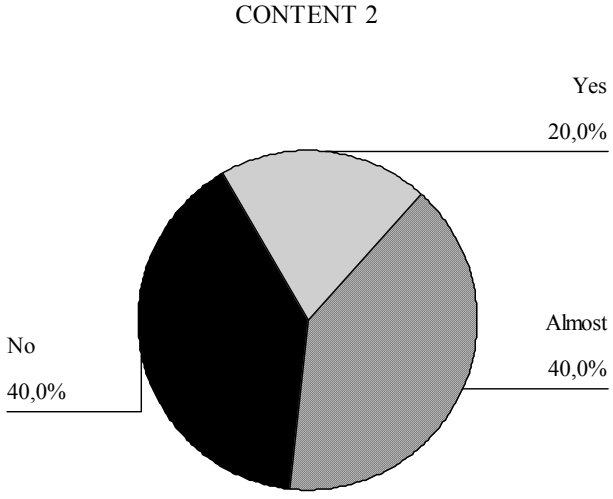

Figure 4.5 Pie chart for Question 2 of Content Criteria

As the pie-chart for the second question of the Content Criteria displays, only a small number of the students (20) were content with the issue discussed in the second question. 40 students ticked "almost" for this question. 40 of students, as shown on the

chart, faced problems with course subject in sufficient breadth and depth to meet their objectives. In that respect, we may suggest that the course subject is not absolutely efficent because only one fifth of the total number of the students remarked that the course covered the subject in sufficient breadth and depth to meet their objectives.

Table 4.8 E-Learners' response to Content Criteria 3.

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	31	31,0	31,0	31,0
	Almost	40	40,0	40,0	71,0
	No	29	29,0	29,0	100,0
Total		100	100,0	100,0	

In the third question in Content Criteria section, the students were supposed to comment on whether the course was free of production errors, such as broken links, missing graphics, and typographical errors or not. The given answers by the respondents are shown in Table 4.8. In the answers gained, we find that 31students said "yes". 40 students ticked "almost" for this question and a smaller number of students, that is, 29 pointed out that the course was free of production errors.

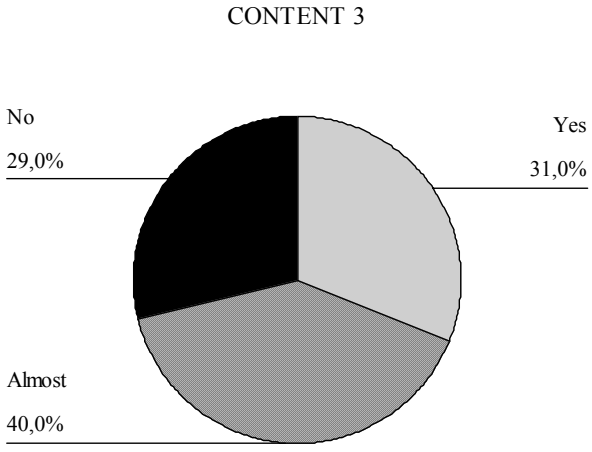

Figure 4.6 Pie chart for Question 3 of Content Criteria

The pie-chart for the third question of the Content Criteria section displays that not all studens were content with the course in terms of its accuracy. The findings indicate that the students found the course as partly free of production errors.

Table 4.9 The statistical analysis of Content Criteria.

		CONTENT 1	CONTENT 2	CONTENT 3
N	**Valid**	100	100	100
	Missing	0	0	0
Mean		1,8900	2,2000	1,9800
Std. Deviation		,7233	,7521	,7782

Table 4.9 reveals the statistical analysis of the three questions of the Content Criteria. According to the table, the number of the respondents was 100, there were no missing respondents. The mean for the first question was 1,8900, the mean for the second question was 2,2000, and for the third question it was 1,9800. Standard deviation for the first question was ,7233, ,7521 for the second and ,7781 for the third question. The range is 2,00. Taking the values of standard deviation into consideration, Content 1 seems to be more significant statistically.

4.2.3 Instructional Design Criteria

In the questionnaire, eight of the questions were about Instructional Design Criteria.

Table 4.10 E-Learners' response to Instructional Design Criteria 1

		Frequency	Percent	ValidPercent	Cumulative Percent
Valid	**Yes**	58	58,0	58,0	58,0
	Almost	28	28,0	28,0	86,0
	No	14	14,0	14,0	100,0
Total		100	100,0	100,0	

In the first question of Instructional Design Criteria section, the students were asked to tick whether the type of the course (e-mail correspondence design) was the best

choice to meet their objectives or not. We see the displayed answers in Table 4.10. Fifty-eight of the 100 e-Learners, did not face problems with the e-mail correspondence design. On the other hand, 28 of the students remarked “almost” for this question and 14 students remarked that the type of the course was not the best choice to meet their objectives. As the answers suggest, more than half of the students found the course effective regarding this issue.

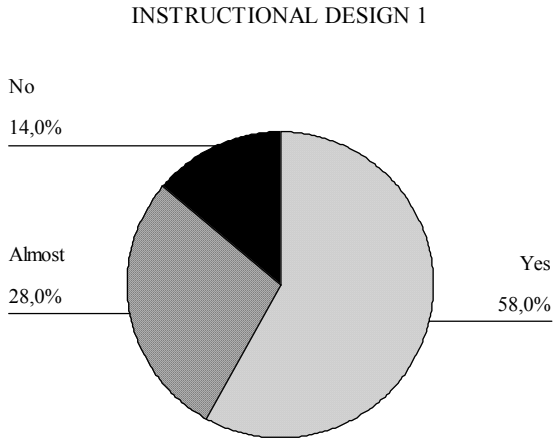

Figure 4.7 Pie chart for Question 1 of Instructional Design Criteria

The chart for first question of the Instructional Design Criteria section shows that the majority of the students (58) are content with the first question. Twenty-eight students chose “almost” for this question. Only 14 students, as seen in the chart, stated that the type of the course (e-mail correspondence design) was not the best choice to meet their objectives. According to these findings, we may conclude that the type of the course was the best choice for the majority of the respondents to meet their objectives.

Table 4.11 E-Learners’ response to Instructional Design Criteria 2

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	9	9,0	9,0	9,0
	Almost	10	10,0	10,0	19,0
	No	81	81,0	81,0	100,0
Total		100	100,0	100,0	

In the Instructional Design Criteria section, the second question was about whether the learners could take the course in the chat-room on platform without any difficulties or not. In Table 4.11, we see that a very small number of students, only 9 of 100, stated that they could take the lesson in the chat-room without difficulties. Ten e-Learners ticked “almost” for this question while the majority of the students (81), complained that they could not take the course in the chat-room on the platform. This means that the chat room needs to be improved.

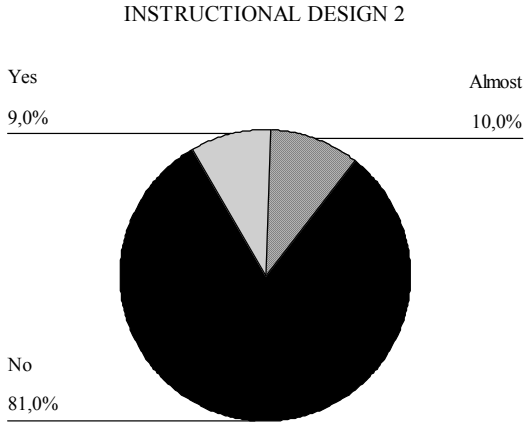

Figure 4.8 Pie chart for Question 2 of Instructional Design Criteria

When we look at the pie-chart of the second question in the Instructional Design Criteria section, we see that a small number of the students (9) remarked “yes” for this question. The number of the students who ticked “almost” for this question was 10. A great amount of students (81), as seen in the chart, could not take the course in the chat-room on the platform.

Table 4.12 E-Learners’ response to Instructional Design Criteria 3

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	33	33,0	33,0	33,0
	Almost	59	59,0	59,0	92,0
	No	8	8,0	8,0	100,0
Total		100	100,0	100,0	

In the Instructional Design Criteria section, for the third question, the e-Learners remarked whether the animations were suitable for the units in the lesson section. The given answers are displayed in Table 4.12. We see that 33 of 100 students stated that the animations in the units were suitable. The number of the students choosing "almost" for this question was 59 while a small number of the students (8) ticked that the animations were not suitable. The answers for this question also signal that the programme is satisfactory in this respect.

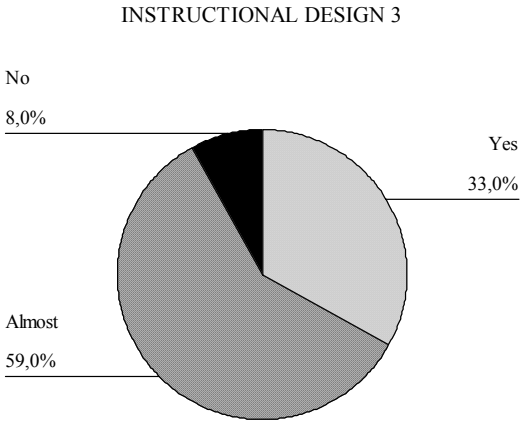

Figure 4.9 Pie chart for Question 3 of Instructional Design Criteria

The pie-chart displays the percentages of the answers given to this question. In the chart we see that 33 of the students found the animations appropriate whereas only 8 of the participants indicated "no". On the other hand, fifty nine of the participants are undecided.

Table 4.13 E-Learners' response to Instructional Design Criteria 4

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	50	50,0	50,0	50,0
	Almost	37	37,0	37,0	87,0
	No	13	13,0	13,0	100,0
Total		100	100,0	100,0	

In this fourth question of Instructional Design Criteria, the students were asked to remark whether the materials were presented in a logical sequence that helped learners understand. Table 4.13 above displays the e-Learners' remarks. Half of the students (50) who aswered the the questionnaire chose "yes" for this question. Thirty-seven chose "almost" while the remaining 13 students said "no".

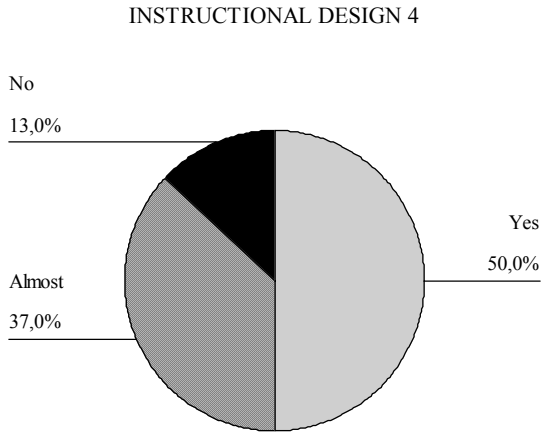

Figure 4.10 Pie chart for Question 4 of Instructional Design Criteria

When we look at the pie-chart of the fourth question of Instructional Design Criteria, we see half of the participants agreed that the materials were presented in a logical sequence that helped learners understand, thirty-seven of the participants chose "almost" for this question and thirteen ticked "no". Taking the given answers as a base, we may say that the materials were seen by the students as in a logical sequence that helped them understand.

Table 4.14 E-Learners' response to Instructional Design Criteria 5

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	26	26,0	26,0	26,0
	Almost	30	30,0	30,0	56,0
	No	44	44,0	44,0	100,0
Total		100	100,0	100,0	

In the fifth question of the Instructional Design Criteria section, the participants were asked to answer whether they could control the sequence of the materials presented in the lesson section on the platform. We understand from the Table 4.14 that 26 of the participants are content with the issue of the fifth question. As we can see in the chart, 30 of the students chose “almost” for this question and 44 of the students remarked that they could not control the sequence of the materials presented.

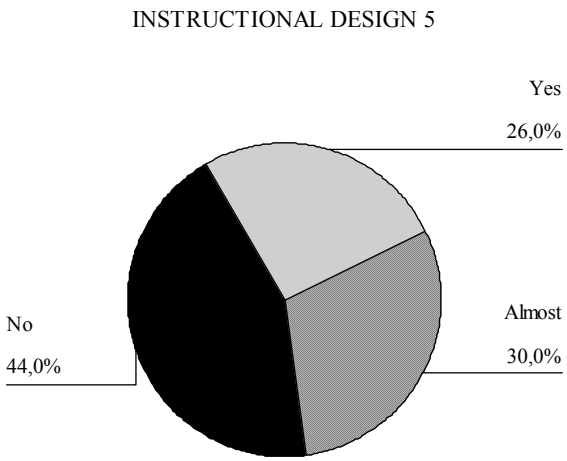

Figure 4.11 Pie chart for Question 5 of Instructional Design Criteria

When the fifth question of the Instructional Design Criteria section is taken into consideration, we come to the conclusion that 26 of the students agree that they are able to control the sequence of the materials. The number of the students who chose “almost” for this question was 30. Forty-four of the students, as in the chart, complained that they could not control the sequence of the materials. According to the findings, we may conclude that the participants could not generally change the material sequence.

Table 4.15 E-Learners’ response to Instructional Design Criteria 6

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	46	46,0	46,0	46,0
	Almost	38	38,0	38,0	84,0
	No	16	16,0	16,0	100,0
Total		100	100,0	100,0	

In the sixth question of this criterion, the participants stated whether the abstract concepts (principles, formulass, rules, etc.) were illustrated with concrete, specific examples or not. Table 4.14 shows the given answers where we can see that nearly half of the participants (46) are content with the sixth issue under question. As it is shown in the table above, 38 of the students ticked "almost" for this question while 16 of the students disagreed that the abstract concepts were illustrated with specific examples.

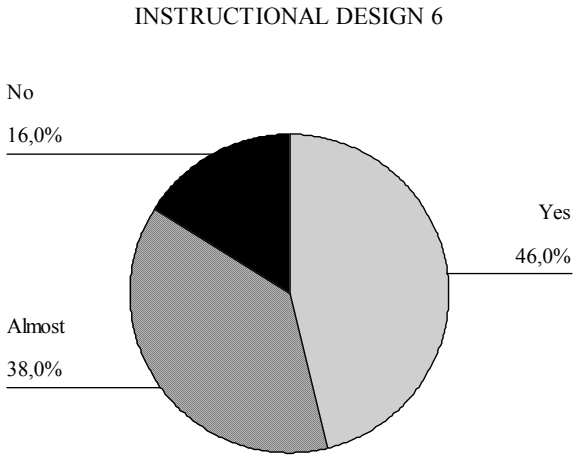

Figure 4.12 Pie chart for Question 6 of Instructional Design Criteria

As we understand from the pie-chart for the sixth question in the Instructional Design Criteria, 46 of 100 students chose "yes", 38 of them said "almost" and the rest said (16) "no". According to the given answers we may conclude that the abstract concepts were illustrated with specific examples.

Table 4.16 E-Learners' response to Instructional Design Criteria 7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	37	37,0	37,0	37,0
	Almost	46	46,0	46,0	83,0
	No	17	17,0	17,0	100,0
Total		100	100,0	100,0	

In the seventh question, the patricipants commented on whether the post-tests and other assesments adequately measured accomplishment of their objectives. Table 4.16 reveals that thirty-seven of the participants agreed with the question. On the other hand, nearly half of the participants (37) commented that the exams almost measured accomplishment of their objectives but a small number of them did not agree with the others. With these answers we can say that the students believed that tests and other assesments measure their improvement.

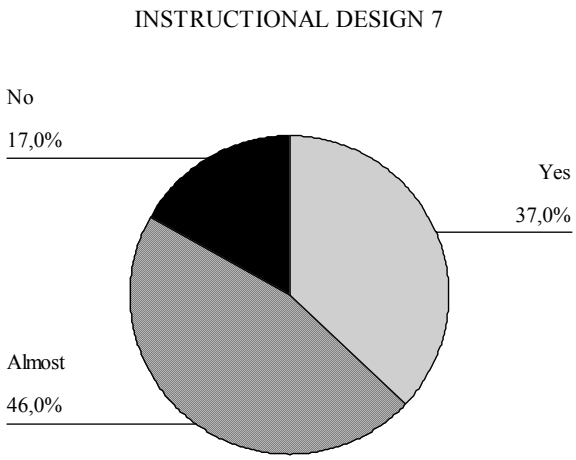

Figure 4.13 Pie chart for Question 7 of Instructional Design Criteria

The pie-chart in the Figure above shows that the post-tests and other assesments adequately measured accomplishment of their objectives because 37 % of the participants chose “yes” while a small ratio of the participants chose “no” negatively for this question. On the other hand, 46 of the participants replied “almost”.

Table 4.17 E-Learners’ response to Instructional Design Criteria 8

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	26	26,0	26,0	26,0
	Almost	37	37,0	37,0	63,0
	No	37	37,0	37,0	100,0
Total		100	100,0	100,0	

In the eighth and the last question of this criterion, the e-Learners were supposed to answer whether diagnostic pre-tests were available to help them custom tailor learning to their needs. Twenty-six of them answered “yes” and 37 of them “almost” but 37 of them answered “no” for this question. Therefore we can say that the diagnostic pre-tests were available to help them custom tailor learning to their needs.

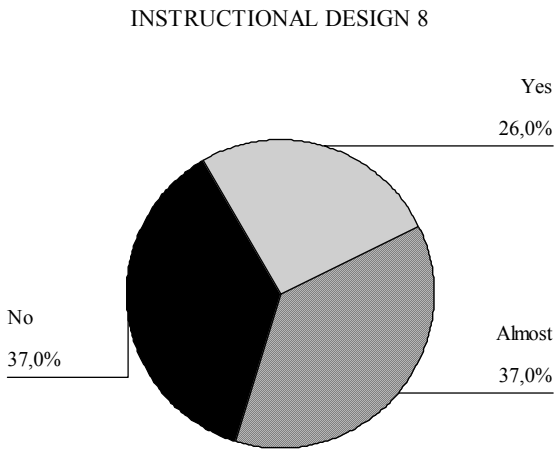

Figure 4.14 Pie chart for Question 8 of Instructional Design Criteria

In the last pie-chart of the Instructional Design Criteria, findings indicate that more than half of the participants found the diagnostic pre-tests were useful for their improvement.

Table 4.18 The statistical analysis of Instructional Design Criteria

		DESIGN 1	**DESIGN 2**	**DESIGN 3**	**DESIGN 4**	**DESIGN 5**	**DESIGN 6**	**DESIGN 7**	**DESIGN 8**
N	**Valid**	100	100	100	100	100	100	100	100
	Missing	0	0	0	0	0	0	0	0
Mean		1,5600	2,7200	1,7500	1,6300	2,1800	1,7000	1,8000	2,1100
Std. Dev.		,7292	,6208	,5925	,7057	,8212	,7317	,7107	,7900
Range		2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00

Table 4.18 reveals the statistical analysis of the eight questions of the Instructional Design Criteria. According to the table, the number of the respondents was 100, there were no missing respondents. The mean for the first question was 1,5600, the mean for the second question was 2,7200, for the third question it was 1,7500, for the fourth it was 1,6300, the mean for the fifth was 2,1800, for the sixth the mean was1,7000, for the seventh the mean was 1,8000 and 2,1100 was the mean of the eighth question. . Standard deviation for the first question was ,7292, ,6208 for the second ,5921 for the third question, for the fourth it was ,7057, the standard deviation for the fifth was ,8212, for the sixth it was ,7317, for the seventh standard deviation was ,7107 and ,7900 was for the eight question. The range is 2,00. Listing the values in order, the closest value of significance is the value of Instructional Design 3..

4.2.4 Practice and Feedback Criteria

Three other questions were designed to evaluate Practice and Feedback Criteria.

Table 4.19 E-Learners' response to Practice and Feedback Criteria 1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	31	31,0	31,0	31,0
	Almost	32	32,0	32,0	63,0
	No	37	37,0	37,0	100,0
Total		100	100,0	100,0	

The participants responded to the first question of Practice and Feedback Criteria and evaluated the opportunity they had as an e-Learner to practice ideas and skills immediately after they were presented. As it is shown on Table 4.19, of 100the participants 31 said "yes" there were 32 "almost"s and 37 "no"s for this question. Therein, we can say that they held the belief that they were not completely given the opportunity to practice and skills immediately after they were presented.

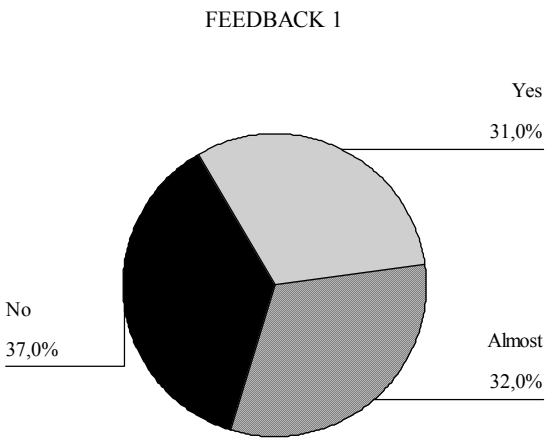

Figure 4.15 Pie chart for Question 1 of Practice and Feedback Criteria

The pie-chart in Figure 4.15 shows the participants' evaluation of the first issue of Practice and Feedback Criteria. We can comment looking at the answers that the respondents thought that they were not completely given the opportunity to practice and skills immediately after they presented.

Table 4.20 E-Learners' response to Practice and Feedback Criteria 2

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	11	11,0	11,0	11,0
	Almost	50	50,0	50,0	61,0
	No	39	39,0	39,0	100,0
Total		100	100,0	100,0	

In the second question in Practice and Feedback Criteria section, the students commented on whether the practice activities exercised knowledge and skills in a way that prepared them to apply learning to their jobs. In Table 4.19 above, we see that 61 believed that the practice activities prepared them. On the other hand, the remaining 39 participants remarked "no". These may indicate that a very small number of the e-Learners believe that they are prepared to apply learning to their jobs.

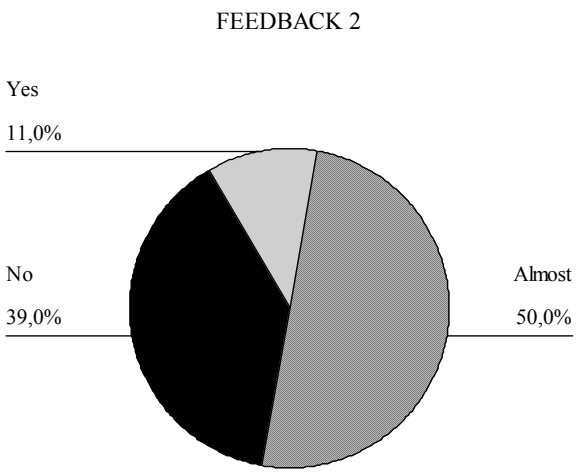

Figure 4.16 Pie chart for Question 2 of Practice and Feedback Criteria

The pie-chart for the second question in this citeria, we see that the students are satisfied with this aspect. However, thirty-nine of the students, as seen in the chart, stated that they faced problems with the practice activities that did not prepare them to apply learning to their jobs.

Table 4.21 E-Learners' response to Practice and Feedback Criteria 3

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	31	31,0	31,0	31,0
	Almost	39	39,0	39,0	70,0
	No	30	30,0	30,0	100,0
Total		100	100,0	100,0	

Table 4.21 shows the result of the participants' evaluation for the last question in Practice and Feedback Criteria. Thirty-one of the students ticked "yes" and 39 "almost" for whether the feedback in practice activities and tests was sufficient to help them recognize and correct misconceptions. The remaining 30 students did not agree with them. They ticked "no".

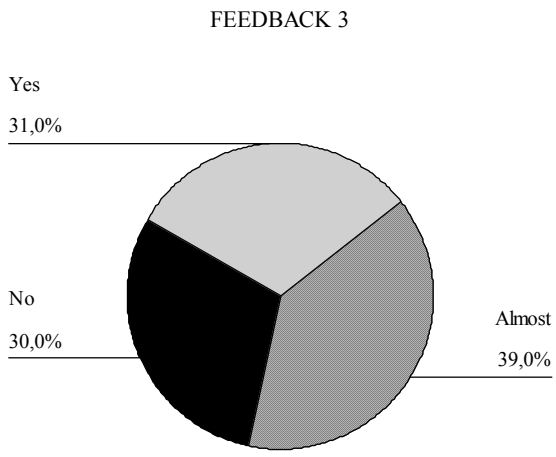

Figure 4.17 Pie chart for Question 3 of Practice and Feedback Criteria

In the last question of Practice and Feedback Criteria section, we see the given answers which are displayed in Figure 4.17. Of the 100 e-Learners, 31 had no problems with the feedback in practice activities and tests. The number of the students choosing "almost" for this question was 39 while 30 students remarked that the feedback in practice activities and tests was not sufficient to help them recognize and correct misconceptions. According to these findings, we may conclude that the feedback in practice activities and tests is sufficient to help the e-Learners to recognize and correct misconceptions.

Table 4.22 The statistical analysis of Practice and Feedback Criteria

		FEEDBACK 1	FEEDBACK 2	FEEDBACK 3
N	**Valid**	100	100	100
	Missing	0	0	0
Mean		2,0600	2,2800	1,9900
Std. Deviation		,8266	,6526	,7849
Range		2,00	2,00	2,00

Table 4.22 reveals the statistical analysis of the three questions of the Practice and Feedback Criteria. According to the table, the number of the respondents was 100, there were no missing respondents. The mean for the first question was 2,0600, the mean for the second question was 2,2800, and for the third question it was 1,9900. Standard deviation for the first question was ,8266, ,6526 for the second ,and 7849 for

the third question. The range is 2,00. By listing the values in order, we may see that the closest value of significance is the value of Feedback 2.

4.2.5 Usability Criteria

Usability Criteria were assessed by four questions.

Table 4.23 E-Learners' response to Usability Criteria 1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	57	57,0	57,0	57,0
	Almost	28	28,0	28,0	85,0
	No	15	15,0	15,0	100,0
Total		100	100,0	100,0	

The first question of the Usability Criteria was assessed by 100 participants. As the given answers are displayed in Table 4.23, 57 % of the participants, stated that the combination of on-screen instructions and online help was sufficient for them to learn to navigate and operate the course while 28 % of the participants ticked "almost". The remaining 15% had problems. With these findings, this means that the combination of on-screen instructions and online help was sufficient for the participants to learn to navigate and operate the course.

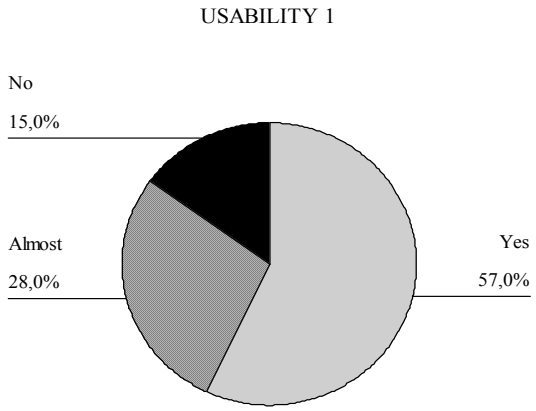

Figure 4.18 Pie chart for Question 1 of Usability Criteria

According to the figures displayed in the pie-chart above, 57 of the participants stated that the combination of on-screen instructions and online help was sufficient for them to learn to navigate and operate the course. On the other hand, 28 of the participants chose “almost”. The remaining 15 participants assessed that the combination of the instructions on screen and online help as not sufficient for them to learn navigating and operating the course.

Table 4.24 E-Learners’ response to Usability Criteria 2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	38	38,0	38,0	38,0
	Almost	41	41,0	41,0	79,0
	No	21	21,0	21,0	100,0
Total		100	100,0	100,0	

The table 4.24 for second question of the Usability Criteria section shows that the students (38) are content with the first question. Forty-one students chose “almost” for this question. Only 21 students, as seen in the chart, stated that it was not clear what they could do if they got stuck or had questions. According to these findings, we may conclude that it was clear what the participants could do in such a situation.

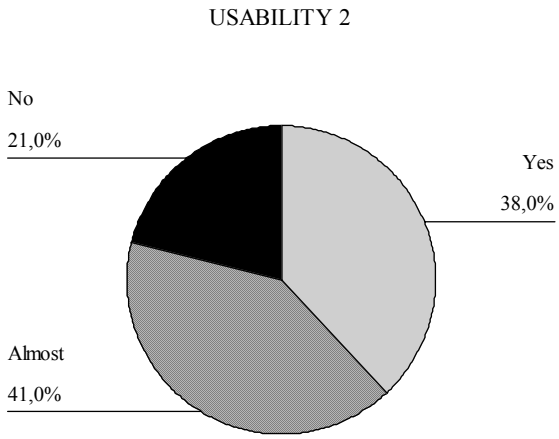

Figure 4.19 Pie chart for Question 2 of Usability Criteria

As it is seen on the pie-chart of the second question of Usability Criteria, totally 79 of the participants are content with what this question asks. Only 21 participants had problems if they got stuck or had questions.

Table 4.25 E-Learners' response to Usability Criteria 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	76	76,0	76,0	76,0
	Almost	19	19,0	19,0	95,0
	No	5	5,0	5,0	100,0
Total		100	100,0	100,0	

In this question of the Usability Criteria, the students were asked to distinguish whether they could predict the general result of clicking on each button or link. Majority of the participants (76) accepted that they could but on the other hand, a small number of participants (5) chose "no" for this question. On the other hand, nineteen of the participants chose "almost". As a conclusion, we can be sure that the participants can predict the general result of clicking on each button or link.

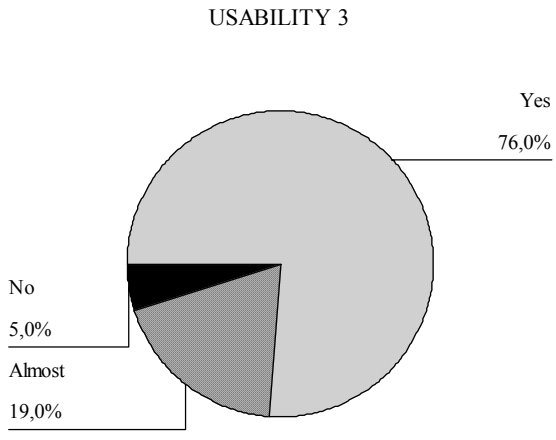

Figure 4.20 Pie chart for Question 3 of Usability Criteria

When we glance at the third pie-chart of Usability Criteria above, we make sure that the participants can predict the general results of clicking on each button or link as 76 % of them accept.

Table 4.26 E-Learners' response to Usability Criteria 4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	69	69,0	69,0	69,0
	Almost	28	28,0	28,0	97,0
	No	3	3,0	3,0	100,0
Total		100	100,0	100,0	

In the fourth and the last question of this criterion, 69 of the participants pointed out that they could take the course without fear of more software crashes, server outages, and misformatted pages that were common with general web-surfing. Only three of the participants are not content with this issue. We may therein conclude that the participants did not face any problems.

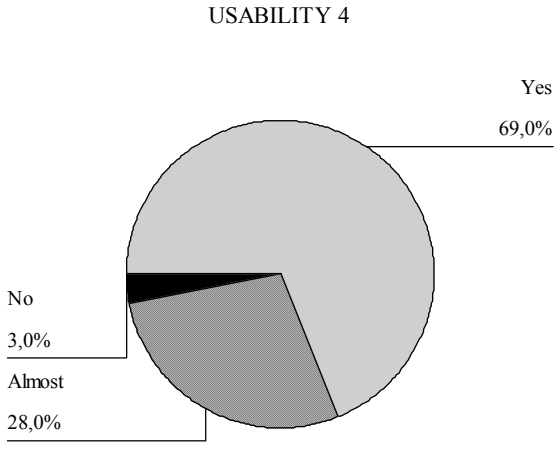

Figure 4.21 Pie chart for Question 4 of Usability Criteria

As the chart displays, 69 of the participants agree that they can take the course without fear of more software crashes, server outages, and misformmatted pages than

are common with general web-surfing. Only a very small number of the participants chooses “no” for this question.

Table 4.27 The statistical analysis of Usability Criteria

		USABILITY 1	USABILITY 2	USABILITY 3	USABILITY 4
N	**Valid**	100	100	100	100
	Missing	0	0	0	0
Mean		1,5800	1,8300	1,2900	1,3400
Std. Deviation		,7410	,7528	,5559	,5360
Range		2,00	2,00	2,00	2,00

Table 4.27 reveals the statistical analysis of the three questions of the Usability Criteria. According to the table, the number of the respondents was 100, there were no missing respondents. The mean for the first question was 1,5800, the mean for the second question was 1,8300, for the third question it was 1,2900 and 1,3400 was for the fourth question. Standard deviation for the first question was ,7410, ,7528 for the second, ,5559 for the third question and standard deviation was ,5360 for the fourth question.The range is 2,00. The standard deviation value of Usability 4 seems to be the statistically more significant than the others.

4.2.6 Media Criteria

There were seven questions for Media Criteria in the questionnaire.

Table 4.28 E-Learners' response to Media Criteria 1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	37	37,0	37,0	37,0
	Almost	39	39,0	39,0	76,0
	No	24	24,0	24,0	100,0
Total		100	100,0	100,0	

The students were invited to choose the best answers about the written texts in the course. According to the Table 4.28, Thirty-seven of the participants accepted that the texts in the course were written at a level that the e-Learners could fully understand, and 39 of them chose "almost" but 24 of them faced problems with the texts in the course. In that respect, we may summarize that the texts were written at a level that they could understand.

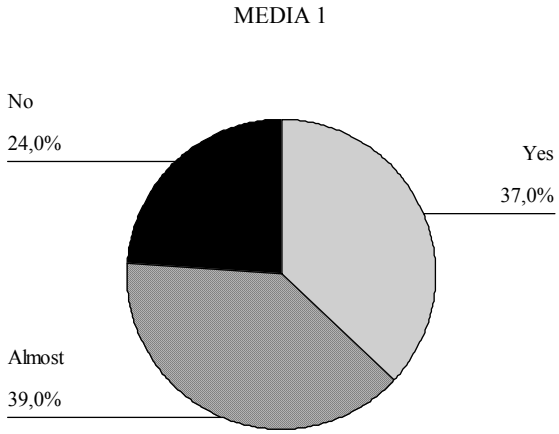

Figure 4.22 Pie chart for Question 1 of Media Criteria

The pie-chart in Figure 4.22 shows that 37 of the participants accepted that the written texts in the course uploaded in the lessons section were at a level that they could understand while 24 of 100 participants had problems with the texts.

Table 4.29 E-Learners' response to Media Criteria 2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	57	57,0	57,0	57,0
	Almost	29	29,0	29,0	86,0
	No	14	14,0	14,0	100,0
Total		100	100,0	100,0	

In the participants' response to the second question of Media Criteria, the valid percent of the participants choosing "yes" was 57 %. On the other hand, a small ratio of the participants (14%) chose "no" and %29 of them "almost". Most of the participants accepted that the texts in the course were legible as displayed using default browser settings and only default fonts.

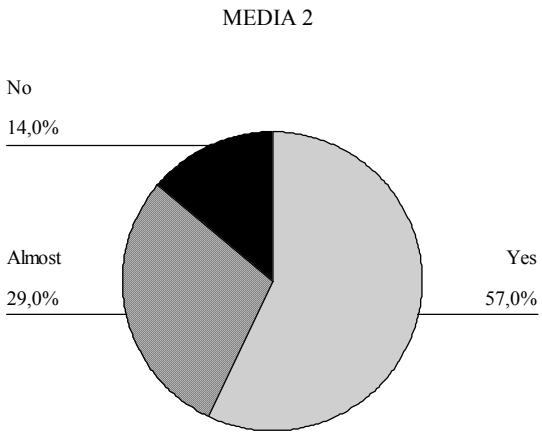

Figure 4.23 Pie chart for Question 2 of Media Criteria

The pie-chart above shows that 57 % of the participants accepted that the texts in the course were legible as displayed using default browser settings and only default fonts but a very small number of the participants (14) did not accept. This means that there are no problems with the texts in the course.

Table 4.30 E-Learners' response to Media Criteria 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	64	64,0	64,0	64,0
	Almost	33	33,0	33,0	97,0
	No	3	3,0	3,0	100,0
Total		100	100,0	100,0	

In Media Criteria section, the third question was about whether the graphics (illustrations, graphs, diagrams, etc.) were used appropriately, to communicate visual and spatial concepts. In Table 4.30 we see that a very small number of students, only 3 of 100, stated that the graphics were not used appropriately while the majority of the students (64) are content with the question. In this respect, we can say that there are no problems with the graphics.

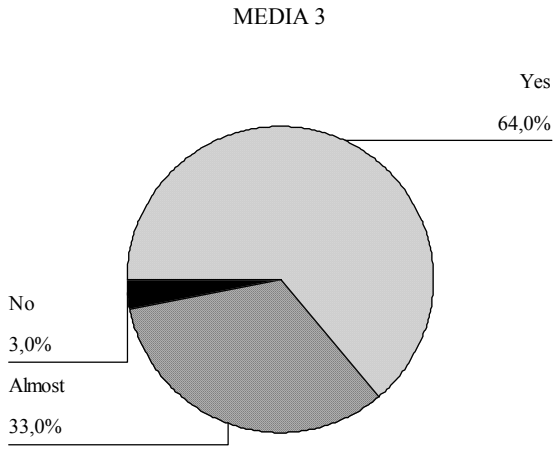

Figure 4.24 Pie chart for Question 3 of Media Criteria

Figure 4.24 shows as a pie-chart that majority of the participants accept the graphics are used appropriately while a very small number of them are contrary.

Table 4.31 E-Learners' response to Media Criteria 4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	61	61,0	61,0	61,0
	Almost	37	37,0	37,0	98,0
	No	2	2,0	2,0	100,0
Total		100	100,0	100,0	

In the Media Criteria section, the same as in the third question, the fourth question was about whether the pictures were used appropriately. In Table 4.31 we see that a very small number of students, only 2 of 100, stated that the pictures were not used appropriately while most of the students (61) are content with the question. On the other hand, thirty seven of the participants are undecided. In this respect, we can say that there are no problems with the pictures as well.

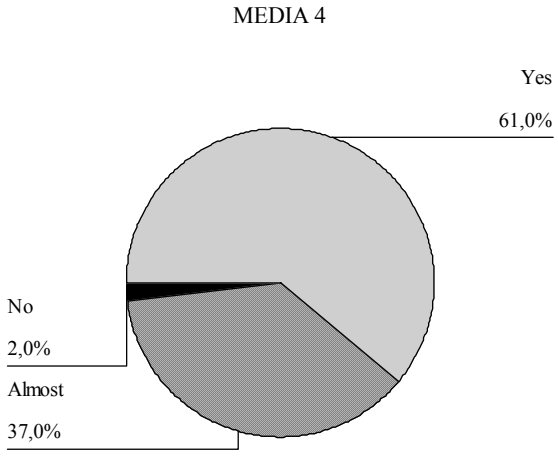

Figure 4.25 Pie chart for Question 4 of Media Criteria

The given answers are shown in Figure 4.25 as a pie-chart. This means that almost all the participants (98) accepted the pictures were used appropriately while a very small number of them (2) were contrary.

Table 4.32 E-Learners' response to Media Criteria 5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	54	54,0	54,0	54,0
	Almost	42	42,0	42,0	96,0
	No	4	4,0	4,0	100,0
Total		100	100,0	100,0	

In Media Criteria section, the same as in the the third and the fourth questions, the fifth question was about whether the photographs were used appropriately. Table 4.32 shows that a very small number of students, only 4 of 100, stated that the photographs were not used appropriately while more than half of the students (54) are content with the question. In this respect, we can say that there are no problems with the photographs as well.

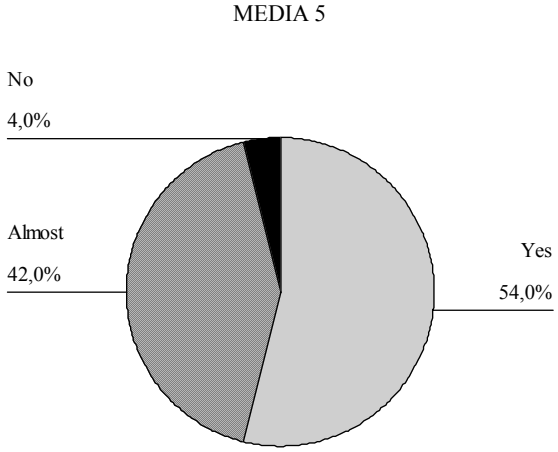

Figure 4.26 Pie chart for Question 5 of Media Criteria.

Figure 4.26 shows the given answers as a pie-chart. This means that more than half of the participants (54) accepted the photographs were used appropriately while a very small number of them (4) were contrary. On the other hand, forty two of the participants chose "almost".

Table 4.33 E-Learners' response to Media Criteria 6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	29	29,0	29,0	29,0
	Almost	50	50,0	50,0	79,0
	No	21	21,0	21,0	100,0
Total		100	100,0	100,0	

In the sixth section of Media Criteria, the students explained whether the multimedia content modules were used where simple words and pictures were not adequate or not. The number of the participants who are content with this question was 29. Half of the participants (50) chose "almost" while 21 chose "no". According to the findings, we may conclude that the multimedia modules were used where simple words and pictures were not adequate.

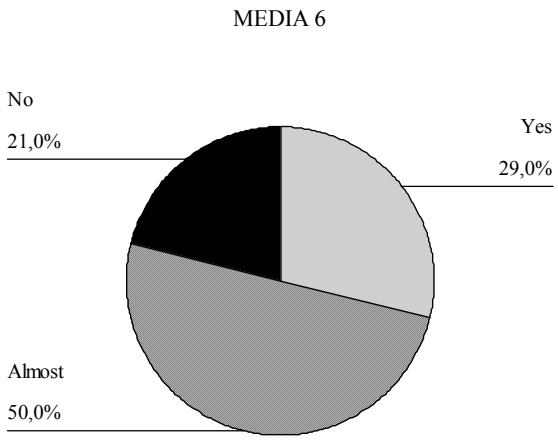

Figure 4.27 Pie chart for Question 6 of Media Criteria

According to the pies shown in the chart above, only 21 of the participants did not accept that the multimedia concept modules were used where simple words and pictures were not adequate, and they ticked "no". On the other hand, 50 of the participants ticked "almost" and the rest (29) ticked "yes".

Table 4.34 E-Learners' response to Media Criteria 7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Yes**	13	13,0	13,0	13,0
	Almost	17	17,0	17,0	30,0
	No	70	70,0	70,0	100,0
Total		100	100,0	100,0	

Here, the participants commented on whether the course would be accessible to those with visual and hearing impairments. The majority of the students (70) stated that the course would not be accessible while 13 of them said "yes". This means that the course is not appropriate for the people with visual and hearing impairments.

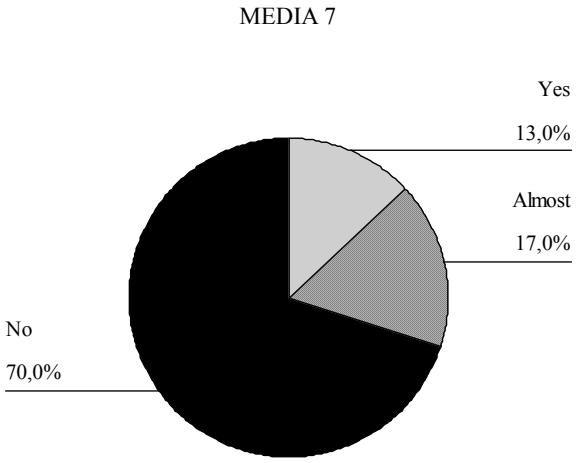

Figure 4.28 Pie chart for Question 7 of Media Criteria

As we can understand from the pie-chart in Figure 4.28, only 13 of the participants agree with the question. They said "yes". But most of them (70) did not agree that the course would be accessible to those with visual and hearing impairments.

Table 4.35 The statistical analysis of Media Criteria

		MEDIA 1	MEDIA 2	MEDIA 3	MEDIA 4	MEDIA 5	MEDIA 6	MEDIA 7
N	**Valid**	100	100	100	100	100	100	100
	Missing	0	0	0	0	0	0	0
Mean		1,8700	1,5700	1,3900	1,4100	1,5000	1,9200	2,5700
Std. Deviation		,7740	,7283	,5486	,5336	,5774	,7061	,7143
Range		2,00	2,00	2,00	2,00	2,00	2,00	2,00

Table 4.35 indicates the statistical analysis of the seven questions of the Media Criteria. According to the table, the number of the respondents was 100, there were no missing respondents. The mean for the first question was 1,8700, the mean for the second question was 1,5700, for the third question it was 1,3900, for the fourth it was 1,4100, the mean for the fifth was 1,5000, for the sixth the mean was1,9200 and 2,5700 was the mean of the seventh question. Standard deviation for the first question was ,7740, ,7283 for the second ,5486 for the third question, for the fourth it was ,5336, the standard deviation for the fifth was ,5774, for the sixth it was ,7061 and ,7143 was for the seventh question. The range is 2,00. If we list the values in order, the closest value of significance is the value of Media 4.

4.2.7 Navigation and Control Criteria

Four of the totally 37 questions were about Navigation and Control Criteria.

Table 4.36 E-Learners' response to Navigation and Control Criteria 1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	38	38,0	38,0	38,0
	Almost	23	23,0	23,0	61,0
	No	39	39,0	39,0	100,0
Total		100	100,0	100,0	

In the first question in Navigation and Control Criteria section, the participants commented on whether they could decide what parts of the course to, in which order, and what pace. Table 4.36 above, we see that 38 believed that they could control the parts of the course and 23 participants said "almost". On the other hand, the remaining 39 participants remarked "no". These may indicate that the participants could not control the parts, the order and the pace of the course.

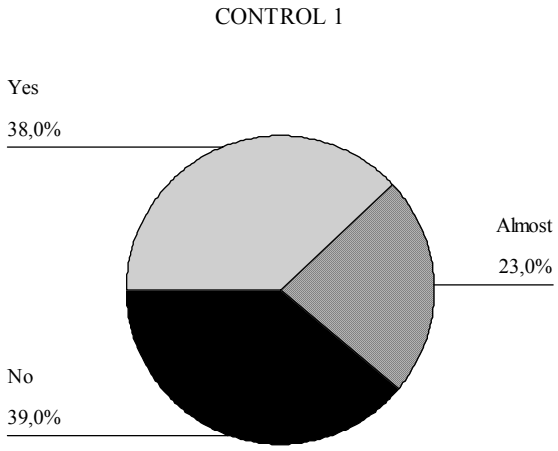

Figure 4.29 Pie chart for Question 1 of Navigation and Control Criteria

The pie-chart for the first question in this citeria, we see that most of the students are satisfied with this aspect. However, thirty-nine of the students, as seen in the chart, stated that they could not decide what parts of the course, in which order, and what pace they could control.

Table 4.37 E-Learners' response to Navigation and Control Criteria 2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	36	36,0	36,0	36,0
	Almost	15	15,0	15,0	51,0
	No	49	49,0	49,0	100,0
Total		100	100,0	100,0	

In the second question of Navigation and Control Criteria, the students were asked to remark whether the units were self-contained enough that the e-Learners could take them out of sequence without becoming confused.Table 4.37 displays the e-Learners' remarks. Thirty-six of the students, who replied the questionnaire, chose "yes" for this question. Fifteen chose "almost" while the remaining 49 students said "no". This means that more than half of the participants had problems when they took the units out of sequence without becoming confused.

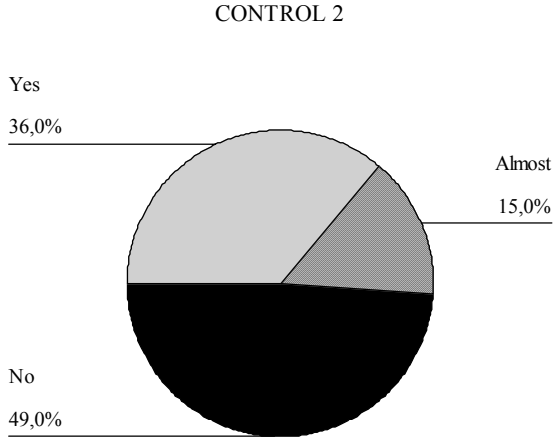

Figure 4.30 Pie chart for Question 2 of Navigation and Control Criteria

The findings in the pie-chart in Figure 4.30 indicate that regarding the sequence of the units without becoming confused, there is more to do.

Table 4.38 E-Learners' response to Navigation and Control Criteria 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	72	72,0	72,0	72,0
	Almost	24	24,0	24,0	96,0
	No	4	4,0	4,0	100,0
Total		100	100,0	100,0	

In the Navigation and Control section, the third question was about whether the e-Learners knew where they were. In Table 4.38 we see that almost all of the students (72) are content with the question. They stated that not only they always knew where they were and by examining page titles, constantly displayed menus, or other location indicators, they could deduce their current location in the course. In this respect, we can say that there are no problems with the menus and the indicators.

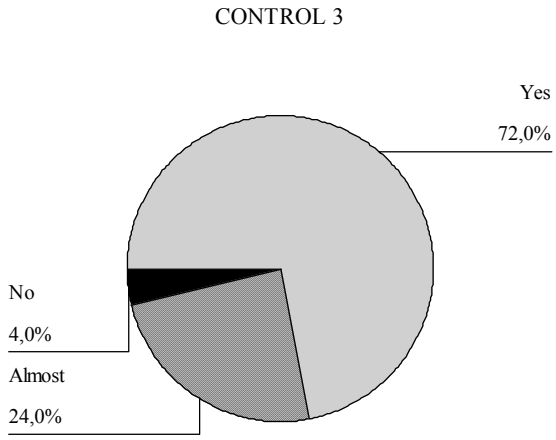

Figure 4.31 Pie chart for Question 3 of Navigation and Control Criteria

Taking the given answers in the pie-chart, we may say that there are no problems with this issue. Only 4 of the e-Learners do not know where they are.

Table 4.39 E-Learners' response to Navigation and Control Criteria 4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	51	51,0	51,0	51,0
	Almost	34	34,0	34,0	85,0
	No	15	15,0	15,0	100,0
Total		100	100,0	100,0	

In the fourth and the last question of this criterion, the participants concluded whether the navigation and access mechanisms (menus, browsing trails, maps, indexes) were sufficient that they could find specific items of content. Table 4.39 shows the given answers where we can see that more than the participants (51) are content with this issue under question. As it is shown in the table above, only 15 of the students disagreed that the the navigation and access mechanisms were sufficient. On the other hand, thirty four of the participants chose "almost".

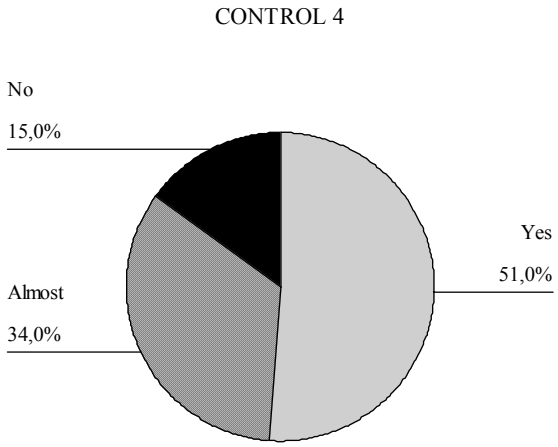

Figure 4.32 Pie chart for Question 4 of Navigation and Control Criteria

As we understand from the pie-chart for thelast question in the Navigation and Control Criteria, fifty-one of 100 participants chose "yes", 34 of them said "almost" and

the rest said (15) “no”. According to the given answers we may conclude that there are no problems with this choice.

Table 4.40 The statistical analysis of Navigation and Control Criteria

		CONTROL1	CONTROL2	CONTROL3	CONTROL4
N	**Valid**	100	100	100	100
	Missing	0	0	0	0
Mean		2,0100	2,1300	1,3200	1,6400
Std. Deviation		,8819	,9173	,5483	,7320
Range		2,00	2,00	2,00	2,00

Table 4.40 indicates the statistical analysis of the four questions of the Navigation and Control Criteria. According to the table, the number of the respondents was 100, there were no missing respondents. The mean for the first question was 2,0100, the mean for the second question was 2,1300, for the third question it was 1,3200 and 1,6400 was for the fourth question. Standard deviation for the first question was ,8819, ,9173 for the second, ,5483 for the third question and standard deviation was ,7320 for the fourth question.The range is 2,00. By listing the values in order, the closest value of significance is the value of Control 3.

4.2.8 Motivation Criteria

Finally, the last five questions in the questionnaire were for Motivation Criteria.

Table 4.41 E-Learners' response to Motivation Criteria 1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	64	64,0	64,0	64,0
	Almost	29	29,0	29,0	93,0
	No	7	7,0	7,0	100,0
Total		100	100,0	100,0	

In the first question in Motivation Criteria section, the participants stated whether the course initially made clear to e-Learners what they gained by taking the course.The given answers are shown on Table 4.41. According to the responses, 64 participants did not have problems regarding this issue and 29 participants were undecided. Only 7 participants ticked "no" for this question. Taking these findings into account, we may say that the course made clear to the e-Learners what they gained by taking the course.

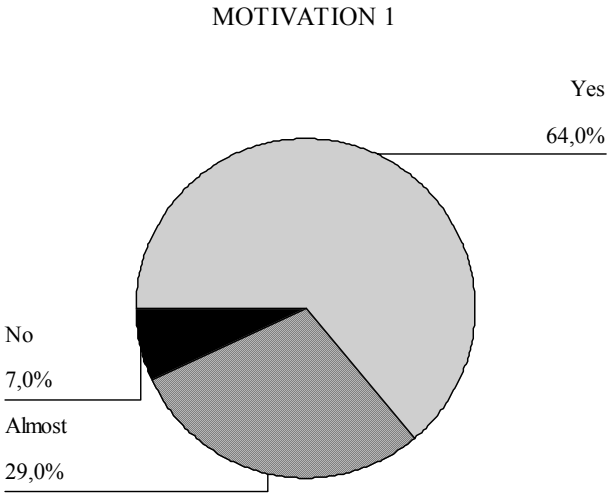

Figure 4.33 Pie chart for Question 1 of Motivation Criteria

The pie-chart of the first question in the Motivation Criteria section, reveals that the majority of the students (64) are content with the first issue.The number of the

students who ticked “no” for this question was 7. The number of the participants choosing “almost” is 29.

Table 4.42 E-Learners’ response to Motivation Criteria 2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	54	54,0	54,0	54,0
	Almost	36	36,0	36,0	90,0
	No	10	10,0	10,0	100,0
Total		100	100,0	100,0	

The participants responded the second question of Motivation Criteria as they are content. Ninety of the participants accepted that each lesson or other sizebale unit made clear to the e-Learners what they gained by taking it. Only a small number of them (10) did not agree and they chose “no”. The findings indicate that there are no problems in this issue.

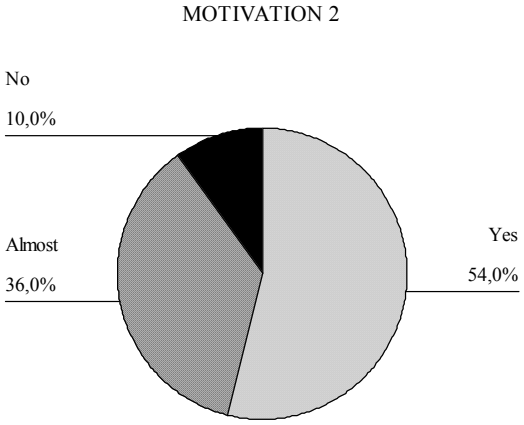

Figure 4.34 Pie chart for Question 2 of Motivation Criteria

The figures in Figure 4.34 display the ratio of the participants. According to the pie-chart, almost most of the participants concluded that each unit made clear to the e-Learners what they gained by taking it.

Table 4.43 E-Learners' response to Motivation Criteria 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	47	47,0	47,0	47,0
	Almost	39	39,0	39,0	86,0
	No	14	14,0	14,0	100,0
Total		100	100,0	100,0	

In the third question of this criteria, the participants were asked to identify whether the difficulty of the course appropriately challange, the e-Learners – not too hard or too easy. Nearly half of them (47) accepted "yes" and 39 of the participants chose "almost". So, most of the participants agreed with this issue. On the other hand, a small number of the students disagreed and they chose "no". According to the findings, we may conclude that the level of the course is neither too hard nor too easy.

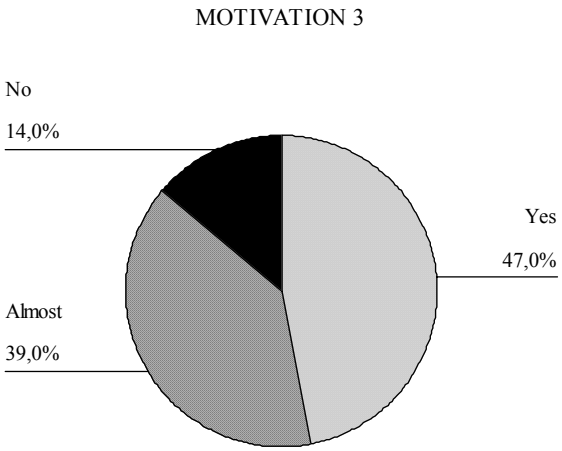

Figure 4.35 Pie chart for Question 3 of Motivation Criteria

According to the pie-chart of the third question of the Motivation Criteria, nearly half of the participants (47) agreed that the difficulty of the course was not too hard or too easy while the others (14) disagreed.

Table 4.44 E-Learners' response to Motivation Criteria 4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	34	34,0	34,0	34,0
	Almost	43	43,0	43,0	77,0
	No	23	23,0	23,0	100,0
Total		100	100,0	100,0	

In the Motivation Criteria section, for the fourth question, the e-Learners remarked whether the each unit directed the learners to study. The given answers are displyed in Table 4.44. We see that 34 of 100 students agreed. The number of the students choosing "almost" for this question was 43 while the rest (23) disagreed. The answers for this question inform us that the programme is satisfactory in this respect.

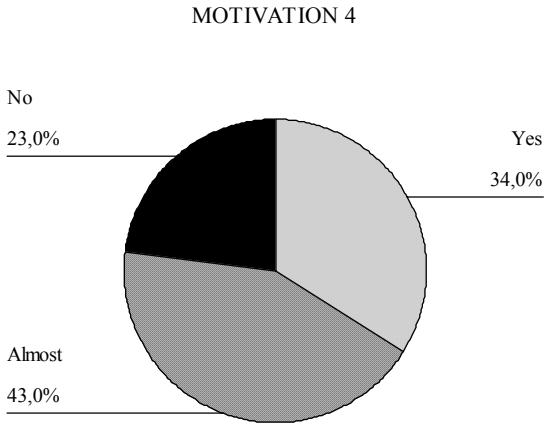

Figure 4.36 Pie chart for Question 4 of Motivation Criteria

When the answers at the pie-chart of the second question were taken into consideration, we see that a small number of the students (23) remarked "no" for this question. Thirty four of the students, as seen in the chart, did not face problems with this issue.

Table 4.45 E-Learners' response to Motivation Criteria 5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	35	35,0	35,0	35,0
	Almost	47	47,0	47,0	82,0
	No	18	18,0	18,0	100,0
Total		100	100,0	100,0	

In the fifthe and the last question of Motivation Criteria, the students commented whether the visual design (layout, colour choices, emblems, icons, etc.) was one that would appeal to the e-Learners initially and over the entire period of training. Of 100 participants, 35 of them said "yes". Forty-seven of them said "almost" while 18 of the participants chose "no". This means that the visual design of the course was satisfied.

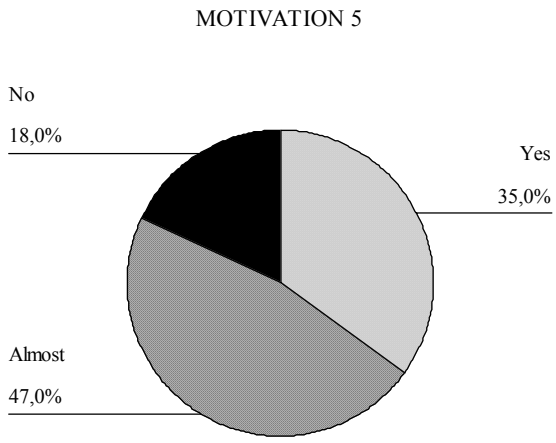

Figure 4.37 Pie chart for Question 5 of MotivationCriteria

The pie-chart of the last question in Motivation Criteria shows that 35 of the participants accepted this issue and only 18 of them did not accept. On the other hand, nearly half of the students ticked "almost".

Table 4.46 The statistical analysis of Motivation Criteria

		MOTIV 1	MOTIV 2	MOTIV 3	MOTIV 4	MOTIV 5
N	**Valid**	100	100	100	100	100
	Missing	0	0	0	0	0
Mean		1,4300	1,5600	1,6700	1,8900	1,8300
Std. Deviation		,6237	,6715	,7115	,7507	,7115
Range		2,00	2,00	2,00	2,00	2,00

Table 4.46 indicates the statistical analysis of the five questions of the Motivation Criteria. According to the table, the number of the respondents was 100, there were no missing respondents. The mean for the first question was 1,4300, the mean for the second question was 1,5600, for the third question it was 1,6700 , for the fourth question it was 1,8900 and 1,8300 was for the fifth question. Standard deviation for the first question was ,6237, ,6715 for the second, ,7115 for the third question, ,7517 for the fourth and standard deviation was ,7115 for the fifth question. The range is 2,00. If we look at the values in order, the closest value of significance is the value of Motivation 1.

4.3 Statistical Analysis in SPSS

In order to evaluate the validity and relevance of the questionnaire, two items which are harmonious with each other were selected randomly from different criteria. The results of these two items obtained were also analyzed by means of Chi-Square of Non-parametric Analysis in SPSS Programme.

4.3.1 Chi-Square Test of Technical 1 and Usability 4

Table 4.47 Frequencies in Chi Square for Technical 1

	Observed N	Expected N	Residual
Yes	86	33,3	52,7
Almost	9	33,3	-24,3
No	5	33,3	-28,3
Total	100		

The results of Technical 1 are shown in Table 4.47. The students stated whether the e-Learning programme ran on their computers or not in Technical 1. According to the questionnaire respondents, of the 100 e-Learners, 86 had no problems regarding this issue. The number of the students who ticked "almost" for this question was 9 while 5 students stated that the e-Learning programme did not run on their computers. In this respect we may say that the program for e-Learning ran on the e-Learners' computers.

Table 4.48 Frequencies in Chi Square for Usability 4

	Observed N	Expected N	Residual
Yes	69	33,3	35,7
Almost	28	33,3	-5,3
No	3	33,3	-30,3
Total	100		

Table 4.48 shows the results of Usability 4. Majority of the participants, here, pointed out that they could take the course without fear of more software crashes, server outages, and misformatted pages that were common with general Web-surfing. We may therein conclude that the participants did not face any problems.

Table 4.49 Test Statistics between Technical 1 and Usability 4

	TECHNICAL 1	**USABILITY 4**
Chi-Square	125,060	66,620
df	2	2
Asymp. Sig.	,000	,000

(a 0 cells (,0%) have expected frequencies less than 5.The minimum expected cell frequency is 33,3.)

Technical 1 and Usability 4 items were selected and analyzed by means of Chi-square because they show the most efficacious correlation with each other. The results in Table 4.49 appeared to be statistically significant since the value of Asymp. Sig. is less than 0,05. Thus, we may conclude that the participants did not face any problems regarding the criteria discussed in these items.

4.3.2 Chi-Square Test of Usability 3 and Control 4

Table 4.50 Frequencies in Chi-square for Usability 3

	Observed N	Expected N	Residual
Yes	76	33,3	42,7
Almost	19	33,3	-14,3
No	5	33,3	-28,3
Total	100		

The results of Usability 3 are shown in Table 4.50. In Usability 3 item of the Usability Criteria, the students were asked to distinguish whether they could predict the general result of clicking on each button or link. Most of the participants stated that they could but on the other hand, a small number of participants chose “no” for this question whereas 19 of them chooses almost. As a conclusion, we can be sure that the participants can predict the general result of clicking on each button or link.

Table 4.51 Frequencies in Chi-square for Control 4

	Observed N	Expected N	Residual
Yes	51	33,3	17,7
Almost	34	33,3	,7
No	15	33,3	-18,3
Total	100		

Table 4.51 shows the given answers of Control 4. The participants concluded whether the navigation and access mechanisms (menus, browsing trails, maps, indexes) were sufficient that they could find specific items of content. As we understand from the

table, fifty-one of 100 participants chose “yes”, 34 of them said “almost” and the rest said (15) “no”. According to the given answers we may conclude that there are no problems with this choice.

Table 4.52 Test Statistics between Usability 3 and Control 4

	USABILITY 3	**CONTROL 4**
Chi-Square	84,860	19,460
df	2	2
Asymp. Sig.	,000	,000

a 0 cells (,0%) have expected frequencies less than 5. The minimum expected cell frequency is 33,3.

Usability 3 and Control 4 items were observed because they show the closest correlation with each other and analyzed by means of Chi-square. The results in Table 4.52 appeared to be statistically significant since the value of Asymp. Sig. is less than 0,05. Thus, we understand that the participants are content with these issues.

4.3.3 Chi-Square Test of Instructional 4 and Motivation 3

Table 4.53 Frequencies in Chi-square for Instructional 4

	Observed N	Expected N	Residual
Yes	50	33,3	16,7
Almost	37	33,3	3,7
No	13	33,3	-20,3
Total	100		

The students were asked to remark whether the materials were presented in a logical sequence that helped learners understand in Instructional 4. the given answers are shown in Table 4.53. When we look at the table, we see half of the participants agreed that the materials were presented in a logical sequence that helped learners understand, thirty-seven of the participants chose “almost” for this question and thirteen ticked “no”. Taking the given answers as a base, we may say that the materials might be seen by the students as in a logical sequence that helped them understand.

Table 4.54 Frequencies in Chi-square for Motivation 3

	Observed N	Expected N	Residual
Yes	47	33,3	13,7
Almost	39	33,3	5,7
No	14	33,3	-19,3
Total	100		

In Motivation 3, the participants identified whether the difficulty of the course appropriately challenge, the e-Learners -not too hard or too easy. The answers the participants remarked are shown in Table 4.54. Nearly half of them (47) accepted “yes” and 39 of the participants chose “almost”. So, most of the participants agreed with this issue. On the other hand, a small number of the students disagreed and they chose “no”. According to the findings, we may conclude that the level of the course is neither too hard nor too easy.

Table 4.55 Test Statistics between Instructional 4 and Motivation 3

	INSTRUCTIONAL 4	**MOTIVATION 3**
Chi-Square	21,140	17,780
df	2	2
Asymp. Sig.	,000	,000

a 0 cells (,0%) have expected frequencies less than 5. The minimum expected cell frequency is 33,3.

Instructional 4 in Instructional Design Criteria and Motivation 3 in Motivation Criteria items were taken up because they show the most reasonable correlation with each other and analyzed by means of Chi-square in non-parametric tests. The results shown in Table 4.55 appeared to be statistically significant since the value of Asymp. Sig. is less than 0,05. We, therein, may conclude that the participants are content regarding the criteria discussed in these items.

4.3.4 Chi-Square Test of Instructional 5 and Control 1

Table 4.56 Frequencies in Chi-square for Instructional 5

	Observed N	Expected N	Residual
Yes	26	33,3	-7,3
Almost	30	33,3	-3,3
No	44	33,3	10,7
Total	100		

The participants, in Instructional 5 item, replied whether they could control the sequence of the materials presented in the lesson section on the platform. Table 4.56 shows the frequencies in Chi-square in Instructional 5. When the table was taken into consideration, we came to the conclusion that 26 of the students agreed that they were able to control the sequence of the materials. The number of the students who chose "almost" for this question was 30. Forty-four of the students, as in the chart, complained that they could not control the sequence of the materials. According to the findings, we may conclude that the participants could not generally change the material sequence

Table 4.57 Frequencies in Chi-square for Control 1

	Observed N	Expected N	Residual
Yes	38	33,3	4,7
Almost	23	33,3	-10,3
No	39	33,3	5,7
Total	100		

Frequencies in Chi-square in Control 1 are shown in Table 4.57. In this item, the participants commented on whether they could decide what parts of the course to, in which order, and what pace. In the table above, we see that 38 believed that they could control the parts of the course and 23 participants said "almost". On the other hand, the remaining 39 participants remarked "no". These may indicate that the participants could not control the parts, the order and the pace of the course.

Table 4.58 Test Statistics between Instructional 5 and Control 1

	INSTRUCTIONAL 5	**CONTROL 1**
Chi-Square	5,360	4,820
df	2	2
Asymp. Sig.	,069	,090

a 0 cells (,0%) have expected frequencies less than 5. The minimum expected cell frequency is 33,3.

Instructional 5 and Control 1 items were analyzed together by means of Chi-square because they show similarities with each other. The results displayed in Table 4.58 appeared to be statistically insignificant since the values of Asymp. Sig. which are more than 0,05, show different figures. According to the findings in Instructional 5, we may conclude that the participants could not generally change the material sequence. On the other hand, the results in Control 1 indicate that the participants could not control what parts of the course, in which order, and what pace. Asymp.Sig. is insignificant here as well.

4.3.5 Chi-Square Test of Content 1 and Media 1

Table 4.59 Frequencies in Chi-square for Content 1

	Observed N	Expected N	Residual
Yes	32	33,3	-1,3
Almost	47	33,3	13,7
No	21	33,3	-12,3
Total	100		

In Content 1, the students stated whether the material in the course was accurate and current or not. The given answers are shown on Table 4.59. According to the responses, 32 did not have problems regarding this specific issue. 47 students ticked “almost” for this question while 21 students deemed the material in the course as not accurate and current. The findings indicate that regarding the accuracy and currency of the course materials, there is more to do.

Table 4.60 Frequencies in Chi-square for Media 1

	Observed N	Expected N	Residual
Yes	37	33,3	3,7
Almost	39	33,3	5,7
No	24	33,3	-9,3
Total	100		

In Media 1, the students pointed out whether the written texts in the course were written at a level that they could fully understand. The results given by the participants are shown in Table 4.60. According to the table, thirty-seven of the participants accepted that the texts in the course were written at a level that the e-Learners could fully understand, and 39 of them chose “almost” but 24 of them faced problems with the texts in the course. In that respect, we may summarized that the texts were written at a level that most of them could understand.

Table 4.61 Test Statistics between Content 1 and Media 1

	CONTENT 1	**MEDIA 1**
Chi-Square	10,220	3,980
df	2	2
Asymp. Sig.	,006	,137

(a 0 cells (,0%) have expected frequencies less than 5. The minimum expected cell frequency is 33,3.)

Content 1 and Media 1 items were selected because they show the most reasonable correlation with each other and analyzed by means of Chi-square. The result of Content 1 shown in Table 4.61 appeared to be significant because the value of Asymp. Sig is less than 0,05. On the other hand, the result of Media 1 shown in the same table appeared to be statistically insignificant since the value of Asymp. Sig. is more than 0,05. The findings indicate regarding the written texts in the course, there is more to do.

4.3.6 Chi-Square Test of Usability 1 and Control 3

Table 4.62 Frequencies in Chi-square for Usability 1

	Observed N	Expected N	Residual
Yes	57	33,3	23,7
Almost	28	33,3	-5,3
No	15	33,3	-18,3
Total	100		

The given answers assessing by 100 participants are displayed in Table 4.62. The participants stated that the combination of on-screen instructions and online help was sufficient for them to learn to navigate and operate the course. As the given answers are displayed in the table, majority of the participants stated that the combination of on-screen instructions and online help was sufficient for them to learn to navigate and operate the course. The remaining 15 had problems. With these findings, this means that the combination of on-screen instructions and online help was sufficient for the participants to learn to navigate and operate the course.

Table 4.63 Frequencies in Chi-square for Control 3

	Observed N	Expected N	Residual
Yes	72	33,3	38,7
Almost	24	33,3	-9,3
No	4	33,3	-29,3
Total	100		

Table 4.63 shows the result of Control 3 whether the e-Learners knew where they were. They stated that not only they always knew where they were and by examining page titles, constantly displayed menus, or other location indicators, they could deduce their current location in the course. In the table above, we see that most of the students (72) are content with the question. In this respect, we can say that there are no problems with the menus and the indicators.

Table 4.64 Test Statistics between Usability 1 and Control 3

	USABILTY 1	CONTROL 3
Chi-Square	27,740	73,280
df	2	2
Asymp. Sig.	,000	,000

a 0 cells (,0%) have expected frequencies less than 5. The minimum expected cell frequency is 33,3.

Usability 4 in Usability Criteria and Control 3 in Control Criteria items were taken up to analyze by means of Chi-square because they seem to be the most reasonable correlation with each other. The results shown in Table 4.64 appeared to be statistically significant since the value of Asymp. Sig. is less than 0,05. We, therein, may conclude that the combination of on-screen instructions and online help was sufficient for the participants to learn to navigate and operate the course.

4.3.7 Chi-Square Test of Instructional 3 and Media 3

Table 4.65 Frequencies in Chi-square for Instructional 3

	Observed N	Expected N	Residual
Yes	33	33,3	-,3
Almost	59	33,3	25,7
No	8	33,3	-25,3
Total	100		

Table 4.65 shows the frequencies in Chi-square in Instructional 3. The e-Learners remarked whether the animations were suitable for the units in the lesson section. The given answers are displayed in the table. We see that 33 of 100 students stated that the animations in the units were suitable. The number of the students choosing “almost” for this question was 59 while a small number of the students (8) ticked that the animations were not suitable. The answers for this question also signal that the programme is satisfactory in this respect.

Table 4.66 Frequencies in Chi-square for Media 3

	Observed N	Expected N	Residual
Yes	64	33,3	30,7
Almost	33	33,3	-,3
No	3	33,3	-30,3
Total	100		

Table 4.66 displays the given answers in Media 3 in Media Criteria. The participants were asked to comment whether the graphics (illustrations, graphs, diagrams, etc.) were used appropriately, to communicate visual and spatial concepts. In the Media Criteria section, the third question was about whether the graphics (illustrations, graphs, diagrams, etc.) were used appropriately, to communicate visual and spatial concepts. In the table, we see that a very small number of students, only 3 of 100, stated that the graphics were not used appropriately while the majority of the students (64) are content with the question. In this respect, we can say that there are no problems with the graphics.

Table 4.67 Test Statistics between Instructional 3 and Media 3

	INSTRUCTIONAL 3	**MEDIA 3**
Chi-Square	39,020	55,820
df	2	2
Asymp. Sig.	,000	,000

a 0 cells (,0%) have expected frequencies less than 5. The minimum expected cell frequency is 33,3.

Table 4.67 shows the test statistics between Instructional 3 in Instructional Design Criteria and Media 3 in Media Criteria items. These items were selected to analyze by means of Chi-square because they have the most reasonable correlation with each other. The results shown in Table 4.67 appeared to be statistically significant since the value of Asymp. Sig. is less than 0,05. The given answers for these questions shows that the programme is satisfactory in this respect.

4.4 Analysis of the Interviews

After the administration of the questionnaire, randomly selected 20 students were interviewed. They were asked totally nine questions and commented on various aspects of the e-Learning programme (See Appendix 3). The answers gained showed a similar pattern.

In the first question the students were asked to compare and contrast the education in a regular classroom and education by e-Learning. The biggest difference the students expressed about these two forms of education was that the interaction between the teacher and the students in a regular classroom was missing in e-Learning programme. According to what they experienced, this made learning more difficult. By interaction, they believed, understanding the subjects, and learning would be much easier. However, they were trying to understand everything by only books, which was highly depressing for them. Studying alone and having no opportunities to discuss the subjects with the teachers led them to memorisation, thus they stated that, in the future, they did not believe that they would benefit from what they had been studying. Such an education dependant on memorisation, as they complained, did not help in the exams. Another difference they mentioned was the use of time. In the e-Learning programme, they have the chance to manage their time as they wished. On the contrary, in a regular classroom setting they had to obey the time schedule. In this respect, they find e-Learning more advantageous because most students were both studying and at work at the same time.

When asked about the advantages and disadvantages of classroom setting and e-Learning programme, we come to the conclusion that the students thought that a regular classroom setting was believed to bear more advantages than an e-Learning programme. First of all, they stated that learning would be easier in a classroom because they would be able to ask what they did not understand to their teachers and also the classmates would be of help. In addition, they could practice what they studied in a classroom setting, and eventually they would learn permanently. In a classroom, they would benefit from audio-visual aids which would support learning. Finally, they pointed out that they do not feel themselves as real university students because they do not have such a psychology as they do not go to school.

On the other hand, they thought that e-Learning bears some advantages. The most important advantage was that e-Learning was time saving. As they mentioned answering the first question, they said that by e-Learning they were able to continue their education without leaving their jobs. However, some students complained that they had to pay all the money they earned for their education fees. In their opinion, e-Learning programme was very expensive.

In the third question, the students were asked whether they felt the need for a teacher to consult in any phase of the e-Learning programme. All the interviewees stated that they needed a teacher while they were studying because they had questions in mind but had nobody around to ask for help. Some students told that especially learning a foreign language without a teacher is very difficult, even impossible, and that they had to attend some evening classes to solve their language problems. This, eventually, led them to spend more money for their education.

As the fourth question, the students talked about the instances when they most needed a teacher. Without exception all the interviewees complained that they needed a teacher when they did not understand something. Another instance when they needed a teacher was when they were doing their assignments. Regarding the fifth question on how they solved this problem, they said either they could not do anything and ignored their problem or they looked through other sources to find solutions.

When they were asked about the biggest problem they experienced in the e-Learning programme, the students uniformly complained about the lack of student-teacher interaction, lack of audio- visual aids such as CD's, videos, extra and supplementary materials, and self-study modes in addition to high cost of e-Learning programme. In the following question when they were asked how they managed to overcome these problems they indicated that they studied more, met friends and worked in groups when possible, consulted to more experienced or knowledgeable people. In terms of financial problems, some worked overtime while some others asked for bank loans to afford the school fees. Some of the interviewees stated that they were able to solve neither their educational nor financial problems.

As the final question, the students were asked what things, in their opinion, could be done to make this e-Learning programme more fruitful and effective. The students' answers reveal three main problematic areas; technical problems, problems related with books, lessons they take in classroom and exams they take, and finally financial problems. The major issue the students emphasised was the need to improve

the e-Learning programme by visualising the lessons, starting the use of on-line web-cam connections to classrooms and/or uploaded classes, preparing presentations of the lessons in video format, and including lesson CD's in the book packages they receive. As they claim, they face difficulties in reaching the chat room, and this, together with the e-Learning platform have to be modified, improved and modernised. Moreover, they demand that they should attend compulsory regular classes not only at the end of the semester as it is at the moment but also at least two or three times each semester. In terms of the books they use, they do not seem very content and say that the books can be revised and more detailed versions can be prepared. Accordingly, test techniques requiring the application of acquired knowledge rather than memorisation through new versions of the books, supplementary materials, audio-visual support, should be used. Finance- wise, they propose to reduce the education fees and pay the fees in two or three instalments.

To realise an overall improvement, the students say that the school should take an established foreign e-Learning programme as a model, modernise and make changes on their programme parallel to the features of this modern programme.

4.5 Analysis of Messages in the Student Affairs Forum

In Student Affairs Forum, the e-Learners write about the problems they generally face while they are in the platform. They sometimes get a help in this forum by asking questions to the teachers or the administrators. They also help each other by writing to this forum. The help they offer each other may be about a download program, an innovation about computer, an experience on a computer programme and the like. During 2005-2006 academic year, we see that totally 380 students sent messages to this forum in the platform. In order to bring more insight to the study, these messages were read and their content was analysed. At the end of the analysis, it was found that 267 of the messages were directly related with the e-Learners' problems. These can be categorised under six headings. These are the problems they faced regarding the troubles in the exams, technical issues, fees, accommodation, cargo services and finally the documents the e-Learners need.

Table 4.68 Analysis of Student Messages in the Student Affairs Forum

n 380	Problems emerged in Student Affairs Forum					
	Problems while taking exams	Problems with Technical Issues	School Fees	Problems for Accommodation	Problems with Cargo Services	Problems with having Documents
Frequency	121	79	38	10	7	12

Regarding the exams, the e-Learners complain that they face a lot of troubles during the mid-term exams on the computer. As they point out they have to answer the questions in a limited time, press the finish button and send the answers. Achieving all these in time is not always enough, as they write, because most of the time the page gives errors. Eventually, the answers can not be sent which leads to failing the exams. Students write about the instances when they are asked 25 questions in the mid-term exams and they are asked to reply the questions in 60 minute-time and send the results back by pressing finish button. As they state, sometimes they reply the questions within 40 minutes and send the answers but the platform does not accept the answers because it gives error. Therefore the students have 20 minute-time left to start from the very beginning, answer the questions and send back. They complain that they cannot manage it. This ends up with receiving low scores in the mid-term exams.

The second type of problem raised by e-Learners concerns the issue of techniques. The e-Learners can not contact with their teachers on the chat-room in the platform because the chat room can not always be displayed. The students mainly complain about this issue. Two important parts of e-Learning are said to be communication and collaboration. Especially synchronous communication like in the chat-rooms requires learners to be online at the same time. The e-Learners, here, follow the units on their computers, but when they have problems there is not a place where they can contact their teachers online. This appears to be a handicap for the e-Learners.

In the Fees, 38 of the e-Learners complain that the fees are high. They compare the fees with the e-Learning programmes of other vocational schools in Turkiye such as Sakarya Vocational School in Sakarya University or Mersin Vocational School in Mersin University. As we see the advantages of the e-Learning programmes (see Section 2.5 page 15), the main benefit in e-Learning programmes is saving the costs.

This is one of the major reasons why the e-Learners prefer these programmes. The students of Adana Vocational School Ç.Ü. estimate that they have to pay the most expensive school fee of all the other e-Learning programmes in Turkiye. This, eventually, makes this programme less advantageous than the other programmes in other universities.

During the final exam periods, the e-Learners come to Adana both for taking their final exams and in class lessons which last two weeks. The school organises places for the students to stay and they are informed about these places, and their prices. These places are generally the dormitories in Adana such as Fevzi Çakmak and Sabancı, and a private dormitory named Neşe, the guesthouse of DSİ, Öğretmenevi and Hekimevi. The only thing that they should do is to book their rooms two days before they arrive. However, they complain about the difficulty of finding places to stay at which sounds unfair.

Another problem discussed in the students' forum is the delay in Cargo Services. Normally, the students have to be sent the books at the beginning of each semester. Some of the e-Learners state that they cannot get the books until one month after the beginning of the term. This is because the school can assign only one person to deal with the printing and pressing the books. At the beginning of some terms, sometimes the can not be made ready. Even if the books are completely ready, they have to be compiled and packed. Here again, only one person is compiling and packing the books and handing them to the cargo services. Sometimes there are mistakes too. For example, while compiling the books, English book is put into the cargo parcel instead of Mathematics book, so the student receives two English books but no mathematics book. The student then sends one of the English books back to be changed with the Mathematics book. This consumes time and it takes the student two or three weeks to have all the books right completely. Thus, some of the e-Learners are sent the books as delayed.

Lastly, the e-Learners say that they can't get a document they need within a fortnight or sometimes nearly a month. They ask the Student Affair Office to send a Certificate of Student to get a Student-Pass for the buses in their cities, or to adjourn their Military Service, or to get a scholarship from Prime Ministry or other institutions. When the Certificate is delayed, the student will not get a scholarship or they are summoned to the Military Service.

CHAPTER 5

CONCLUSION

5.1 Summary of the Study

This study looked for answers to totally four questions related with the e-Language learning programme offered in Adana Vocational School of Çukurova University. The first question the answer of which the study sought was whether this programme met the commonly accepted criteria for e-Learning programmes. Next, the e-Learners' views regarding the effectiveness of the programme and the problems they faced were investigated. Finally, probable solutions to the existing problems were discussed by the recipients of this programme. In order to come to conclusions on the research questions, various data collection tolls were used. First of all, totally 100 e-Learners were given a questionnaire to find out about their views on certain criteria for a typical e-Learning programme. In other words, they answered questions about technical, content, instructional design, practice and feedback, usability, media, navigation and control, and motivation criteria. Following that, 20 students were interviewed based on the answers they gave to the questionnaire questions. In addition, students were invited to the forum on the platform for discussion about their problems and what things, in their opinion, could be done to improve this e-Language learning programme. Twenty-four volunteering students responded to this call. As the last step, the content of the 380 messages the students sent to the student affairs forum was analysed to bring more insight to the students' discussions about different aspects of the e-Language learning programme.

5.2 Conclusion to Research Question 1.

Does the e-Language Learning programme in the Ç.Ü. Adana Vocational School meet the commonly accepted criteria for e-Learning?

Every institution has its own Instructional Management System (IMS) and Learning Management System (LMS). In order to learn whether the e-Learning

programme offered in Ç.Ü. Adana Vocational School meet the commonly accepted criteria for e-Learning, we should compare the criteria in IMS and LMS in Adana Vocational School with AICC, DCMI, IEEE LTSC, IMS or ADL SCORM which supports all of the others as a Learning Design or Content Packaging. To conclude, in such a program, following items should support the platform.

1 USER PROFILE SERVICE

User Profile Service is known as Learner Profile Service. Because, this service in fact deals with defining how to exchange learner information among different learner information systems. Learner information is a collection of information about learners of learning content

In SORM2004 2nd Edition version, there are three different types of user in the system:

System Manager is responsible for establishing and maintaining the system, forming new user profiles and managing their knowledge and managing the learning materials and system tools.

Teacher is the responsible for opening and managing the new lessons, management of the assistants and the students taking their lessons.

Learner is the type of user participating the lesson

User Profile Service indicates:

- Creation of new user accounts
- Modification of existing user accounts, including changing properties and course assignments.
- Deletion of user accounts which are not needed any more
- Grading and statistical reports of users

User Profile Service in Vocational School, as in SCORM, provides adding, deleting and updating the User's profile. It also identifies and locates Users.

2 CONTENT MANAGEMENT SERVICE

This is the sub-system which provides necessary processes for the lessons to be given. As in commonly accepted criteria, this service opens the course wizard, which is the main tool for a manager to create a new course skeleton and creates new lessons and removes the selected lessons in the platform, adds or deletes the lessons on User's own page, adds or deletes the User's from the lesson page and uploads the units weekly for Users to follow. It also modifies and manages the learning materials.

3 SEQUENCING SERVICE

This service provides a method for consistently describing the flow of learning activities through learning content depending on the User's interaction with the system.

Apart from the content package, new sequences may be prepared regarding the students' level of knowledge.

4 TRACKING SERVICE

Tracking service is responsible for the tracking, reporting and keeping learner progress and performance, transferring the data obtained to a different IMS. This service works as a reporting unit. In Vocational School there is not a service dealing with this item.

5 DELIVERY SERVICE

This service provides the lesson to be uploaded into the platform. The mainly tasks of this service are:

- Indicating the next source
- Uploading the next source

6 TESTING / ASSESSMENT SERVICE

The projects and homework related with the lessons while the students take should be given by means of web-based. In this respect, these items should be taken into the consideration.

- Introduction of projects/homework and uploading to system
- Providing students to reach projects/homework and related sources.
- Collecting projects/homework in on-line
- Giving feedback to the students
- Assessing and grading the projects/homework
- Announcing the grading results to the students on web page.

7 LEARNING MATERIALS

For the lessons uploaded in the platform, some learning materials should be added. These are:

- Glossary (especially for the Computer Programming, because the students are not satisfied with the terms)
- Frequency asked questions (because the students asks the same question a lot of times)
- Schedules
- Syllabus (the students do not know the next sources)

- Course Catalogue
- References and Related Source Links

8 SYNCHRONOUS TOOLS

Following synchronous tools may be added into the system:

- Chat-rooms for two or more students to join
- Hand raising
- Live cam / audio-visual tools
- Whiteboards
- Uploaded classes

Synchronous communication tools, such as text and voice chat, shared whiteboards, uploaded classes and video conference systems, offer the possibility for real-time communication. Users, which are online at the same time, can discuss matters in a way which comes closest to face-to-face communication.

9 ASYNCHRONOUS TOOLS

Following asynchronous tools may be added into the system as well.

- Discussion Lists
- News and announcement lists
- E-mail lists
- Adds
- Personal note-book

5.3 Conclusion to Research Question 2.

What do the recipients think about the effectiveness of this programme?

The students of the e-Learning programme answered totally three questions about the technical criteria of their programme (see Section 4.2.1). When we look at the answers given, we see that the students seem content with issues such as running the programme on their PC's, downloading processes and not having to obtain other installation and additional software in order to follow this programme.

In the content criteria section, the students had three questions to answer (see Section 4.2.2). They stated that they found the accuracy and currency of the material as almost sufficient, they needed more support as the course did not, in their opinion, cover the subject in sufficient breadth and depth to meet their objectives, and they found the course as partly free of production errors.

Regarding instructional design criteria, the students commented on four different issues (see Section 4.2.3). In terms of the type of the course, that is, whether the e-mail correspondence design was the best choice, more than half of the students found the design as the best choice. When asked to comment on whether the learners could take the course in the chat room on the platform without any difficulties, 81% of the respondents complained that they had too many problems with reaching the chat room. However, they appeared to be more positive when asked about the animations, and generally either approved or almost approved the way animations were used. The students commented that the materials were presented in a logical sequence, that they could generally change the sequence of the materials, the abstract concept were generally illustrated with specific examples, test and other assessment items measure their improvement, and finally diagnostic pre-tests were available to help them custom tailor learning to their needs.

Practice and feedback criteria consisted of three questions (see Section 4.2.4). The answers indicate that the students held the belief that they were given the opportunities to practice the skills immediately after that were presented, they were prepared to apply learning to their jobs, the feedback and practice activities and tests were sufficient to help them to recognise and correct misconceptions.

In terms of usability criteria, four questions were asked to the e-Learners (see Section 4.2.5). The findings show that the students thought that the combination of on-screen instructions and on-line help were sufficient for the participants to learn to

navigate and to operate the course, they knew what to do when they got stuck or had questions, they could predict the general result of clicking on each button or link, and they could take the course without the fear of more software crashes, server outages and misformatted pages that were common with general web-surfing.

In media criteria, the students commented that the texts were written at a level that they could fully understand, there were no problems about the texts in the course, the graphics, photographs and pictures were used appropriately, the multi-media content modules were used where simple words and pictures were not adequate. However, they stated that the course was not suitable for people with visual and hearing impairments.

The next section which consisted of four question about navigation and control criteria. The answers reveal that the students could control the parts, the order and the pace of the course; however, more than half of the respondents had problems when they took the units out of sequence without becoming confused. They pointed out that the navigation and access mechanisms were sufficient that they were able to find specific items of content.

Motivation was the last issue asked to the students. This section consisted of five questions. The analysis of the answers shows that the students believed that the course and each lesson initially made clear to the e-Learners what hey gained from the course, the content of the course was not too hard or too easy, each unit directed them to study, and visual design of the course was satisfactory.

To conclude, the e-Learners' answers to the questionnaire questions reveal that they were generally content with the e-Language Learning programme they were offered in Adana Vocational School of Çukurova University.

5.4 Conclusion to Research Question 3.

What are the problematic issues regarding the e-Language Learning programme from the students' point of view?

Although the students responded the questionnaire questions highly positively, their answers to interview questions and the messages they sent to both the student affairs forum and to the researcher on the problems they faced during their course reveal that, in fact, they had major problems related with this programme. The mostly cited

problem was the lack of visual aids, the lack of Turkish explanations, lack of sample exam questions and extra materials and problems related with the books. (see Section 4.1). In addition to these problems, the students found exam taking procedures problematic. According to what they wrote each other in their messages, in some cases the exam page can not be displayed on their computers, or when they wanted to send back the exams by pressing the finish button, the page disappears. They find correspondence with their teachers highly difficult as the chat room in the platform is can not always be reached. Fees are one of the issues they students complain about. As they state, the fees are too high; in fact, they argue that they have been paying the highest amount among the e-Learning programmes offered in Turkiye. Another problem discussed in the messages was the delay in the cargo services. Regarding this problem, they give instances when they can not receive their books or some documents they are sent by the school. This delay sometimes leads students to facing bigger problems such as not getting scholarships or even summoning to the military service when they are still at school (see Section 4.5).

5.5 Conclusion to Research Question 4.

What probable solutions can be offered to these problems?

Regarding the problems experienced in the e-Learning Programme of Adana Vocational school of Çukurova University, we may offer solutions from a combination of two perspectives. First, on the basis of the findings reached at the end of the comparison and contrast of this programme with the set of commonly accepted criteria for e-Learning programmes and second, we may take into account the e-Learners' problems and offer related solutions to these problems.

At the end of the comparing and contrasting process of the programme and the common criteria for such programmes, we see that some aspects of the sequencing service, tracking service, testing assessment service, learning materials, synchronous tools, and asynchronous tolls are missing in the programme.

The lack of certain aspects of the sequencing service creates problems related with the flow of activities depending on learners' interaction with the system (see Section 5.2). As this is directly related with the students' personal improvement and studying styles, the existence of such a feature would enrich the programme in terms of students' satisfaction and achievement. As the students complain that in most cases, they do not decide how to study and what to do to overcome this problem; this would be of much help for the students.

One of the problems faced at Adana Vocational school is that students can not follow their own improvement. As the students do not have a constant interaction with their teachers, such a feature would serve as a teacher providing them with feedback on their achievement. Students who are able to track their levels, and who are provided with appropriate activities according to their pace and improvement would find it much easier to study alone and learn.

Testing and assessment services as mentioned above would help students with their projects and forthcoming exams, for the projects they have to do, assessing their performances. Among the messages sent by the students to the student affairs forum, we see that the discussions on what to do in the exams; how to study for the exams cover a wide area (see Section 4.5.). In these respects, this should somehow be added to the programme features.

Another problematic issue is that the programme lacks self study mode. The e-Learners can reach the book followed on the web but other than the book they do not have much opportunity to study alone. Learning materials which will lead them to self study will probably raise the learning outcomes. In addition, the students will gain confidence and fell less isolated.

Lastly, synchronous and asynchronous tools are not included in this programme. These are what the students mostly complain about (see Section 4.3)among the tools, we may count chat rooms, live cams and audio-visual tools, smart boards, uploaded classes or discussion lists, news and announcement lists, e-mail lists, adds and personal notebooks. When we go back to the students' views on the problems they experienced (see Section 4.5), we see that the most important problem cited was the lack of interaction and communication with both the teachers and the administrators at school. If such features are included in this programme, most of the problems will be overcome.

We may suggest that the administrators of the school could assign teachers to visit universities where established e-Learning programmes are offered, explore and

make a decision on additional features to adopt for the improvement and standardisation of this programme. In addition, in terms of the delays in the printing and cargo services, the school may assign more people and may manage to put an end to this problem.

5.6 Implications and Suggestions for further Research

In Adana Vocational School of Çukurova University 6200 students are enrolled. In addition to this number, there are 144 e-Learners. About 100 new e-Learners are expected to come this year. In contrast to this vast student population, only three administrators and 18 teachers work at the school. These teachers teach both regular students and the e-Learners. In spite of the administrators' and the teachers' goodwill and hard work, problems inevitably arise due to the population. The most important step to take for the improvement of the e-Learning programme seems to be having more teaching staff.

When we specifically, talk about the e-Language learning programme, we see that a lot of things are needed to make to programme more beneficial on behalf of the students. Language teaching and learning is dependant on communication and interaction. However, this is not possible in this programme. In order to manage this, at least web-cams which are not that costly can be used in the classrooms. This way, the e-Learners will have the opportunity to follow the lessons when they wish. New materials, by which the e-Learners can hear, practice the language and study the language alone should be prepared. Chat rooms should be modified so that the only means for the e-Learners to reach their teachers for their questions would not be blocked frequently. Systems which allow students to speak to their teachers should be used. This will both eliminate the students' feeling of isolation from the learning teaching atmosphere, and also provide e-learners with opportunities to hear the target language from their teachers.

To conclude, we may say that both the e-learners and the teachers of this programme need help and improvement for better learning outcomes.

Regarding the suggestions for further research, we can say that this study is limited to the happenings in Adana Vocational School. Other universities offering e-learning programmes and e-language learning programmes can be explored and the results can be compared and contrasted with the findings of this study.

REFERENCES

AICC, (2001), "*Aviation Industry CBT Committee (AICC)", CMI Guidelines for Interoperability.* Document No. CMI001, 2001.

Auringer, I. (2005), "Aspects of e-Learning Courseware Portability", *Dissertation Thesis*, Graz University of Technology, Graz.

Billings, F., & Moursund, K. (1988), "*History of e-Learning".* *https//www.educause.edu/ir/library/pdf/erm514.pdf* (August 14, 2006)

Carr S. (2000), "As distance education comes of age, the challenge is keeping the students",
The Chronicle of Higher Education, Vol.46. No.23. pp.39-41.

DCMI Press (2000), "*e-Learning Takes Important Step Forward - Metadata Standards Leaders IEEE LTSC LOM and DCMI Begin Designing Future Metadata Architecture for Web-based Learning, Education and Training*", *press article Dec. 06, 2000. http://dublincore.org/news/communications/pr-20001206.shtml* (July 20, 2006).

Dietinger, T. (2003), "Aspects of e-Learning Environments. Institute for Information Processing and Computer Supported New Media (IICM)", *Unpublished Dissertation Thesis.*Graz University of Technology, Graz.

DoD, (1991), "*U.S. Department of Defence",* Instruction Number 1322.20, 1991.

eINK, (2002), "*E INK, Toppan and Philips demonstrate world's first high resolution, Active-matrix colour display with electronic ink*", *E Ink Corporation Press Release, 2002. http://www.eink.com/news/releases/pr62.html* (July 20, 2006)

eLearnFrame Report, (2000), Facts, Figures & Forces behind e-Learning. *E-LearnFrame*-August, 2000. New York, N.Y.

Flood, J. (2002), *Online Learning Facing 80% Rates – Tojde* (April-2002): ISSN: 1302-6488.

Hodgins W. (2001),"*Into the Future: A Vision Paper*", *Commission on Technology and Adult Learning. http://www.learnativity.com/download/MP7.PDF* (July 20, 2006).

Hodgins W., Wason T., Duval E. (2002), "*Learning Object Metadata (LOM)*", *IEEE Learning Technology Standards Committee (LTSC). July 15th 2002. http://ltsc.ieee.org/doc/wg12/LOM_1484_12_1_v1_Final_Draft.pdf* (July 28, 2006).

Holzinger A., & Maurer H.(1999), "*Incidental learning, motivation and the Tamagotchi Effect: VR-Friend, chances for new ways of learning with computers*", *CAL99: Virtuality in Education, Abstract Book*; pp.70, 1999, London: Elsevier. *http://ang.kfunigraz.ac.at/~holzinge/vrfriends/vrf at cal 99/index.htm* (July 20, 2006).

IEEE (1990), *Institute of Electrical and Electronics Engineers: IEEE Standard Computer Dictionary: A Compilation of IEEE Standard Computer Glossaries*, New York, NY: 1990.

Jacobson J.(1997,."*The last book*", *IBM Systems Journal Volume 36, Number 3, 1997. http://researchweb.watson.ibm.com/journal/sj/363/jacobson.html* (July 28, 2006).

Leinonen, T. (2005), "*Critical History in Education – and where we are heading?*" *https//www.educause.edu/ir/library/pdf/erm518.pdf* (June 10, 2006).

Maurer H., & Sapper M. (2001), "E-Learning has to be seen as part of General Knowledge Management", *Proceedings of ED-MEDIA2001, Tampere, AACE, Charlottesville*, VA(2001), pp.1249–1253.

Moore M.G. (1993), "Theory of Transactional Distance", In D. Keegan (Ed.), *Theoretical Principles of Distance Education*. pp.22-38. New York: Routledge.

Ostyn C. (1999), "*Proposed base document for a Draft Standard for Competency Definition Data Objects*", *v0.2c, Dec. 5 1999*, *IEEE LTSC Competency Definition WG20 & Click2learn. Inc. http://ltsc.ieee.org/doc/wg20/CompDefInit.doc* (July 28, 2006)

Ravet S. (2001), "*Raising the Standard of e-Learning", Prometeus Newsletter 5, March 2001. http://www.prometeus.org/news/PROMETEUS_Newsletter5.pdf* (May 30, 2006).

Rovai A.P. (2002), *Building Sense of Community at a Distance. International Review of Research in Open and Distance Learning* (April -2002): 3.1, ISSN: 1492–3831.

Steed A.(1999), "Data Flow Languages for Immersive Virtual Environments, in Virtual Worlds on the Internet", *IEEE Computer Society*, New York, 1999.

Tastle, W. (2002), "Markup Language Diagramming: A Method to Enhance Web Page Design," *Proceedings of ISECON 200219, Foundation for Information Technology Education,* (411b), San Antonio, ISSN: 154-7382 (2002).

APPENDIX 1

Yazar : Öğretim Elemanı **Çetin İlin**
Tarih: 20.06.2006 20:03:20

Sevgili Arkadaşlar,

Uzaktan Eğitimde İngilizce ile karşılaştığınız problemler ve problemleri nasıl çözdüğünüz, ayrıca e-Learning ‘de ve kitapta bulunan zayıf ve güçlü yönlerle ile ilgili görüşleriniz gerekiyor.
Şimdiden teşekkür ederim.

Öğr.Gör.Çetin İlin

APPENDIX 2

Uzaktan Eğitim Değerlendirmesi

Teknik Kriterler	Evet	Hemen hemen	Hayır
1. Uzaktan Eğitim Programı bilgisayarımda çalışıyor.			
2. Gönderilen dosyaları kolaylıkla indirebiliyorum.			
3. Ek bir program yüklemeden derslerimi takip edebiliyorum.			

İçerik Kriterleri	Evet	Hemen hemen	Hayır
1. Ders içerikleri güncel ve ilgim çerçevesinde belirlenmiş.			
2. Konular öğrenmem için yeterince geniş ve derinlemesine hazırlanmış.			
3. Ders sayfası, linkler, grafikler ve tablolar bakımından hatasız olarak hazırlanmış.			

Eğitim Dizaynı Kriterleri	Evet	Hemen hemen	Hayır
1. Elektronik posta dizaynı uygun.			
2. Platformdaki sohbet odasında ders sorunsuzca işlenebiliyor.			
3. Animasyonlar uygun.			
4. Materyaller bir mantık düzeni içerisinde sunulmuş.			
5. Materyallerin sırasını isteğime göre değiştirebiliyorum.			
6. Soyut kavramlar somut örneklerle (resim, tablo vs.) ile açıklanıyor.			
7. Sınavlar gelişimimi takip etmemi sağlıyor.			
8. Gelişimimi takip edebilmem için ön testler var.			

Uygulama ve Dönüt Kriterleri	Evet	Hemen hemen	Hayır
1. Konular sunulduktan sonra öğrendiklerimi uygulama şansım var.			
2. Uygulama aktiviteleri beni mesleğime hazırlamak için yeterli.			
4. Uygulama aktiviteleri ile hatalarımın farkına varıp düzeltebiliyorum.			

Kullanabilirlik Kriterleri	Evet	Hemen hemen	Hayır
1. Ekrandaki butonlar ve on-line yardımlar ile sitede kolayca dolaşarak dersi izleyebiliyorum.			

2. Takıldığımda veya sorunlarım olduğunda ne yapacağımı biliyorum.			
3. Tıkladığım buton ya da linkin beni nereye götüreceğini biliyorum.			
4. Bu dersi alırken, site, bilgisayarımda herhangi bir soruna yol açmıyor.			

Medya Kriterleri	Evet	Hemen hemen	Hayır
1. Dersteki metinler tümüyle anlayabileceğim düzeyde yazılmış.			
2. Metinler yalnızca varsayılan browser ayarları ve fontta okunabiliyor.			
3. Grafikler doğru bir biçimde kullanılmış.			
4. Resimler doğru bir biçimde kullanılmış.			
5. Fotoğraflar doğru bir biçimde kullanılmış.			
6. Kelime ve resimlerin yetersiz kaldığı yerlerde multimedia içerik modülleri kullanılmış.			
7. Ders içeriği görme ve duyma engellilere yönelik olarak hazırlanmış.			

Dolaşım ve Kontrol Kriterleri	Evet	Hemen hemen	Hayır
1. Konuların ünitelerini, sırasını ve hızını kendim kontrol edebiliyorum.			
2. Konuların sıralarını değiştirdiğimde sorun yaşamıyorum.			
3. Menüler, sayfa başlıkları, ikonlar ile dersin neresinde olduğumu takip edebiliyorum.			
4. Ders içeriğinde herhangi bir şeyi aradığım zaman menüler, haritalar, indexler bana yol gösteriyor.			

Motivasyon Kriterleri	Evet	Hemen hemen	Hayır
1. Bu dersi almakla kazanımlarımın ne olacağını biliyorum.			
2. Her konudaki kazanımlarımın ne olacağını biliyorum.			
3. Konular ne çok kolay ne de çok zor.			
4. Konular beni çalışmaya yönlendiriyor.			
5. Konuların görsel düzeni (renkler, ikonlar, amblemler vs.) iyi.			

Bu bölümde uzaktan eğitim programımızın daha verimli olabilmesi için önerilerinizi yazınız.
1.
2.
3.
4.
5.

Adapted from William Horton Consulting, Inc. (2001)

APPENDIX 3

Interview with Students

1. Genel olarak Uzaktan Eğitim ile ilgili düşünceleriniz nelerdir?
2. Bir sınıf ortamında aldığınız derslerle uzaktan eğitim dersleri arasında ne gibi farklar görüyorsunuz?
3. Sınıf ortamındaki eğitimle uzaktan eğitimi karşılaştırdığında:
    a. Sınıf ortamının avantajları/dezavantajları nelerdir?
    b. Uzaktan eğitim programının avantajları/dezavantajları nelerdir?
4. Uzaktan eğitim sürecinde herhangi bir zamanda bir öğretmenin yanında olmasının gerektiği anlar oldu mu?
5. Özellikle hangi aşamalarda bu ihtiyacı hissettiniz? (Hissetmediyse neden böyle bir şeye gerek kalmadı)
6. Bu sorunun üstesinden nasıl geldin?
7. Uzaktan eğitim programı ile ilgili yaşadığın en önemli sorun ne oldu?
8. Nasıl bir çözüm buldun?
9. Bir uzaktan eğitim öğrencisi olarak deneyimlerini göz önüne aldığınızda, bu daha yararlı olabilmesi için neler önerirsiniz?

APPENDIX 4

MEB - YÖK MESLEK YÜKSEKOKULLARI
PROGRAM GELİŞTİRME PROJESİ

PROGRAMIN ADI	**BİLGİSAYAR TEKNOLOJİSİ VE PROGRAMLAMA PROGRAMI**
DERSİN KODU VE ADI	**İNGİLİZCE-I**
DERSİN İŞLENECEĞİ DÖNEM	**1.Yıl I. Yarıyıl**
HAFTALIK DERS SAATİ	**4 (Teori:4, Uygulama:0, Kredi:4)**
DERSİN SÜRESİ	**56 Saat**

AMAÇLAR

1. Yabancı dilde yazı veya söz ile anlatılmak isteneni doğru olarak anlayabilme.
2. Amaca uygun yazım tekniğini kullanarak anlaşılır şekilde yazabilme.
3. Anlatılmak isteneni anlaşılır bir şekilde sözle ifade edebilme.

ÖZEL AÇIKLAMALAR

Bu müfredat hazırlanırken öğrencilerin orta öğretimde Beginner ve Elementary düzeyde yabancı dil öğrenimini gördükleri göz önünde bulundurulmuştur. Farklı seviyelerde bir sınıf oluşturabilecek sayıda öğrenciler olduğu takdirde seviye tespit sınavı sonucunda farklı kurlarda sınıflar oluşturulabilir. Seviyesi farklı öğrencilerin sayısı bir sınıf oluşturmayacak kadar az olduğunda ileri seviyedeki öğrencilere alanları ile ilgili tercüme, döküman hazırlama gibi ödevler, alt seviyedeki öğrencilere ise kendilerini geliştirecek ek ödevler ve kaynaklar verilebilir. Öğrencilerin dilin kullanımını doğal ortamda görmeleri ve daha kolay anlamaları için imkanlara göre seviyelerine uygun video kasetleri izletilebilir. Öğretilen yapılara örnek verilirken alanları ile ilgili konulardan örnek seçilebilir. Konuların işlenişinde öğrenci merkezli

yöntem uygulanması, öğreticilerin daha çok yönlendirici ve yönetici konumunda olması daha yararlı olabilir. Öğrencilere üniteler işlendikçe alanları ile ilgili grup ödevleri verilerek yarıyıl sonuna doğru dosya halinde toplanarak değerlendirilebilir. Öğrenci sayısı az olan sınıflarda bu proje ödevlerin sunumları sözlü olarak yapılabilir.

DEĞERLENDİRME TABLOSU

Konu ve öğretim tarzına göre yapılmış olan çalışmaların konu alanlarına göre yüzdelikleri aşağıdaki tabloda verilmiştir. Dönem sonu sınav soruları hazırlanırken bu yüzdelikler dikkate alınacaktır.

KONULAR	***Konu Alanlarının Ağırlıkları(%)***
A. Konuşma	20
B. Dinleme-Anlama	20
C. Yazma	20
D. Okuma-Anlama	40

KONULAR

A. Konuşma

AMAÇ : Yabancı dili anlaşılır bir şekilde konuşabilme.

DAVRANIŞLAR

1. İş ortamında selamlaşır, hatır sorar, kendini tanıtır, bir üçüncü şahsı tanıştırır.

1.1. Present simple (to be) / subject pronouns / possessive adjectives pronouns

2. Direktif verir, rica ve isteklerde bulunur, iş ortamındaki kişilerle ilgili bilgi almak için soru sorar, sorulan sorulara cevap verir.

2.1. Commands / object pronouns / modal verbs (can, could, will, would, may)

3. İşe girmek için yapılan görüşmelerde kendisi ile ilgili istenilen bilgiyi verir. İş ortamında diğer çalışanlarla ilgili bilgi verir, soru sorar.

3.1. Can (to express ability) / adjectives / adverbs

3.2. Present simple (main verb) affirmative, negative, interrogative forms)

4. Önerilerde bulunur, önerilere cevap verir.

4.1.Let's ..... / Shall we .....? / Why don't we .....? / How about .....?

5. Problem sorar. Bu tür sorulara cevap verir.

5.1. What's the matter? / What's the matter with .....?

6. Zaman ve yer sorar, bu tür sorulara cevap verir.

6.1. Ordinal numbers / prepositions of location./ time expressions

7. Miktar ve sayı sorar, miktar ve sayı bildirir.

7.1. Adverbs of quantity (any, some, only a little, only a few, ...) / countable-uncountable nouns / How many - How much.

8. Telefonla konuşma tekniğini bilir. Tekliflerde bulunur.

8.1. Would like / would like to ... / Would you like me to ...?

9. Devam etmekte olan bir işlevle ilgili bilgi verir, bilgi edinmek için soru sorar.

9.1. Present progressive (affirmative, negative, interrogative forms)

9.2. Present progressive (for future meaning)

10. Gereklilik, tavsiye bildiren ifadeleri kullanır.

10.1. Must / have to / need / should / ought to

11. Geçmişte yer alan olaylardan bahseder, bilgi edinmek için soru sorar.

11.1. Was/were / past time expressions

11.2. Past simple (main verb)

B. Dinleme – Anlama

AMAÇ : Normal hızda konuşulduğunda konuşmacıdan gelen mesajı anlayabilme.

DAVRANIŞLAR

1. A (Konuşma) konusunda belirtilen yapıları anlar.
2. İş ortamında kullanılan eşya ve malzemelerin adlarını ve fonksiyonlarını anlar.
3. Alanı ile ilgili konularda dinlediğini anlar ve cevap verir.
4. Dinlediğinden genel bilgi sahibi olur.
5. Dinlediğinin bütününden ilgilendiği bilgiyi seçer.
6. Anlamını bilmediği kelimelerin anlamını dinlediğinin içeriğinden tahmin eder.

C. Yazma

AMAÇ : Dil bilgisi ve yazım kurallarını uyarak amaca uygun yazabilme.

DAVRANIŞLAR

1. Noktalama işaretlerini (imla kurallarını) doğru kullanır.
2. Dinlediği veya okuduğu ile ilgili gerekli bilgileri not alır.
3. Direktifler yazar.
4. Dilbilgisi kurallarına uygun cümle kurar, olayları veya bilgileri önem ve oluş sırasına göre sıralar.
5. Özgeçmiş (Curriculum Vitae) yazar.
6. Kişisel mektup ve mesaj yazar.
7. Bir cismi, mekanı veya kişiyi sıfatlar kullanarak tanımlar.
8. Davetiye yazar.
9.

D. Okuma – Anlama

AMAÇ : Yabancı dilde okuyabilme ve okuduğunu anlayabilme, kelime dağarcığını geliştirebilme.

DAVRANIŞLAR

1. A (Konuşma), konusunda belirtilen yapıları anlar.

2. Bir işletmenin organizasyon şemasını ve şemada yer alan şahısların görevlerini ve sorumluluklarını anlar.
3. Alanı ile ilgili okuduğu bir parçayı anlar.
4. Edilgen yapıdaki cümleleri anlar.
5. “and / but” gibi bağlaçları anlar.
6. “when / while / before / after / until” gibi zaman bildiren bağlaçları anlar.
7. “because / so / therefore” gibi sebep, sonuç bildiren bağlaçları anlar.
8. “if / unless / in case” gibi koşul bildiren yapıları anlar.
9. Bir kataloğu inceleyerek içeriğini anlar.
10. Okuduğundan genel bir fikir edinir.
11. Okuduğundan ilgilendiği bilgiyi seçer.
12. Okurken karşılaştığı bilmediği kelimelerin anlamlarını cümle yapısından veya konudan tahmin edebilir.
13. Sözlükten arayıp bulduğu bir kelimenin uygun karşılığını seçebilir.

PROGRAMIN ADI	**BİLGİSAYAR TEKNOLOJİSİ VE PROGRAMLAMA PROGRAMI**
DERSİN KODU VE ADI	**AKADEMİK İNGİLİZCE(ESP)**
DERSİN İŞLENECEĞİ DÖNEM	**1.Yıl II. Yarıyıl**
HAFTALIK DERS SAATİ	**4 (Teori:4, Uygulama:0, Kredi:4)**
DERSİN SÜRESİ	**56 Saat**

AMAÇLAR

1. Yabancı dilde yazı veya söz ile anlatılmak isteneni doğru olarak anlayabilme.
2. Amaca uygun yazım tekniğini kullanarak anlaşılır şekilde yazabilme.
3. Anlatılmak isteneni anlaşılır bir şekilde sözle ifade edebilme.

ÖZEL AÇIKLAMALAR

Gerek duyulduğunda birinci yarıyılda öğretilen önemli yapıların kısa bir tekrarı yapılabilir. Öğrencilerin okudukları alanlarla ilgili değişik kaynaklardan diyaloglar, paragraflar, tablolar, şemalar vb. örnekler seçilerek bunlar üzerinde çalışmalar yapılabilir. Dinleme-izleme çalışmalarına yer verilebilir, çalışmaların öğrenci merkezli olması daha yararlı olabilir. Öğrencilere üniteler işlendikçe alanları ile ilgili grup ödevleri verilerek yarıyıl sonuna doğru dosya halinde toplanarak değerlendirilebilir. Öğrenci sayısı az olan sınıflarda bu proje ödevlerin sunumları sözlü olarak yapılabilir.

DEĞERLENDİRME TABLOSU

Konu ve öğretim tarzına göre yapılmış olan çalışmaların konu alanlarına göre yüzdelikleri aşağıdaki tabloda verilmiştir. Dönem sonu sınav soruları hazırlanırken bu yüzdelikler dikkate alınacaktır.

KONULAR	*Konu Alanlarının Ağırlıkları(%)*
E. Konuşma	20
F. Dinleme-Anlama	20
G. Yazma	20
H. Okuma-Anlama	40

KONULAR

A. Konuşma

AMAÇ : Yabancı dili anlaşılır bir şekilde konuşabilme.

DAVRANIŞLAR

1. Yön sorar, yön tarif eder.

   1.1. Adverbs of location / noun clauses

2. Tercih yapar, tercih sorar.

   2.1. Prefer / would rather

3. Bir işlemin, işin nasıl yapıldığını sorar, anlatır.

   3.1. Adverbs of manner / Adverbial Clauses of Manner.

4. Bir ürünü, avantajı, alanı ile ilgili işleri kıyaslar.

   4.1. Comparative / Superlative forms

5. Gelecekten bahseder, gelecekle ilgili tahminlerde bulunur.

   5.1. Will / Going to

6. İhtimallerden tahminlerden bahseder.

   6.1. Possible / probable / modal verbs (may, might, can, could, must) with present progressive and past forms.

7. Bir durumu, işlevi edilgen yapı kullanarak anlatır.

   7.1. Passive voice (present, past, future, modals)

8. Geçmişte olmuş, ancak etkisi süren veya geçmişte başlamış hala devam eden durumları ifade eder.

   8.1. Present perfect tense (affirmative, negative, interrogative forms) / just, already, yet, still, since, for, ever, never.

9. Bir işin, işlemin amacını açıklar.

   9.1. Adverbial clauses of purpose (so that, in order to, so as to, to).

10. Benzerlik ve farklılıkları bilir ve ifade eder.

    10.1. The same as / different from

11. Sebep, sonuç sorar ve ifade eder.

    11.1 Adverbial clauses of reason (because, since, as, due to, owing to, because of, on the ground of ...)

    11.2.Adverbial clauses of result (so, therefore, that's why, so ... that, such ... that.

B. DİNLEME – ANLAMA

AMAÇ : Normal hızda konuşulduğunda konuşmacıdan gelen mesajı anlayabilme.

DAVRANIŞLAR

1. A (Konuşma) konusunda belirtilen ifadeleri ve konuları anlar.
2. Alanı ile ilgili konularda dinlediğini anlar ve cevap verir.
3. Dinlediği cümlelerdeki vurgu ve tonlamaları farkeder.
4. Dinlediği cümleler veya kelimelerdeki kısaltmaları anlar.
5. Kelime başlarına veya sonlarına gelen yapım eklerini anlar.
6. Dinlediğinden genel bilgi sahibi olur.
7. İstediği belli (spesific) bilgiyi dinlediğinin bütününden seçer.

C. YAZMA

AMAÇ : Dil bilgisi ve yazım kurallarını uyarak amaca uygun yazabilme.

DAVRANIŞLAR

1. Dinlediği veya okuduklarından not alır.
2. Alanı ile ilgili formları, tabloları, şemaları doldurur.
3. İş mektupları yazar.
4. Bir işlemi edilgen yapı kullanarak yazar.
5. Okuduğu veya dinlediği (direct) ifadeleri dolaylı biçimde (indirect form) aktarır, hikaye eder.

D. OKUMA-ANLAMA

AMAÇ : Yabancı dilde okuyabilme ve okuduğunu anlayabilme, kelime dağarcığını geliştirebilme.

DAVRANIŞLAR

1. A (Konuşma), konusunda belirtilen yapıları anlar.
2. "too / enough" gibi terimleri anlar.
3. Zıtlık bildiren ifadeleri anlar (although, whereas, while, in spite of, despite, however, on the other hand...).
4. "Relative clause" yapılarını anlar.
5. "Post modifier" kısaltılmış relative clause yapılarını anlar.
6. "Noun Clause" yapılarını anlar.
7. "Infinitive / gerund" yapılarını anlar.
8. Okuduğundan genel bir fikir edinir.
9. Okuduğundan ilgilendiği bilgiyi seçer.
10. Okurken karşılaştığı bilmediği kelimelerin anlamlarını cümle yapısından veya konudan tahmin edebilir.
11. Sözlükten arayıp bulduğu bir kelimenin uygun karşılığını seçebilir.

ÖZGEÇMİŞ

KİŞİSEL BİLGİLER

Adı – Soyadı	Ş.Çetin İLİN
Bölümü	Çukurova Üniversitesi Adana Meslek Yüksekokulu
Doğum Tarihi	17.06.1960
Doğum Yeri	Adana
Medeni Durumu	Evli
Adres	Çukurova Üniversitesi Adana Meslek Yüksekokulu Beyaz evler 01 160/ Adana
Telefon	0 322 226 41 60 – 226 41 64
Telefax	0 322 226 41 49
E-mail	cetinilin@cu.edu.tr
Askerlik durumu	Genel Kurmay Bşk.lığı 185.Dönem – Tercüman (1985–1986)

ÖĞRENİM DURUMU

Yük. Lisans	Ekim, 2006	Ç.Ü. Sosyal Bilimler Enstitüsü İng. Dili Eğt.ABD
Lisans	Haziran, 1984	Çukurova Üniversitesi İngiliz Dili Eğitimi.ABD
Pedagojik Formasyon	1982	Adana Yabancı Diller Yüksekokulu
Ön Lisans	1978 – 1982	Adana Yabancı Diller Yüksekokulu
	1977 – 1978	° Brookside College Cambridge / England
		° Sussex College A-Level Courses for Textile Engineering Hastings / England

DENEYİMİ

Tarih	Kurum		Görev
2005 –	T.C. Başbakanlık DPT – AB Eğitim ve Gençlik Programları Merkezi Başkanlığı		Bağımsız Dış Uzman
2003 –	Çukurova Üniversitesi Adana Meslek Yüksekokulu		İng. Okutman
2001 – 2002	Ç.Ü.Müh. Mim. Fakültesi	Elektrik – Elektronik Mühendisliği	İng. Okutman
	Ç.Ü.Müh. Mim. Fakültesi	Endüstri Müh.	İng. Okutman
	Ç.Ü.Müh. Mim. Fakültesi	Mimarlık	İng. Okutman
	Ç.Ü.Müh. Mim. Fakültesi	Adana Meslek Yük.okulu	İng. Okutman
2000 – 2001	Ç.Ü.Müh. Mim. Fakültesi	Tekstil Mühendisliği	İng. Okutman
	Ç.Ü.Müh. Mim. Fakültesi	Çevre Mühendisliği	İng. Okutman
	Ç.Ü.Beden Eğt.Spor Yüksekokulu		İng. Okutman
	Ç.Ü.Güzel Sanatlar Fakültesi		İng. Okutman
1994 – 2000	Ç.Ü.Sabancı Yabancı Dil Eğitim Merkezi (YADİM)		
1986 – 1994	İlke Dil Eğitim Merkezi – ADANA		Kurucu - İng.Öğret.
1982 – 1986	Güney Eğitim Merkezi		İng.Öğretmeni

ÜYELİKLER

2002 – 2003	Ç.Ü Yadim Kalkındırma Güçlendirme Derneği	Başkan
2000 – 2002	Ç.Ü Yadim Kalkındırma Güçlendirme Derneği	Üye
1997 – 2000	Ç.Ü Yadim Kalkındırma Güçlendirme Derneği	Kurucu Üye
2000 – 2002	Ç.Ü Yadim We Care Komitesi	Başkan
1996 – 2000	Ç.Ü Yadim We Care Komitesi	Üye
1977 – 1994	Adana Ticaret Odası	Üye

Ç.Ü. – VERDİĞİ DERSLER

2003–	Ç.Ü.Adana Meslek Yüksekokulu		° Uzaktan Eğitim ° Genel İng. ° Mesleki Yabancı Dil
2001 – 2002	Ç.Ü.Müh. Mim. Fakültesi	Elektrik – Elektronik Mühendisliği	° ESP for Electronics ° Technical English
	Ç.Ü.Müh. Mim. Fakültesi	Endüstri Müh.	Genel İngilizce
	Ç.Ü.Müh. Mim. Fakültesi	Mimarlık Bölümü	Genel İngilizce
	Ç.Ü.Müh. Mim. Fakültesi	Adana Meslek Yük.Okulu	Genel İngilizce
2000 – 2001	Ç.Ü.Müh. Mim. Fakültesi	Tekstil Mühendisliği	Genel/Mesleki İngilizce
	Ç.Ü.Müh. Mim. Fakültesi	Çevre Mühendisliği	Genel İngilizce

	Ç.Ü.Beden Eğt.Spor Yüksekokulu	Genel/Mesleki İngilizce
	Ç.Ü.Güzel Sanatlar Fakültesi	Genel İngilizce
1994 – 2000	Ç.Ü.Sabancı Yabancı Dil Eğt. Merkezi	Listening
	Ç.Ü.Sabancı Yabancı Dil Eğt. Merkezi	Speaking
	Ç.Ü.Sabancı Yabancı Dil Eğt. Merkezi	Core Language
	Ç.Ü.Sabancı Yabancı Dil Eğt. Merkezi	Translation