EFFECTS OF WEB-BASED MULTIMEDIA ANNOTATED VOCABULARY
LEARNING IN CONTEXT MODEL ON FOREIGN LANGUAGE
VOCABULARY RETENTION OF INTERMEDIATE LEVEL ENGLISH
LANGUAGE LEARNERS

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ABSTRACT

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The aim of this study was to investigate the effects web-based multimedia annotated vocabulary learning in context model and in spaced repetitions on vocabulary retention of intermediate level English language learners. The research study encompassed two main faces which was related to development of the material and implementation of it. In WEBVOCLE, which stands for web-based vocabulary learning material, the contextual presentation of vocabulary were enriched with audible online dictionary, pictures and animations; target words were repeated by the learners with interactive exercises, such as gap-filling, cloze and multiple choice test, games, puzzles, in 'spaced repetitions'.

In the study both qualitative and quantitative data were gathered through attitude questionnaires, checklists, interviews, focus group interviews and through vocabulary retention tests. The qualitative data were analyzed according to qualitative data analysis techniques and quantitative data were analyzed using SPSS statistics software. Feedback obtained from the learners demonstrated that they not only developed a positive attitude toward English vocabulary language learning but also increased their vocabulary retention level of the target vocabulary through spaced repetitions.

Keywords: Spaced Repetition, Web-based Learning, Vocabulary, Retention, Contextual Guesswork

ÖZ

BAĞLAM MODELİNDE WEB-TABANLI ÇOKLUORTAM İLE SUNULAN KELİME ÖĞRENMENİN ORTA DÜZEYDE DİL ÖĞRENENLERİN YABANCI DİL KELİME HATIRLAMA DÜZEYLERİNE ETKİSİ

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Bu çalışmanın amacı web-tabanlı çoklu ortam destekli bağlam modelinde ve aralıklı tekrar ile sözcük öğrenmenin orta düzeyde İngilizce öğrenen öğrencilerde sözcüklerin hatırda kalıcılığına etkisini ölçmektir. Araştırma materyalin geliştirilmesi ve uygulanmasını içeren iki temel aşamadan oluşmaktadır. Web-tabanlı sözcük öğrenme materyali'nde (WEBVOCLE) bağlam içerisinde sunulan sözcüklerin takdimi sesli çevrimiçi sözlük, resim ve animasyonlar ile zenginleştirilmiş, hedef sözcükler boşluk doldurma, çoktan seçmeli alıştırmalar, oyunlar, bulmacalar gibi etkileşimli alıştırmalar ile aralıklı tekrarlar yardımıyla öğrencilere tekrarlattırılmıştır.

Bu çalışmada tutum anketi, denetim listesi, görüşmeler, grup görüşmeleri ve sözcük hatırlama testleri ile hem nitelik hem de nicelik veri toplanmıştır. Niteliksel verilerin analizi nitel veri analizi yöntemleriyle yapılmıştır niceliksel veri ise SPSS istatistik yazılımı kullanılarak yapılmıştır. Öğrencilerden elde edilen veriler göstermiştir ki, öğrenciler İngilizce sözcük öğrenmeye yönelik pozitif yönde bir tutum değişikliği geliştirmişler aynı zamanda aralıklı tekrarlar ile hedef sözcüklerin hatırda kalıcılığı açısından ilerleme kaydetmişlerdir.

Anahtar Kelimeler: Aralıklı tekrar, Web-tabanlı öğrenme, sözcük dağarcığı, hatırda kalıcılık, bağlamdan tahmin etme

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CHAPTER I

INTRODUCTION

This section reveals the justification for the research issue by presenting background to the study, purpose of the study, the research questions and significance of the study. Besides these, the essential terms for the study were defined and finally limitations of study were explained.

1.1. Background to the Study

The rapid growth of computers and equally Internet has aroused an interest in the area of education. Although the notion of face-to-face classroom instruction is still very prevalent at many organizational and educational settings with a steady increase rather than a decrease (Galvin, 2001 cited in Molenda and Sullivan, 2003), there is a rush and enthusiasm for e-learning ventures. It is a fact that the changes in society, business and technology limit the impact of traditional learning today and this seems likely to go on in the future. Unfortunately, the revolution creating a rapid expansion of computers and related computer software at educational settings has been so rapid that most of the products are devoid of the necessary research. That is to say, much of the efforts have turned out to be disappointing experiences because of pushing too many untested products to the market, unawareness of e-learning realities and how to use them, and lack of a dominant design (Zemsky & Massy, 2003). Most of the commercialized programs lack a pedagogical basis and a solid research preceding them; therefore, when it comes to utilization of these programs, they often have disappointing results. They are "particularly vulnerable when it comes to the issue of users' needs being addressed" (Ma & Kelley, 2006, p.3).

In fact, many research studies have been carried out in order to find differences on the achievement of learners between Web-based and conventional training so far. However, most of the efforts to reach differences ended with no difference results. The studies on technology with language learning have usually been comparative

studies on the effectiveness of a new technology with more traditional ways of learning. Actually, there is a need for studies evaluating the instructional methodology of technology supported language learning and teaching environments so that one can determine the nature of educational software. As Blomeyer (1984) stated in Illinois School report, many computer-based foreign language teaching materials had design, content and technical shortcomings making them unusable by foreign language teachers in public school. Herron and Moos (1993, as cited in Adair-Hauck, Willinham & Youngs, 1999) replicated the same concerns by stating that the major concern of foreign language teaching is how to integrate new technology into instruction. Similarly, Frommer (1989) states that today the common question is not whether to utilize from computer-based language learning or not but to use this technology in education pedagogically rather than technically. As emphasized by LeLoup and Ponterio (2005), most research studies indicate that L2 (stands for second language) learning is facilitated by pedagogically sound instruction. Therefore, this study focuses on the method more than the media. In a web-based environment, called here after with the acronym WEBVOCLE and which stands for Web-based Vocabulary Learning System, learners are exposed to pre-learned words in a variety contexts with comprehension exercises and some other exercises such as gap-filling, true-false, multiple choices, cloze tests, puzzles and games in pre-determined intervals.

Language learners often have problems with learning new vocabulary and retention of words. If asked, most language learners are bothered with forgetting learned words though they study on them for along time. So, what is the trick here? Is it to study words and put them away and not touch until there is an exam one needs to pass or to repeat them time to time till one completely places them in his long-term memory? According to the findings of a study simulated by the CALL program "CAVOCA" by Groot (2000), repeated exposure to words at certain intervals is essential for the long-term retention of the words. However, there is often not enough time for appropriate exposure to new words of the same intensity as in the first language acquisition. In another study, it was found by Dhaif (1990) that students look upon the computer to provide them with more practice in language learning

items and would like to see vocabulary exercises more often than other language learning exercises such as multiple-choice grammar exercises in their computer labs. Moreover, specific to Dhaif's study, students think that computer-lab sessions have helped them to improve their vocabulary.

Today, with the help of web and by using its advantage of flexibility, reaching the learners at any time and any place, the vocabulary could be reminded to learners in a distributed format through a system, which might provide learners with pre-designed spaced repetitions. These repetitions might include context-based foreign language words either as a text with comprehension questions or in the form of exercises such as matching, multiple-choice, etc. exercises. What is emphasized here is that with the help of today's technology learners can frequently be exposed to words within a range of contexts, that is, they can be easily provided with the necessary repetition mechanism that is essential in learning a foreign language vocabulary and retention. Moreover, the repetitions can be customized by meeting the learners or designers expectations.

Regarding vocabulary teaching, there are lots of techniques. The research findings on traditional ways of teaching vocabulary mostly indicate not a clear superiority of one technique to any other. Yet, a research on a French Vocabulary Tutor for the Web has indicated that students comparatively found computer-based vocabulary learning with sound more helpful than those who used the computer without sound but only with pictures and those who used traditional methods (Labrie, 2000). However, what is more important for the language learners more than the technique vocabulary presented with is the amount of vocabulary study they are provided either in-class teaching or on web applications. In a study by Davies (2006), it was found that learners overwhelmingly requested more vocabulary input and they were enthusiastic for their vocabulary development. Today, there is a need for further research both on the effectiveness of the techniques of vocabulary teaching and retention and the use of software implementing these techniques with various exercises. Moreover, as stated by Duquette et al. (1998, as cited in Segler, Pain & Sorace, 2002) there needs to be investigation in the establishment of a comprehensive taxonomy of vocabulary

learning strategies in computer-assisted language learning/multimedia type environments. Literature review emphasizes the necessity of computer assisted vocabulary learning and instruction that is based on sound theoretical principles and the deficiency of these studies on the production of computer-based materials in CALL (Van de Poel, & Swanepoel, 2003; Nikolova, 2002).

As a consequence, justification of the merits of a web-supportive material at vocabulary teaching was not the scope of this study, but the issue centers on what underlining factors contribute to this web material's effectiveness or usage which would give way to identifying the reasons behind the effective systems and failed ones. Supporting the views of Clark (1983) in the well-known methodology or media debate in which he claims that where learning benefits are at issue, it is the method, aptitude and task variables of instruction that should be investigated because the studies comparing the relative achievement of one medium over another inevitably confound medium with method of instruction, this study focuses on the method more than the media. Supporting Clark's view, Ma & Kelley (2006) suggest that the quality of CALL program is determined by the importance it gives to methodology more than the computer technology. Thus, the design model of the software WEBVOCLE, was equipped with the necessary theoretical underpinnings and constructed to ensure the quality of English language vocabulary retention. The software merged both the technological and pedagogical knowledge in CALL design. The theories supporting the backbone of the web material depended on the research studies of memory, forgetting, psychology of human learning, and information coding. As suggested, use of context which requires indepth processing of vocabulary and based on constructivism to present a word increases the effectiveness of vocabulary learning and retention (Nation, 1990; Nikolova 2002). The contextual presentation of the words in WEBVOCLE was enriched with audio and visual multimedia resources and the retention of the words was enhanced with 'spaced repetitions' (Ebbinghaus, 1885; Pimsleur, 1967 as cited in Waring, 2004) in a web-supported environment. This study attempted to prove that technology might enhance or at least improve retention of vocabulary for intermediate level learners with repetitions given not at one time but over time with spaced repetitions. In a web-

based environment, learners were exposed to pre-learned words in different texts with True-False exercises and some other exercises such as matching, gap-filling, cloze and multiple choice tests which would help learners become familiar with the meaning and usage of words by practicing and rehearsing in various contexts. Moreover, as suggested by Canning-Wilson (2001) the modules and the exercises were created in sequence in a logical order and they were pedagogically sound.

1.2. The Purpose of the Study

The purpose of this study was mainly; to discover the influence of a web-based multimedia environment encompassing a spaced repetition design as a supplementary material on the English language vocabulary retention of intermediate level university prep class learners; to identify the perceptions of learners towards the web-based material and the changes in the attitudes of learners towards English language vocabulary learning and web-based English language vocabulary learning; and to investigate the changes in the vocabulary retention levels of learners. That is, the results of this study was thought to shed light on the fact that provision of annotated vocabulary in context with spaced repetitions through a web-based material could facilitate and enhance English language vocabulary retention. It is additionally hoped that the amount of effort required to learn a word, especially for the unlearnt words in class would be reduced by this material.

1.3. Research Questions

This study aims to answer the following research questions:
- What are the effects of demographic characteristics of learners on vocabulary learning while using the web-based material?
  - Gender
  - The place of access to technology (e.g at home, in residence halls, at Internet cafes)

- What are the perceptions of learners about the benefits and difficulties with the use of Web-based material in the learning of English Vocabulary during and after using the material?
  - What are the perceptions of learners regarding the use of web based material?
  - What are the perceptions of learners regarding the way of learning new vocabulary through a web-based material?
  - What are the perceptions of learners regarding the way of learning new vocabulary with spaced repetitions?
  - What are the perceptions of learners regarding the way of learning new vocabulary within contexts?
- Is there a significant difference in the attitudes of learners' towards web-based English language vocabulary learning before and after the implementation?
  - Is there a significant difference in the attitudes of learners' towards English language vocabulary learning before and after the implementation?
- Does WEBVOCLE have an impact on the learners' English language vocabulary retention?
  - How learners improve their English language vocabulary retention by the help of the web-based material?

1.4. The Significance of the Study

As many authors stated, the use of Internet in second language education in recent years has been launched by the wide use of Information Communication Technologies (ICT) (Liao, 1999; Liou, 2000; Shetzer & Warschauer, 2000; Warschauer, 2000 as cited in Young, 2003). As aforementioned, computers are respected to be powerful tools supporting the process of teaching and learning and it is declared that ICT has particularly changed the language-learning environment and settings. Concerning this, a study examining the effects of integrating ICT into second language education concluded that students who are passive and intimidated

by English writing/composition became interested in this lesson when the instruction is integrated with Internet. Students find new technology interesting, motivating and useful. Moreover, this technology transformed learning from a traditional, passive experience to one of discovery, exploration and excitement by enhancing learners' critical thinking, problem solving and communication skills (Young, 2003). Similarly, regarding technology use in language learning Jones (1999) found that web based materials are excellent tools especially if viewed in the proper perspective, as a starting point rather than a complete solution in teaching and this is more true for language instruction in which creativity and interactivity are so essential. As for vocabulary learning, Dong and Yanquing (2004) examined the effects of two types learning support on Chinese children's English vocabulary learning in a multimedia context and concluded that learning vocabulary through animation-based context was too difficult for young beginners when no learning support was provided. Because children without learning support were only attracted by superficial English language animations and they paid little attention to the English input. Yet, a combination of contextualized and decontextualised learning support was effective in facilitating the children's vocabulary learning in a multimedia animation-based context. These results are consistent with previous research studies on adults' language learning in a text-based context (Groot, 2000).

Regarding the choice of vocabulary strategy and its effect on retention, Laufer and Shmueli (1997, as cited in Nation, 2001) uttered that lack of context is thought to make vocabulary learning difficult and the words taught in isolation are generally not remembered and/or easily forgotten. Whereas, contextual presentation was found to be more effective for language learning and retention (Nation, 1990; Nikolova, 2002; Groot, 2000). In another study Kolich (1991) found out that word meaning when solely associated with a definition or synonym does not help student to acquire the in depth knowledge necessary to recognize the word in other contexts. Jenkins, Stein & Wysocki (1984) found that vocabulary gains increased as the number of times learners met words in context increased.

On the other hand, rehersals or repetions have a significant effect on the retention of vocabulary. This was investigated in numerous research studies (Waring, 2004; Waring and Takaki, 2003; Horst, Cobb & Meara, 1998; Groot, 2000; Webb, 2007, Dobinson, 2006; H. Bahrich, L. Bahrick, A. Bahrick & P. Bahrick, 1993; Fidan, 2003; Tokaç, 2005). However, as Wozniak (1995) stated most of the previous research studies were the application of equally spaced repetition but not different spaced repetitions. Moreover, spaced repetitions in periods longer than one week was very scarcely studied (Glenberg, 1980 as cited in Wozniak, 1995). Thus, it is clear that there is a need for further research on spaced repetition procedure measured in longer periods and its use in vocabulary learning and retention; varying strategy use for the presentation of words and its effect on vocabulary retention in a web-based environment.

In the light of these findings, the present study aimed to reveal; the effects of demographic characteristics (gender and the place of access to Internet) of learners on vocabulary retention after using the web-based material, WEBVOCLE; the effects of the opportunities supplied with multimedia resources such as sound and pictures designed for teaching of vocabulary; the attitudinal changes and perceptions of learners regarding web-based material and finally and most significantly contribution of the web-based material encompassing spaced repetition design to learners' English language vocabulary retention levels. Use of context-based vocabulary teaching, online dictionary and audio/visual representation, namely, presenting information more than one standpoint are supposed to create elaborative processing of vocabulary and encourages encoding variability which in turn can increase vocabulary retention of learners (deWinstanley & Bjork, 2002).

Differing from previous studies, this study applied all standpoints in one case and investigated the effects of using all together for enhancing vocabulary retention of learners. It is hoped that this study will contribute to the literature by supplying clarification for the limitations declared in previous studies.

1.5. Definition of Terms

Vocabulary Retention

Vocabulary retention refers to keeping vocabulary in long term memory and retrieving it for meaningful use in appropriate contexts.

Spaced Repetition

It is a learning technique in which repetitions of the same vocabulary items are provided with increasing intervals in order to allow one to remember new information for a long time. Throughout the application of this technique, the repetitions of vocabulary items were done not in a massed way but through spaced intervals.

WEBVOCLE

It was used as the acronym for 'web-based vocabulary learning material' throughout the study. The system provided the repetition of target vocabulary in various contexts in the form of texts and exercises within changing spaced intervals which was hypothesized to help enhancement of vocabulary retention.

Computer-Assisted Language Learning (CALL)

It is the application of computer technology to language teaching and learning in which computers are used as an aid to the presentation, reinforcement and assessment of material to be learned.

Web-based Instruction (WBI)

It is the application of web-based technologies for the purposes of instruction. It is a method of teaching and learning supported by the attributes and resources of the Internet.

Computer Based Instruction (CBI)

CBI is a method of teaching in which a computer is utilized as the medium of instruction. CBI has several types including tutorials, simulations, drill & practice and games.

English as a Second language (ESL)

"A second language is a language which is not a native language in a country but which is widely used as a medium of communication (e.g. in education and in government) and which is usually used alongside another language or languages. English is described as a second language in countries such as Fiji, Singapore, and Nigeria" (Richards, Platt & Platt, 1992, p. 143).

English as a Foreign Language (EFL)

"A foreign language is a language which is taught as a school subject but which is not used as a medium of instruction in schools nor as a language of communication within a country (e.g. in government, business, or industry). English is described as a foreign language in France, Japan, China, etc." (Richards, Platt & Platt, 1992, p. 143).

Contextual Guesswork

In language teaching, attention has turned to ways in which learners can be trained to take more responsibility for how and what they learn, and organizing vocabulary learning is a particularly productive area for the encouragement of learner autonomy. One the most common strategies that students employ while learning a word is making guesses and inferences about new words by using the context (Mc Carthy, 1990). This is called contextual guesswork. In the study, contextual guesswork was applied and learners were expected to deduce meanings of the target vocabulary from the contexts provided by WEBVOCLE which was taught to enhance English language vocabulary retention.

1.6. Limitations of the Study

The limited sample of the group from one university was not necessarily representative of any larger population of preparatory school students. Moreover, because the researcher was the teacher of two participant classes, it is possible that learners might have over-reported on the effectiveness of the web-based material. The results are, therefore, highly limited by the honesty of the participants.

The selection of the vocabulary for the web material probably represented the single most important decision the researcher had to make. As being a supplementary material, vocabulary choice was based on the course book which was decided in the pilot study. It was impossible for the researcher to have new content prepared completely for the second prototype because of time and limited allowance issues. Therefore, it was a huge constraint for the researcher to create texts including these words for the modules. It was not so that easy to create interesting topics or contexts for the vocabulary that would engage learners emotionally, socially and intellectually for learners' vocabulary study.

Although it is important to teach learners guessing strategies that would enable them to tackle unknown words from the contexts as suggested by Er (2001) and Karaarslan (1996), the researcher thought that participants of the study who were at intermediate level had applied the technique contextualization in their classes many times and they had been unwittingly aware of its use.

One more constraint with the study was that learners' exposition to these words were not only limited with the implementation in class or with the web-based material. Learners might have been exposed to these words other times at some reading text or at another activity at any time or in their daily lives while studying English except for the provided repetitions.

Another limitation of the study was the limited time allocated for the study. Because it was the end of semester, the researcher did not have time to reapply English

language vocabulary retention tests after a second time interval which would enable the effects of the spaced repetition investigated more clearly. Therefore, only short term retention was studied. Additionally, time constraint might have affected learners' attitudes.

Assessment of the retention outcomes were measured only with fill in the blanks recognition tests. Therefore, the learners' vocabulary retention performance might be different on tests measuring productive proficiency of the target vocabulary.

On WEBVOCLE, learners' work and progress was recorded regarding only their participation numbers to weekly applications, their scores of those activities and the time they spent on those applications. Thus, the study does not consider analyzing online individual performance data such as learner's completing time of the exercises, spent time for reading the texts and other details concerned with material's online dictionary use. Such an examination would provide more qualitative information about the cognitive processes underlying participants' learning and retention level and quantitave data that would explain the reasons behind the performance differences regarding three vocabulary retention tests.

CHAPTER II

REVIEW OF LITERATURE

2.1. Introduction

This review of the literature section embraces theoretical perspective of the study by revealing the concerned research studies and determining what information was previously documented related to the broad topics of; use of technology in language teaching, teaching vocabulary through web-based multimedia, vocabulary teaching, vocabulary presentation and teaching techniques, constructivist and contextualized vocabulary learning and spaced repetition technique.

2.2. Use of Technology in Language Teaching

The global popularity of Internet over the past decade has brought about the innovative use of the Internet in education and in foreign language learning and teaching, as well. Many studies affirm that learners consider Internet a useful material to discover and learn new vocabulary (Alshwairkh, 2004; Johnson & Heffernan, 2006; Ma & Kelley, 2006; Koçak, 1997) and to supplement in-class instruction (Kung & Chuo, 2002).

Web can add a valuable dimension to face-to-face language teaching by offering interactive and meaningful tasks in authentic settings (Felix, 1999). Similarly, regarding the advantages of web-based teaching and learning, Johnson (2005) found that convenience, mobility, flexibility are common notions used by students to describe web-based classes. Students are found to be more enthusiastic in this environment, which offers more motivation. Similarly in another study, although students had different opinions about the benefits of it to English learning, most of them liked and approved of learning English through Internet and believed that it can promote and enhance language learning by the blend of synchronous and

asynchronous communication tools (Yang and Chen, 2007). When use of technology in education emerged nearly thirty years ago, a major concern was that the unavoidable infusion of technological devices into our educational system would kill off some of the educators, and that the computer would make the classroom obsolete, through the years it has been experienced that the corresponding developments in technology and interactive processes, lead to success by enriching teaching-learning process. In fact, computers and Internet, with Rice's (1984, as cited in Chou, 2003) definition the "new media", has allowed or facilitated the provision of the important feature interactivity in educational applications in order to enhance learning potential. Regarding this, Borsook & Higginbotham (1991, as cited in Chou, 2003) claim that "the computer's interactive potential makes it unique in the history of educational/instructional technology and sets it apart from all other instructional devices" (p, 267). For instance, studies indicated that students who are shy in face-to-face discussions and seem to be low achievers in language learning became more active participants in computer-assisted classroom discussion (Beauvois, 1992; 1995; Kelm, 1992, as cited in Young, 2003).

After perceiving the aforementioned facilities of computers and Internet, and seeing the advantages of them such as interactivity which is very significant in language teaching, language teachers have recently been exploring new ways of integrating new technology into their teaching to make it more motivating and effective.

2.2.1 A Learner Centered Environment

Web-based learning environment actively involves the learner within the process of teaching and learning, which is highly vital and primarily the basic prerequisite for effective language learning. This less stressful setting enables learners to overcome the barriers in time and space with cost effective applications, which are other important factors for its preference. Concerning this, Valenta et al. (2001) found that web-based education provides flexible time management which is important to students who are eager to work at their own pace and they are free to work at home when they want to. Besides this, teacher's invisibility in this technologic learning

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process gives learners the feeling that they are independent; essentially they have the precise control on their learning. That is, web-based education requires self-discipline and active learning and initiative.

Application of Multimedia

Particularly, after frustrating applications of foreign language labs which were often found to be boring and unproductive, computers gave the impression of being much more enjoyable with multimedia opportunities. Pusack and Otto (1997) claim that the strength of multimedia comes from the synergy provided by the variety of skills (listening, reading, writing, and speaking), which are linked together in meaningful ways to deliver in-depth experience. Multimedia learning provides the learner with information on different (e.g in visual, auditory) modes. It is based on the Mayer's generative theory of multimedia learning, which is a cognitive psychological theory on processing information (Mayer, 2001). Regarding Mayer's generative theory of multimedia learning, Plass et al. (2003) utter that when visual and verbal information is used together in a learning material, an enhancement of meaningful learning is predicted. Mayer's theory is further based on both Wittrock's generative theory which holds up the fact that meaningful learning is enhanced when a learner has a chance to construct and coordinate visual and verbal representations of the same material and Paivio's dual-coding theory, which claims that words that are coded dually in two modes would be learned better than those only coded by one of them. Supporting Paivio's dual coding theory (1990), Plass et al., (1998) found that students' recall is best with the words which are both visually and verbally annotated. Furthermore, in a multimedia environment, learner has a chance to decide for different modes of information, thus, individual differences in learning preferences are not ignored. Similarly, Al-Seghayer (2001) found out that the dually coded words are learned better than words with text only definitions.

These multimedia applications involving audio-visual information attract language learners by means of enjoyable activities supported with sound, pictures, animations and video. Concerning this, by comparing digital multimedia with traditional one

Yang (1998) claims that digital multimedia has superiority over traditional multi-media with respect to the precise control it provides the users which finally results in intrinsic interactive and user friendly features and a big opportunity for powerful teaching tools. This pleasurable, realistic learning environment can further reduce or eliminate learners' initial linguistic and psychological barriers, which is an influence highly respected by language teachers. Similarly, findings of another study comparing the effectiveness of a technology-enhanced language-learning program with a traditional one indicated that students have welcomed multimedia activities, which challenged them to take greater responsibility in working toward their goals for learning French. Besides, these activities played an important role in their progress and development of certain skills (Adair-Hauck, Willingham-McLain & Youngs, 1999).

Consequently, multimedia has the power to move the lesson beyond the traditional walls of the classroom, integrate the lesson with the needed authenticity, enhance communication and discovery-oriented learning by the help of cooperative work in groups and involve them in the learning process by stimulating language learners' senses.

2.2.2   Other Pedagogical Features

This technology further enables learners at different levels to reach, say, vocabulary at their degree of proficiency in the target language and as for teachers it is much easy to extend the learning material into games or to link them to authentic language materials. A research assessing the integration of computer-mediated materials into the language curriculum indicates that most learners found web-based materials and interactive learning experiences worthwhile; they valued web resources as a "fun house" and more meaningful than traditional forms of instruction involving textbooks (Yang, 2001).

2.3. Teaching Vocabulary through Web-based Multimedia

With recent interest at vocabulary teaching in language teaching, teachers have started to consider it as important as grammar and a must for effective communication; hence, they have started to explore new and effective ways of implementing it. Existing strategies are being practiced on classroom settings but learners look for more efficient ones because they still have great problems with the learning and retention of vocabulary; beginners/ elementary level students need to increase the number of words they know in order to communicate; elementary and advanced ones need to improve it to overcome the difficulty in communicating effectively (Labrie, 2000).

Language teaching is one of the fields requiring high level of interactivity. The rapid growth of the multimedia computer as a learning material has brought new opportunities to the design of foreign language learning activities. Information provided by audio, video, pictures, animations and simulations could be integrated to create an authentic, dynamic, colorful, attractive, enjoyable and multi-sensory language-learning environment for the learners. Several research studies indicate that multimedia has the power:

- to move the lesson beyond the traditional walls of the classroom (Yang, 2001),
- to provide flexibility in individualizing the activities (Valenta et al.,2001),
- to integrate the lesson with the needed authenticity (Felix, 1999),
- to enhance communication and discovery-oriented learning by the help of cooperative work in groups (Young, 2003),
- to involve language learners in the learning process by stimulating their senses (Yang, 1998),
- to reduce or eliminate learners' initial linguistic and psychological barriers (Yang, 1998),
- to increase recognition and recall of L2 vocabulary (Jones, 2004; Synder and Colon, 1988 as cited in Al-Seghayer, 2001),

- to create an effective, enjoyable, motivating, inviting and interactive learning environment (Foster, 1996; Özkan, 2001; Adair-Hauck, Willingham-McLain & Youngs, 1999; Plass et al., 1998), and

- to create a meaningful environment and a life-long experience for learners (Pekel, 2002).

And other research studies specific to vocabulary acquisition point out that words can be taught more effectively and in an enjoyable and even amusing way with the use of audio-visual devices, with computers, and web-based materials today (Kolich, 1991; Labrie, 2000; Jones, 1999; Tsou et al., 2000; Tozcu & Coady, 2004).

The rapid growth of the multimedia computer as a learning material has brought new opportunities to the design of L2 learning activities. As previously stated, information provided by audio, video, graphic, animations and simulations could be utilized to create an authentic, dynamic, colorful, attractive and multi-sensory language-learning environment. Computers are found to be effective in language learning and vocabulary acquisition. It is claimed that words can be taught more effectively with the use of audio-visual devices and mainly with computers, and web-supported materials today. With respect to the findings of his research on the effects computer assisted vocabulary training on word knowledge Kolich (1991) concluded that students enjoyed using computer and welcomed the interactive instructional material. However, the computerized material should not be alone the mode of instruction. It should be further supplemented with teacher-directed activities to expand learners' deep word understanding. That is, although he recognizes the benefits of using computers at vocabulary teaching, he suggests that one should follow a blended type of learning. In another study comparing the effects of presenting vocabulary through different channels (watching TV with or without subtitles, reading and listening to the document and simply listening) Neuman and Koskinen (1992, as cited Dong & Yanquing, 2004) concluded that watching subtitled TV has the net advantage in teaching and retention of words. This emphasized the importance of applying written words with a visual text. A similar study

implemented by Kont, Foss, and Lenzini (1999, as cited Dong & Yanquing, 2004) supported the use of combination of picture and text.

At this point, it is necessary to state that computers, Internet or any technology should not be evaluated as a must for the efficiency or effectiveness of teaching/learning process nor a remedy of the problems to overcome in it. The instructional design of the educational material highly affects its success more than the technology it is supported with.

2.4. The Effect of Media and Method on Learning

The well-known debate between Clark and Kozma has been going around the media and method distinction. By pointing out the "no significant difference" results of the many research studies with various media, Clark (1983) utters that, "media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition. Basically, the choice of vehicle might influence the cost or extent of distributing instruction, but only the content of the vehicle can influence achievement" (p. 446). According to Clark, (1994) media do not influence learning under any conditions but instructional methods are confounded with media and it is the instructional methods that influence learning. He further (1983) adds that "media do not directly influence learning but certain elements of different media (animated motion, zooming) might serve as sufficient (but not necessary) conditions to facilitate the learning of students…" (p. 448). Kozma (1994), on the other hand, believes that if there is not a relation between media and learning, this is because we could not find it. He insists that many previous research studies have had a behaviorist background and checked media's effect on learning with the stimulus-response relationship aspect; however, there is other side of the coin: what is missing in those studies is that learning is a social, cognitive and affective phenomenon. To him, studies should be done from this point of view and refined from their behavioral roots.

Apparently, there have to be more research studies implemented investigating the effects of methodology on learners' achievement in a technology supported environment and there is still a need of further research both on the effectiveness of the varying strategies of vocabulary teaching, the extent to which technology can implement these strategies and the effects of different strategy use on vocabulary retention in a web-based environment.

2.5 Vocabulary Teaching

Research studies in language learning and acquisition processes suggest that training in structural (grammatical) and vocabulary knowledge will not result in real linguistic competence and language proficiency. Although words alone are believed to be the language and language learning is deemed acquiring lexicon, if learners keep these lists in their personalized store without actively using them in language production, their linguistic competence will not develop. For many years, language teachers have ignored the techniques for helping learners to learn vocabulary because of the viewpoints that learning a certain number of words in the target language along with their meanings was sufficient to know a language without knowing its usage in sentences (Kuper & Allan, 2004). Some others argued that the meanings of words could not be satisfactorily taught, so it was better not to try to teach them and they believed learners might learn all the words they need themselves. In past, vocabulary used to have a second prominence in language teaching after grammar. The focus was on grammar and pronunciation during much of the twentieth century (Allen, 1983).

Today, there is more attention paid to techniques of vocabulary teaching and its pedagogical implications which has been neglected for years (Nation 1990; Coady, 1993). This is to some extent related to the scholars' interest in the study of word meanings and lexical problems. Today, both vocabulary and grammar have the same priority and research studies are concerned with the effective ways of teaching both of them.

2.6 Vocabulary Presentation Techniques

There are a great many techniques of teaching vocabulary; learners might guess the meaning of words from the situational discourse, and/or context in which they are exposed to and from the structure of the words themselves, or they might get the meaning of the word directly from a dictionary. Whatever technique is used, creating a need prior to teaching is much important. Fortunately, most of the learners have already been aware of the necessary need and they are motivated to learn vocabulary. Sometimes a learner feels the need to learn some words just because they consist of essential keys to understanding something interesting or important (Allen, 1983). Usually, vocabulary is learned through reading something that learners really want to understand, or something they know they must understand for some reason vital to them. However, this type of vocabulary learning concerns just one of the techniques below. One can learn vocabulary;

A. **By Visual Aids:** Pictures, Pictograms, Diagrams, Graphics, Spider grams, lists, posters, pantomime, flashcards, figurines, models, objects, demonstration, acting out. It is a fact that when learners have seen an object or an action, their desire so the need to know the label (word) for it may increase so that, when the word for it is encountered, it is learned very quickly. Watching TV and listening to radio are good ways to learn vocabulary (Hatch & Brown, 1995). Today, by means of animations, simulations and video, one can learn or improve his vocabulary.

B. **By Audio Aids**: Sound, animations or video

Dale (1946) with his famous pictorial device "cone of experience" explained the inter-relationships of various types of audio-visual materials (dramatic participation, demonstrations, still pictures, etc.) and ordered them according to their degree of abstractness (Table 2.1). He warned that abstractness does not mean necessarily "hard". He has further sub-divided the cone into three groups as doing, observing and symbolizing. Symbolizing group has been defined as the most abstract one. With this

point of view, simulations fall into group of doing and animations into group of observing with video.

Table 2.1. *Three major groups in the cone (adapted from Dale, 1946, p.52)*

(1) Direct experiences (2) Contrived experiences (3) Dramatic participation	Involve DOING in order of decreasing directness
(4) Demonstrations (5) Field trips (6) Exhibits (7) Motion pictures (8) Radio, recordings, still pictures	Involve OBSERVING in order of decreasing directness
(9) Visual symbols (10) Verbal Symbols	Involve SYMBOLIZING in order of increasing abstractness

C. **By Verbal Items**:

a. Describing and exemplifying: giving the word definition or examples is another technique. However, the type of definition, general or specific should be decided regarding the level of the learners. Beginning learners are satisfied with general meanings (Hatch & Brown, 1995).

b. Using synonyms, antonyms

c. Using hyponymy, super ordinates

d. Using scales, steps, clines

e. Word-building-using parts of words (prefixes, suffixes)

f. Getting learners guess from the context: We do not learn most of the words by looking them up in the dictionaries but through context either spoken or written. Students should be encouraged to understand what a word means without being told, or looking it up. Ability of inference can be acquired by practice (Bright & McGregor, 1970).

g. Collocations: This concept describes the relationships among the words appear together. It is based on Micheal Lewis's Lexical Approach, claiming that language consists of chunks that produce coherent texts when they are combined (Lewis 1998, as cited in Deveci, 1996).

h. Games

i. Crossword puzzles

j. Concept mapping (building): Our experience of the world is supposed to be stored in scripts or schemata in human memory. As for words, which are labels for concepts, are assumed to be stored in semantically related networks. Research has shown that individuals have tendency to recall words according to the semantic fields in which they are conceptually mapped. Therefore, teachers should help students organize information or words according to concepts or themes (Abdullah, 1993).

k. Translation: Although not appreciated by many teachers and preferred as a last choice to teach vocabulary, still many learners prefer learning L2 vocabulary by their L1 translations.

2.7 Vocabulary Teaching Techniques

What we need for effective human-to-human interaction is covered in these words: 'knowing how, when, and why to say what to whom'. Most teaching in foreign language classrooms has concentrated on the how (grammar) to say what (vocabulary) up to now. Still being very crucial, these components of language are now enriched with the participation of 'communication' as highlighting 'the why, the whom, and the when'. So, while grammar and vocabulary are still essential tools for communication, to communicate in meaningful and appropriate ways is the ultimate goal of the last decade's foreign language classroom (Standards for Foreign Language Learning in the 21st Century, 1999).

In the past, however, vocabulary teaching has passed through various phases. Techniques of teaching vocabulary have emerged in history parallel with the methods in language teaching. In those years when the Grammar-Translation Method was the typical method of teaching a foreign language, teachers taught vocabulary by providing their learners long lists of words with their equivalent translations in their native languages. Language teaching profession has realized in time that this method is not efficient to achieve communicative competence (Groot, 2000). Wilkins (1974) stated that, teachers' unwillingness of using this technique could be explained by the fact that there are semantic differences among languages and that two words are rarely translation equivalents between words in different languages. However, bilingual word lists are still favored by the learners. Deveci (1996) states that "many cultures, including the Turkish culture, encourage rote learning, where learners memorize lists of words in isolation" (p.2).

Particularly, after 1950s with the emergence of the Direct Method, teaching a word in context started to be used as a common technique. In the 1950s and 1960s, audio-lingual textbooks used a set plan for selecting and limiting vocabulary. With the new scope, by 1970s, communicative approach to language teaching had correspondingly affected the view to teaching of vocabulary as communicative content. This new approach obliged the use of more communicative materials and approaches such as survival English, contextual and situational English. With the rise of more innovative methods of language teaching, in Communicative Approach in the 1970s and in the Natural Approach, vocabulary acquisition was considered to be natural.

However, apart from basic communicative competences which were favored in the communicative classroom of the 1980s, developing strategies of language processing and language awareness, and skills in knowledge perception, production and construction are needed to achieve successful outcomes of any language curriculum. Such competences, which are often discussed in the context of learner autonomy, are of significance for language learning. Therefore, those suggesting a rethinking of a purely communicative methodology discuss the post-communicative era of foreign language learning. The constructivist paradigm is seen as an important methodological basis for real innovation in foreign language learning (Ruschoff &

Ritter, 2001). Lewis (1993) is very much in line with this position by stating programmatically that "The Present-Practice-Produce paradigm is rejected, in favor of a paradigm based on the Observe-Hypothesize-Experiment cycle" (p. vii).

With the rise of interest in vocabulary development and appearance of more innovative methods of language teaching, vocabulary learning started to be viewed as a complex matter. More specifically, it was realized that learning of word meanings calls for more than looking the words up in the dictionary since vocabulary learning is a multifaceted process. According to Tcudi & Mitchell (1989) "the look-up-the-word-and-know-it-for-the-test approach" almost lost its value (p. 258). In order to augment learners' learning, learners are provided with the opportunities of relating the words to their personal experiences, thinking about the new words, asking questions about them and comparing them with other words they have learned. Today, vocabulary instruction is viewed to be more effective when learners are involved in the construction of the meaning through interactive processes rather than simply memorizing definitions or synonyms. Another way to equip learners with a great number of words is to expose them to authentic L2 material by training in communicative strategies such as contextual deduction of the new words so that incidental acquisition can take place just like in L1 acquisition process. In fact, in many cases incidental vocabulary acquisition occurs while reading and due to the learners' guesses (Krashen, 1989). As a replacement for the technique of providing learners with simply the definitions, translations, or bilingual word lists, it became clear that the teaching process of vocabulary should stimulate learners as much as possible with interactive processes and through more channels, that is, a multi-sensory approach is preferred to teaching of vocabulary. Stephenson (2002) supported the views that emphasizing sensory stimulation is a good thing, and needs no justification. Visual, auditory and kinesthetic stimulation in sufficient frequent applications excite the brain and improve its organization. Furthermore, learners believe in the effectiveness of stimulation and a rich sensory environment. Therefore, multi-sensory environments are effective with people of all ages and a range of disabilities.

Whatever technique and through which channels one prefers to teach learners, there are some steps to follow in vocabulary teaching as a guide for language teachers:

1. Lead-in: The teacher establishes a context in which to teach the word.
2. Convey Meaning: The teacher conveys the meaning of a word by using the above mentioned techniques (including the guessing the meaning of the word)
3. Repetition of the word: Learners repeat target words.
4. Verification: This can be done by asking a question in which the learners' response will show whether or not they have understood the meaning.
5. Use: Learners try to use the word in a context with the help of the teacher.
6. Model Sentence: A model sentence using the word should either be written on the blackboard or dictated to the learners (Demirel, 1992).

The first two steps can be named as the observation stage, the rest covers the hypothesis and experimentation stages of learning a word. One more important concern with reference to vocabulary teaching is the choice of words. Teachers are expected to be consistent and experienced in choice of the words to be taught (Demirel, 1990). As usual, in almost every English teaching course in Turkey, the syllabus is formed around the content of the present course books, since for ELT teachers it is much easier and common to implement an English language course through a course book (Tavil, 2006). Although the target vocabulary is usually limited with the ones in the course book, a teacher might teach more words than the ones in the course book; however, this should not be exaggerated. The choice is made by examining the frequency of word usage, the learners' interests, needs and levels. For instance, beginner level learners should be supplied with the basic vocabulary prior to advanced vocabulary. Basic vocabulary, as explained by Dale, & O'Rourke (1971), comprise of the words which can be sensed, are necessarily needed in any sentence while speaking, appear almost everybody's daily vocabulary and which have been experienced and internalized. Obviously, learners at elementary level are mostly in need of basic vocabulary and a multi-sensory approach to vocabulary learning. Regarding to these low proficiency language learners it is

suggested that they make little use of contextual cues to guess the meaning of words and rely heavily on their knowledge of the world (Dong & Yanquing, 2004). They encode the words in memory on the basis of acoustic and orthographic similarities rather than by association of meaning, therefore, they should be provided with selective listening, aural discrimination, songs, rhymes, affix drills and other exercises that point out similarities and differences of sound and spelling of words which are more beneficial for them. Learners at a higher level, on the other hand, appear to encode vocabulary in memory primarily on the basis of meanings, therefore, they can be provided with synonym and antonym games and exercises, paired-associate compositions in which lists of related words are given the learner from which he is to prepare written or oral compositions (Richards, 1985). Therefore, contextual cues for vocabulary could be easily used at higher stages such as pre-intermediate, intermediate etc.; thus, by referring to learners' existing knowledge there would happen a deeper mental processing which would enhance the subsequent retrieval.

Function words consisting of articles, prepositions, pronouns etc. should be taught in grammar sessions as patterns or phrases not alone. On the other hand, content words such as nouns, adjectives, adverbs, verbs etc. are to be taught in vocabulary classes. As regards to the number of the words to be taught in one lesson, it completely varies in accordance with the learners' level, characteristics and interests. The average to be taught usually changes between 5 to 10 in one lesson hour and it may go up to 20-30 words with respect to the group of learners (Demirel, 1990).

2.8 Constructivist Learning and Contextualisation of Vocabulary

As presented by Fosnot (1992), constructivism is "a theory of 'knowing' and a theory about 'coming to know'" (p. 168). Therefore, a constructivist approach to instruction requires an understanding of how learners make meaning so that learning environments, methods, and materials can promote knowledge construction. Based on these, it is possible to conclude that "education is about using knowledge, not acquiring it" (Vermette, Foote, Bird, Mesibov, Harris-Ewing, & Battaglia, 2001, p.3)

and "constructivism is a psychological theory that construes learning as an interpretive, recursive, building process by active learners interacting with the physical and social world" (Fosnot, 1996, p.30).

Although constructivism is applied to learning and instructional theories, it can be considered as an epistemological approach. Constructivism in education can be viewed in two ways: cognitive and social constructivism. The former, grounded in the work of Piaget (1954, 1970, Piaget & Inhelder, 1971), focuses on cognitive development and individual construction of knowledge, while the latter, attributed to Vygotsky (1978), emphasizes the social construction of knowledge. In the cognitive constructivist approach, learning occurs through cognitive processing of environmental interactions and corresponding constructions of mental structures to make sense of them.

There are two key Piagetian principles for teaching and learning:

1. Learning is an active process. Direct experience, making errors, and looking for solutions are vital for the assimilation and accommodation of information. How information is presented is important. When information is introduced as an aid to problem solving, it functions as a tool rather than an isolated arbitrary fact.

2. Learning should be whole, authentic, and "real": Piaget helps us to understand that meaning is constructed as children interact in meaningful ways with the world around them. Thus, there is less emphasis on isolated exercises that try to teach vocabulary items without a context or provide learners with sentence punctuation activities. Learners still learn these things in Piagetian classrooms, but they are more likely to learn them if they are engaged in meaningful activities (such as operating a class "store" or "bank" for vocabulary development or writing and editing a class newspaper). Whole, authentic and integrated activities, as opposed to isolated exercises, which are inherently interesting and meaningful to the learner, and real

activities that result in something other than a grade on a test are emphasized in Piagetian classrooms.

The emergence of constructivism has coincided with the shift in pedagogy away from teacher-centered information transmission models toward knowledge-centered approaches that focus on cognitive and social processes in learning. Contrary to objectivist-based approaches, instruction in constructivism does not involve prescriptive presentation strategies or accurate knowledge representation (Perkins, 1992; Reynolds, Sammons, Stoll, Barber & Hillman, 1996). Constructivism suggests that knowledge is constructed as individuals make meaning of their experiences and knowledge has meaning only in context. Thus, effective instruction needs to include presentations of real-world problems in authentic contexts that require collaboration (Jonassen, 1999). Therefore, the main implications of constructivism for instruction are collaboration, diverse perspectives, and authentic context (Miller & Miller, 2000).

Since truths or facts change for each individual in that everyone interprets the gained knowledge differently, it is the learner's responsibility to search for knowledge and create their own meaning through experiences. Instead of being provided a specified content, learners should search for knowledge from many different sources (Ertmer & Newby, 1993). By benefiting from different sources, the learner is able to have a variety of perspectives instead of adopting the fixed perspective of instructor. The primary goal of constructivist environment is to help learners learn how to learn, the emphasis is placed on the learner rather than the instructor (Brooks & Brooks, 1993).

As Kaufman (2004) states, constructivism has placed learner's individual development at the focus of instruction and learning. The interaction between learner's internal schema and the exogenous social and cultural variables contribute to the transformations in the learner's internal schemata. In this process, guidance from experts or teachers, and strategies such as modeling, coaching, and scaffolding provide learners with necessary cognitive support (Jonassen, 1999). Learners benefit from the use of multiple approaches and learning experiences in the process of

extracting meaning from knowledge. There are no specific methods for constructivism; however, one can benefit from cooperative learning, self-directed learning, discovery learning, problem-based and hands-on-learning activities. Assessment of the learners is done by self or peer-evaluation, portfolios or rubrics which would challenge learners to recall, compare and use what has been learned before.

In summary, Jonassen (1994) proposes eight characteristics that differentiate constructivist learning environments from traditional ones:

1. Constructivist learning environments provide multiple representations of reality.
2. Multiple representations avoid oversimplification and represent the complexity of the real world.
3. Constructivist learning environments emphasize knowledge construction instead of knowledge reproduction.
4. Constructivist learning environments emphasize authentic tasks in a meaningful context rather than abstract instruction out of context.
5. Constructivist learning environments provide learning environments such as real-world settings or case-based learning instead of predetermined sequences of instruction.
6. Constructivist learning environments encourage thoughtful reflection on experience.
7. Constructivist learning environments enable knowledge construction that is context- and content- dependent.
8. Constructivist learning environments support collaboration through social negotiation in the construction of knowledge, not competition among learners.

The interpretation of constructivism in the study is different from above explanations. The main strategy for the presentation of target words in the study is contextualization of vocabulary which is based on constructivist approach and

learners were expected to create their own meaning through given contexts. The constructivist way of learning suggests that learning is promoted when learners are actively involved in the learning process with the instructional activities which lead them to knowledge construction (Driscoll, 2002). Constructivism leads individuals to combine new knowledge with the existing ones that were priorly learned by encouraging learner autonomy and personal involvement in learning. The context is significant in a constructive environment since it renders situations that are meaningful, relevant and it provides authentic experience.

In language teaching, constructivism has its principles such as action-orientedness, learner centredness, process-related awareness and holistic language experience (Reinfreid, 2000). As for constructivist vocabulary teaching and learning, while learning a foreign language, the vocabulary is built up by adding new meanings to the existing words as those words are exposed to in different contexts and situations in time (Can, 2004). Thus, learning a word forms a new step for a new learning and knowledge construction. According to Cameron (2001) with constructivist point of view, language should be learned in context (as cited in Can, 2004) and similarly vocabulary should be learned in contexts which would enable learner-centred knowledge construction.

As Jonassen (1994) proposes, a constructivist learning environment emphasizes knowledge construction that is context and content dependent. Applying context-based vocabulary teaching in a constructivist learning environments enable knowledge construction that is context- and content- dependent (Jonassen, 1994); student-centered learning (Gairns and Redman, 1988 as cited in Ünal, 2003); and problem solving (Ying, 2001 as cited in Ünal, 2003). To Groot, (2000) only contexts fully demonstrate the properties of a word and a better way to maintain elaborate, intensive processing than giving the meaning, which leads to better learning and retention for the learners.

2.9 Learning Vocabulary in Context and within Spaced Repetition

To Richards (1985) in any case, knowing a word does not only mean knowing the translation or definition of it in the native language but it means that a learner should be able to actively use it. Therefore, any learner needs to know the contextual meaning and all other meanings associated with the word even the implied meanings of the word, how to write, pronounce and use the word accurately, in different social contexts and in conjunction with other words. Moreover, knowing a word entails syntactic behavior and semantic value of the word, being aware of various meanings associated with the word and limitations of using that word according to variations of function and situation. However, not all learners are able to learn a word to this extent. Concerning this, Nation (2001) states that "learners' knowledge of word parts and word building changes as their proficiency develops" (p.47). A learner might learn the word family of a word (e.g. take, took, taken), affixes and the stem of it; "cognitive representation of the set of contexts involving situational, topical or local contexts" even "style values" or cross-cultural definitions not to result in inappropriate use after he reaches the appropriate level of proficiency (Nation, 2001).

Learning a word is just one phase of 'knowing a word'; retention of it is another mainly studied on by researchers. The learner, while adding new words to his new vocabulary, he labors to remember the ones previously learned. Promoting the use of words in communicative situations and reintroducing these new words at regular intervals prevents forgetting (Chastain, 1976). It is believed that not to forget learned words, one should use the words in communicative situations and be exposed to these new words at regular intervals. Spitzer (1939) emphasized that when information is taught, but unsupported, recalling diminishes over time (as cited in Belding, 2004). It is obvious that, to boost retention, repetition seems to be the best approach and if the words are presented in context retention is much higher. Context has a primary role in the acquisition of target vocabulary by supplying and supporting the necessary input (Nikolova, 2002). On the other hand, learning words in lists which is mostly preferred by the learners does not lead to deep processing and successful retention (Groot, 2000). However, as previously stated, a single encounter with a word in context is still insufficient for learning all properties of a word (Zahar,

Cobb and Spada, 2001). According to Lewis (2000) "encountering new vocabulary on several occasions seems to be a necessity and even a sufficient condition for learning to occur" (p. 184). Learners who are learning new vocabulary need many repetitions of the same thing to begin to store it into long-term memory, which is called 'rehearsal'. However, regarding the number of repetitions there are different ranges of research results: one research indicates that words repeated eight times or more had a higher pick-up rate whereas some other research claim that the minimum number should be 10 to 12 (Johnson and Heffernan, 2006). According to Nation (1990, 2001), to fully acquire words, learners need to be exposed to words 5-16 times and that frequent reencountering of the word is crucial for learners' vocabulary acquisition. If the word is not truly stored in long-term memory, there is difficulty recalling it after some time. Not setting up a repetitive learning system for the learner, however, is one of the drawbacks of many language courses. Ebbinghaus (1885, cited in Waring, 2004) examined human memory and the rate of forgetting. With his scientific study of memory, he pointed out that especially repetitions that are distributed over time might allow one to remember things for a long time.
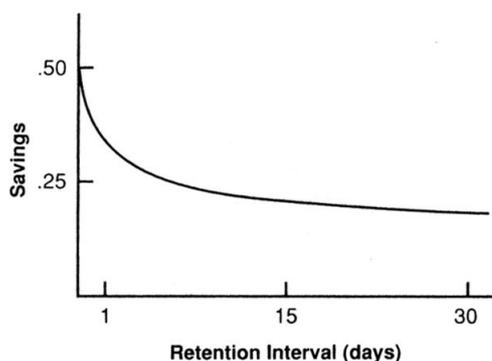
Figure 2.1. Ebbinghaus's Forgetting Curve (1885, adapted from Waring, 2004)

In order to explain the figure, let us assume that one person learned 15 new words. At that time his knowledge is 'perfect' and probably would score 15/15 if a test were given. However, the knowledge is in the short-term memory and will not stay with

him (in his long-term memory) unless he meets it again. Then by tomorrow if he does not meet the word again, maybe he might remember say 10 words, by next week only 5 and he will have almost forgotten most of them by the next month. According to his analyses of his own vocabulary learning, Ebbinghaus's ability to recall words he had encountered after 30 minutes was 50%, and his ability to recall after 48 hours was 25%. He, therefore, calculated the amount of he was able to recall for each 15 day interval. Ebbinghaus (1885, cited in Waring, 2004) explained this result with the 'Forgetting Curve'. Most forgetting occurs very soon after the learning and if the word is not met again soon, it is likely to be forgotten. That is, immediately after learning knowledge decreases rapidly, but then it decreases rather slowly. Thus, the time between the first and the second exposition should be very short (Figure 2.1). Anderson and Jordan's study confirmed the same finding (1928, as cited in Yongqi Gu, 2003). They examined the rate of forgetting and found out that the number of words that could be recalled after initial learning, 1, 3 and 8 weeks decreases as the weeks progress with a rate of 66%, 48%, 39% and 37% respectively.

Based on Ebbinghaus's (1885) 'Forgetting Curve', Pimsleur (1967, as cited in Waring, 2004) proposed that every time we relearn something, the knowledge gets stronger and is, therefore, more resistant to decay. Pimsleur's 'Graduated Interval Recall' schedule shows that the gap between the second encounter and the subsequent encounters with the word should progressively widen if there is to be 100% recall (Figure 2.2). Thus, the forgetting curve gets less steep as relearning continues. Owing to this, the intervals between the revisions of words should increase. According to Pimsleur, this schedule outlines the 'ideal' schedule for learners to keep new vocabulary knowledge in mind. In Figure 2, t0 refers to the first time the word is learned; t1 refers to the first relearning, and so on.
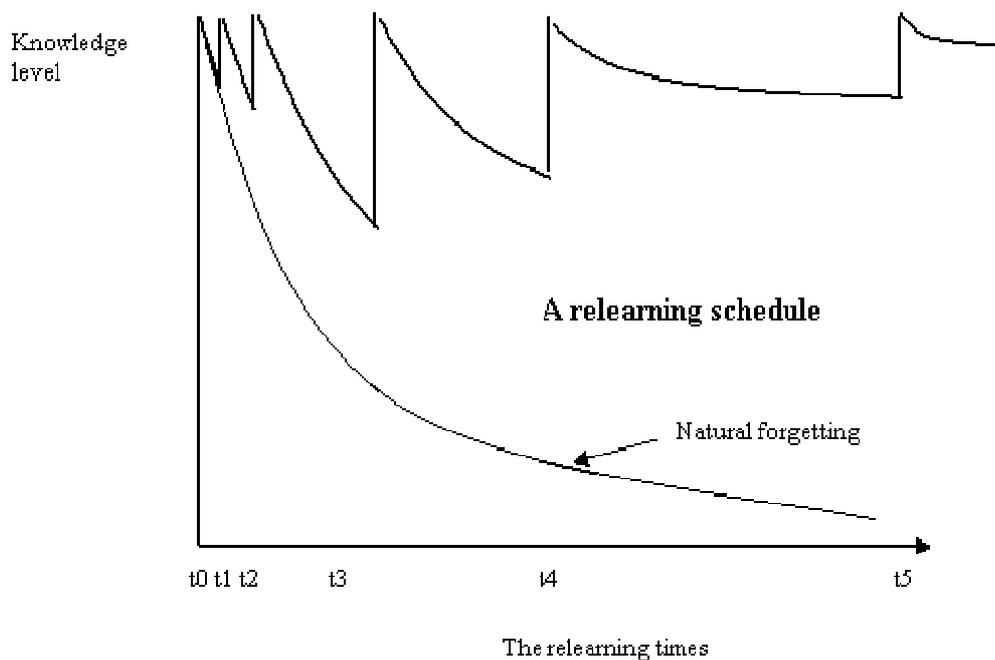
Figure 2.2. Pimsleur's memory schedule (1967, adapted from Waring, 2004)

To see the long-term effect of Ebbinghaus's research Harry Bahrick and Elizabeth Phelps (1987, as cited in Willingham, 2002) examined the retention of 50 Spanish vocabulary words after an eight-year delay. In this study, there were three groups practicing the words for seven or eight sessions, separated by a few minutes, a day, or 30 days. In each session, subjects practiced until they could produce the list perfectly one time. With Willingham's words (2002) the study resulted with:

> "…people in the no-delay group could recall 6 percent of the words, people in the one-day delay group could remember 8 percent, and those in the 30-day group averaged 15 percent. Everyone also took a multiple-choice test, and again, the spacing effect was observed. The no-delay group scored 71 percent, the one-day group scored 80 percent, and the 30-day group scored 83 percent".

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The effectiveness of spaced revisions relative to massed revisions has been emphasized by numerous research studies (Dempster, 1987; Dempster, 1991; Russo & Mammarella, 2002; Moshe, 1990; Bahrick et al., 1993; Braun & Rubin, 1998). It is further stated by Dempster (1991) that "the reconstruction hypothesis…[suggests] that spaced repetitions encourage highly constructive thinking" (p.75).

The findings of a study held by Kolich (1991) support the same view. It is found out that additional practice opportunities are needed between training and testing after a period of time passes in order to help learners with word retention. Thus, the word can be moved from short-term memory to long-term one and it can be recalled after minutes, days, weeks or years.

Briefly, moving knowledge to long-term memory and retention is not easy since there needs to be lots of meaningful practice, repeated encounters of those words and a strategy such as presentation of words in contexts. Futhermore, multimedia use might enhance word acquisition and retention. Bygate, Skehan & Swain (2001) state that "…acquisition follows repeated exposure to examples. The more often certain sounds are heard in the same sequence the more likely is that sequence to be transferred to long-term memory" (p.79). It is stated by Lewis (2000) that the technique of presenting target words in various contexts boosts retention. Besides these, as Wozniak (1995) stated there are many other studies indicating that the strength of memory increases with successive repetitions; however, most of these research studies were the application of equally spaced repetition but not different spaced repetitions. Moreover, spaced repetitions in periods longer than one week was very scarcely studied (Glenberg, 1980 as cited in Wozniak, 1995). That is, most of the recent studies on the issue have had time constraint in their implementations beyond of which might be compelled with further studies.

2.10   Summary

This chapter holds the necessary literature review by explaining the theoretical perpectives and main standpoints in the study. Moreover, findings of the concerned

studies were revealed. Use of technology in language teaching, vocabulary presentation and teaching techniques, constructivist and contextualized vocabulary learning and spaced repetition technique are the main titles in the chapter.

CHAPTER III

METHODOLOGY

3.1. Introduction

This chapter presents detailed description of the research methodology which was applied in the research study. Research questions, design of the study, the research method, design of the web-system with the first and the second prototypes, pilot study and its findings, data collection methods and instruments, sampling and selection and the issues validity and reliability will be presented.

3.2. Research Questions

The results of this study is thought to reveal the fact that provision of annotated vocabulary in context with spaced repetitions through a web supported material could enhance English language vocabulary retention of learners. Therefore, the main research questions with sub-questions are:

- What are the effects of demographic characteristics of learners on vocabulary learning while using the web-based material?
  - Gender
  - The place of access to technology (e.g at home, in residence halls, at Internet cafes)
- What are the perceptions of learners about the benefits and difficulties with the use of Web-based material in the learning of English Vocabulary during and after using the material?
  - What are the perceptions of learners regarding the use of web based material?
  - What are the perceptions of learners regarding the way of learning new vocabulary through a web-based material?

- What are the perceptions of learners regarding the way of learning new vocabulary with spaced repetitions?
- What are the perceptions of learners regarding the way of learning new vocabulary within contexts?

- Is there a significant difference in the attitudes of learners' towards web-based English language vocabulary learning before and after the implementation?
  - Is there a significant difference in the attitudes of learners' towards English language vocabulary learning before and after the implementation?
- Does WEBVOCLE have an impact on the learners' English language vocabulary retention?
  - How learners improve their English language vocabulary retention by the help of the web-based material?

3.3. Design of the Study

The researcher surveyed the necessary literature before beginning the research study and perceived that use of the Internet and multimedia in language teaching was found to have been more motivating and inviting (Özkan, 2001; Tokaç, 2005); more meaningful, effective and a life-long experience for learners (Pekel, 2002). The computer-based language teaching was also ascertained to have been effective in the reinforcement of grammar (Çevik, 2001). Moreover, the researcher experienced that there was a need for supplementary materials that would enable learners to do extra practice which is often impossible in large classes within limited time. The researcher, additionally analyzed existent web-based or computer based language learning environments such as CAVOCA (Groot, 2000), TELL (Yang & Chen, 2006), LEXICA (Goodfellow, 1995; 1998 as cited in Goodfellow & Lamy, 1999), Short Readings Project (Johnson & Heffernan, 2006), The Tutor (Labrie, 2000) and TRAINER (Fidan, 2003).

The researcher decided to apply the web-based material on the English language preparatory school students of a university who were exposed to English language intensively in order to attend their faculties. The researcher decided to study on this sample due to their potential need and interest towards the material, and by supposing that it would be very difficult to study with an uninterested group of learners and to call them make use of material. Because preparatory school students have to pass final proficiency exam not to repeat prep class, they often endeavor to find materials for studying and/or improving their English. The researcher especially preferred studying with university students because these students are thought to have a higher rate of access to computers and Internet because of their age and due to the opportunities they were provided through the labs at university campuses, in their residence halls, at internet cafes so on.

The specific objectives of this study were to see the effects of a web-based supplementary material on learners' English language vocabulary retention by presenting them with the pre-learned intermediate level English vocabulary within differing spaced repetitions and to observe how learners perceived a web-based multimedia environment on English vocabulary. Due to the contextual richness, interactive ability and repetitions, the researcher hypothesized that a web-based material with differing spaced repetitions was an effective material to foster the retention of new words in a foreign language. It was anticipated that learners' attitudes would change positively after the implementation. Consequently, it was predicted that participants' performance on the vocabulary retention tests would significantly increase in time of the implementation. Participants were asked to study on the web-based material for the revision of vocabulary items that had been learned and studied at school. The researcher found out in the literature that repeated exposure to words was important for long-term retention of the words (Groot, 2000; Fidan, 2003; Waring, 2004; Jenkins, Stein & Wysocki, 1984; Webb, 2007; Horst, Cobb & Meara, 1998). As designing the material, the researcher focused on the technique 'spaced repetition' in which increasing intervals of time were used between subsequent reviews of the vocabulary. In fact this version of 'spaced

retention' with gradually increasing intervals is called 'graduated interval recall' (Pimsleur, 1967, as cited in Waring, 2004).

As aforementioned, the theoretical rationale for the Web-based material was based on spaced repetition technique, which originates from the way memory works and supported with 'dual store theory' which supports that maintained rehearsals increase the length of stay in short term store and short-term memory can be encoded into long-term memory (Atkinson & Shiffrin, 1968). Furthermore, in the web-based material, increasing intervals of time between subsequent reviews of vocabulary items was applied (Pimsleur, 1967, as cited in Waring, 2004). To guarantee words' retention in memory, learners made revisions, which became less and less frequent after a time. Besides, the target vocabulary was presented to learners with the vocabulary teaching technique, contextual guesswork. As a result of some analysis, the researcher decided that that the technique for vocabulary repetition would be presenting target words in various contexts to boost retention (Lewis, 2000). Therefore, there was a systematic application of the state-of-the-art knowledge in articulating the theoretical rationale for the material's design choice (Van Den Akker, 1999).

The intervention was delivered at real user settings with the participants of same level of English. The representation of vocabulary through various contexts was enriched with the use of multimedia tools (pictures and sound).

3.4. Research Method: The Developmental Research Study

With respect to research subject matter, research studies in the field of instructional technology (IT) mostly confined with either instructional design or psychology based views. However, advanced technologies have called for new types of research studies. IT research studies today need a broader perspective, which would enable researchers to study aspects of instructional settings, interactions taking place there, briefly, more about the learning situation.

Developmental research has been defined as the "systematic study of designing,

developing and evaluating instructional programs, processes and products that must meet the criteria of internal consistency and effectiveness" (Seels & Richey as cited in Richey, 1994, p. 3). However, developmental research studies are not instructional psychology studies; media or delivery system comparison or impact studies; policy analysis or formation studies; or research on the profession. These studies are performed to assess the changes on a process over an extended period of time. This process might cover either the study of a specific product and program design, development and/or evaluation project (a research based development of an innovative product or program), which is called with type 1, or the study of design, development, or evaluation processes, tools or models aiming at generating knowledge on how to design, develop and evaluate, which is called with type 2 (Richey and Nelson, 1996) (Table 3.1). An essential principle of developmental research is the collaboration among practitioners, researchers, and technologists. In this study, the researcher worked collaboratively with the language experts and instructors of preparatory school at Middle East Technical University to write and improve the content of the material. Prior to designing the material and in the analysis phase, she interviewed the coordinators at the testing office of the school to learn about the semester ayllabus, learners' and teachers' expectations. In the development phase, on the other hand, she worked with a graphic artist on the narrative pictures and programmers. The researcher starts with real-life problems such as human teaching, learning, and performance problems and work hand-in-hand collaboratively with practitioners and technologists. Another principle of it is the fact that benefits could be provided to stakeholders within the context of research.

Developmental research studies investigate the possibilities for educational improvement by bringing about new forms of learning in order to study them. They are either theory driven or create the conditions for developing theories or they support a particular form of learning that is to be tested. The aim is to improve the effectiveness of instructional materials to support learning. Theories must do real work; the theories are accountable to the activity of design; they provide detailed guidance (Cobb, Confrey, DiSessa, Lehrer & Schauble, 2003). They involve design-analysis-redesign that move toward both learning and activity or artifact improvements (Shavelson, Philips, Towne & Feuer, 2003). There is a link between

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design and research. Design takes place first as the implementation of the theory followed by the evaluation-oriented research (Edelson, 2002). Differing from a traditional research, instead of focusing on a particular variable, development researcher focuses on a particular aspect of the design, development, or evaluation process.

Table 3.1. *Developmental research types in terms of their emphases and focuses (adapted from Richey and Nelson, 1996)*

	Developmental Research	
	Type I	Type II
Emphasis	Study of specific product or program design, development &/or evaluation projects	Study of design, development, or evaluation processes, tools, or models
Product	Lessons learned from developing specific products and analyzing the conditions that facilitate their use.	New design, development, and evaluation procedures &/or models, and conditions that facilitate their use.

Researchers with developmental goals are aimed to develop creative approaches to solving human teaching, learning, and performance problems, while constructing a body of design principles at the same time (Reeves, 2000). The researcher in this study used developmental research method due to its nature. By comprising Type 1 taxonomy suggested by Richey and Nelson (1996), this research study aimed to develop a prototypical product and generate some methodological directions for design and evaluation of the product and to reach from context-specific conclusions to generalized conclusions. Therefore, a web based vocabulary learning system was constructed.

Being a developmental research and as explained by Van Den Akker the aim of the current study was "not to elaborate and implement complete interventions, but to come to (successive) prototypes that increasingly meet the innovative aspirations and

requirements" (1999, p.). In fact, a prototype is anyhow described as a functional version of an unfinished instructional unit or product the effectiveness and efficiency of which can be tested (Gentry, 1994). Therefore, the process in the study was spiral and covered mainly analysis, design and development, pilot evaluation, three revisions, the study (implementation), that is, the evaluation and revision activities were repeated until "a satisfying balance between ideals and realization has been achieved" (Van Den Akker, 1999, p. 7). The following activities were implemented throughout the study (Figure 3.1):

- Front end analysis was done. (Problem and context analysis: A preliminary investigation was done including literature review, consultation of experts, analysis of available samples and case studies.)
- The design was supported by theories.
- A preliminary paper-based prototype was prepared.
    - o Content written
    - o Material developed
- **The first web-based prototype** was developed.
- The intervention was delivered in real user settings and was considered from the point of usability, practicality and effectiveness of content, visual and overall design.
- All reflections of the participants were gathered via checklists in the pilot study.
- Modifications and improvements were carried out.
- **The second web-based prototype** was developed.
- All reflections, analysis about the entire design, evaluation and implementation were documented via interviews in the pilot study and modifications were made.
- **The third web-based prototype** was developed.
- A think aloud protocol was carried out.
- **The fourth web-based prototype** was developed (it was implemented as the study).

- All reflections, analysis about the entire design, evaluation and implementation were documented via checklists and interviews in the study.

- Some minor modifications were done. (with on-going formative evaluations)

- **Final version**
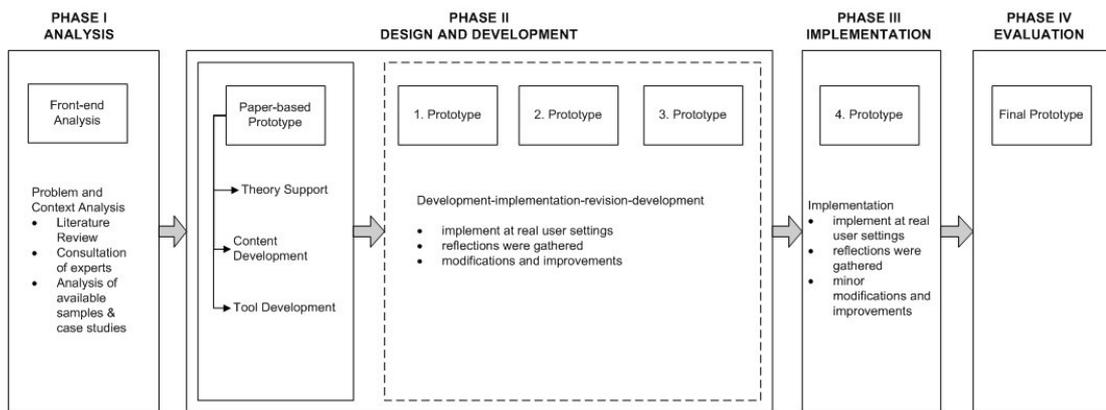
Figure 3.1. Phases of the developmental research

The research design of the study was composed of four main phases (Figure 3.2). The first phase included the analysis of the problem and context. This phase took five months. The next phase was the design and development of the web-based material which encompassed construction of the final material by improving the prototypes and pilot study. This phase took approximately eight months. The following phase was the implementation of the web-based material and included the study and it took three months. All data collection procedures were applied and findings were gained which were evaluated in the next phase. The last phase concerned the final evaluation of the material considering the findings and this in turn brought some final modifications on the material.

Phase I	Phase II	Phase III	Phase IV
February 2006- June 2006			
	June 2006- February 2007		
		February 2007- May 2007	
			July 2007
Analysis	Design and Development of the material Pilot study	Study Data collection regarding implementation	Evaluation

Figure 3.2. Four main phases of the study

3.5. Design of the Web-based Material

The web-based program had two main functions: to allow users follow the design model of the program, somehow giving guidance towards revising pre-learned vocabulary in a systematic way and to create the multimedia program. The idea was that via WEBVOCLE learners could study and repeat vocabulary in a systematic order. The instructional design with its specific characteristic "spaced repetition" in differing periods obliged the researcher to prefer constructing a web-based material more than a CD-Rom based material because the system of the web-based material would automatically deliver prepared content following the design which would be difficult via a CD-Rom. WEBVOCLE, intended precisely to assist in the comprehension and retention of learners' intermediate level vocabulary that had been offered to them previously in-class by providing repeated exposure through a series of modules. The vocabulary studied previously in the classroom was presented in pre-determined order within modules.

WEBVOCLE which was developed in a project funded by the Scientific and Technological Research Council of Turkey, adopted a constructivist approach and emphasized the following features:

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1. Learner-centeredness: Learners worked at their own pace and had freedom about their choice of studying time, the number of visits to the web site, pace and frequency of working on exercises, etc.

2. Contextualized knowledge and meaning construction: Vocabulary was presented in various contexts which enabled indepth processing of target words and the presentation was enriched with the use of multimedia tools (pictures and sound).

3. Opportunities for production: Learners engaged in activities that required meaningful interaction, critical thinking, and genuine language production.

4. Immediate feedback: Learners received immediate feedback about their language productions.

5. On-going / periodic recycling: Participants utilized this web-based material for the revision of vocabulary items that had been learned and studied in class, and the material provided multiple and spaced encounters with the language to be learned.

6. Hypermedia use: Learners were able to reach the information which was a click away.

In the preparation phase of WEBVOCLE, the researcher kept in mind the tenets such as provision of "multiple exposure to new words for learners"; "active, in-depth processing" with meaningful texts and exercises; "relating the new to the known"; "additional reading" with the given texts; "sound components, hints or clues related to word meanings; multimodal presentation of information with online definitions, glossaries or thesauruses" which were described by Wood (2001, as cited in Yip & Kwan, 2006) as the guidelines for designing effective vocabulary learning software.

3.6. Construction of Prototype 1

The construction of the first prototype mainly consisted of the preparation of two parts carried out almost in parallel. These were developing the content of the system and developing the material and/or web based environment.

- **Content Development Process**

Laufer and Shmueli (1997, as cited in Nation, 2001) uttered that lack of context is thought to make vocabulary learning difficult and the words taught in isolation are generally not remembered and/or easily forgotten. Similarly, Hatch & Brown (1995) stated that a sentence context enhances the word-form meaning association and use of words by means of meaningful repetition exercises increases the words' retention in memory. In WEBVOCLE, in order to enhance target vocabulary retention, the vocabulary teaching technique 'contextual guesswork' was applied and all the content was prepared by keeping in mind the tenets of this technique. Target vocabulary was presented to learners in various contexts, which were carefully written by language experts in order to make it possible to infer the meaning of the target words. The contexts surrounding target vocabulary were carefully prepared in order to help comprehension. As found by Parry (1993, as cited in Tozcu & Coady, 2004), a word's meaning only clearly sensed only via repeated encounters in different contexts. Therefore, as in the case of natural word acquisition process, learners were introduced to many contexts for each target word. Each target vocabulary was represented with one consistent meaning but in different contexts.

The content of the system (both the texts and exercises) in the first prototype was prepared by the researcher herself, later it was examined and expert reviewed by altogether four English language teaching experts. That is, after the researcher had developed the modules with the guidance of the language experts, she handed in the content to four instructors from Middle East Technical University preparatory school to get them evaluate the content of the web-based material. The researcher did not choose these instructors on purpose but she handed in the material to the instructors who were available and volunteered. Therefore, a checklist was given to three instructors for evaluation of the material (Appendix A). The researcher particularly refrained from using untrustworthy and not expert reviewed ready texts. In order to create the content at the appropriate level of learners, the texts surrounding the target vocabulary were carefully written since they had to be simple enough for learners to comprehend and they had to provide contextual clues for the target words. Another

reason was that it was not easy to find texts that consisted of those certain target words. The experts evaluated the content of the web-based material with respect to how the vocabulary was presented to learners in the texts and in exercises. To enable incidental acquisition of unknown words through contextual deduction, the comprehensibility of the contexts had to be high and the illustration of the word meanings had to be clear. The material was additionally evaluated from the following perspectives:

- suitability of the material to learners' level, learning styles, expectations, course's learning objectives and web-based self access use
- clarity of instructions,
- effectiveness (whether it is interesting, motivating)
- appropriateness of vocabulary presentation technique
- use of register
- appropriateness as a supplementary material.

After evaluations had been made, the researcher made the necessary changes on the content of the web-supportive material and a language expert reanalyzed it. Developing two modules for the first prototype took almost three months. After the implementation was piloted, some modifications were made, stories were rewritten to stimulate learners' interest for the learning environment, the number of the vocabulary exercises was increased for the learners' motivation, and some new sorts of exercises added to the material.

- **Software and Interface Development Process**

After the content development, the researcher thought that almost half of the work was done now she could go on with the rest. However, it was just the beginning since when the content was started to be adapted to the web based environment many programming obstacles occurred especially with the interface design. Technical adoption process part was difficult than the development of the content. As the technical staff and the researcher had different reasoning mechanisms, it affected the

perception of the material's logic and methodology in itself. The researcher experienced that it was not possible to present everything as she had prepared on paper-based prototype or as she had imagined. However, this situation still had both advantages and disadvantages: though it was a challenging process, the researcher felt her self in every phase of the research controlling every step effectively.

Despite the impediments, the material was developed almost in a month with the all set content. That is, the final paper-based draft of the content was transformed to the software to display it on computer screen as effective as possible. At this phase, the researcher tried to keep up with the criteria and principles for usability and human-computer interaction and aimed at reaching the user-friendliest prototype on the computer. The evaluations were made and modifications were completed before the beginning of the fall semester 2006-2007 in which the pilot study took place.

- **Role of the Researcher**

The researcher in the study performed multiple roles in the design, development of the material and the content. She worked as a content expert, instructional designer, next to being a researcher. While the material was being developed, the researcher also worked in coordination with the instructors and other language experts. The reason for this cooperation was that without involvement of practitioners it would be impossible for her to identify appropriate vocabulary, and vocabulary activities. Prior to developing the course for the pilot study or modifying it for the study, in order to understand learners' needs, the researcher made visits to the both prep schools' testing offices and interviewed coordinators to devise the design of the web-based program. At the development phase, the researcher worked with programmers and a graphic artist to create visual materials to be used in the material. The development phase of the material involved ongoing formative evaluations for the improvement of the material.

3.7. Pilot Study and Findings

A pilot study was held in the semester prior to the application of the study. With the pilot study, the researcher aimed to get ideas of the learners about the material's content with respect to collecting feedback on visual design, instructional design, usability, and effectiveness of it through "checklists for users". It was an effort to obtain data from learners as an aid to the better web-based material provision. This pilot study was carried out to evaluate the prototypical unit of the software as well as to validate the design model. In the pilot study the modules A and B their repetitive applications (A1, A2, A3 and B1, B2, B3) were implemented (see Table 3.2).

Table 3.2. *Instructional Sequence of WEBVOCLE*

1. week	**A,B**
2. week	**A1,B1**
3. week	
4. week	**A2, B2**
5. week	
6. week	
7. week	**A3, B3**

A. Words taken from the first set of vocabulary items*. (Words are given in context followed up by a comprehension exercise) (See Figure 3.3 and 3.4)

B. Words taken from the second set of vocabulary items*. (Words are given in contexts followed up by a comprehension exercise)

*Vocabulary items in the sets were chosen from the learners' course books.

The exercises in each application were in the following sequence:

A1, B1 Repetitive exercise one:

➢ Fill in the blanks exercise (drag and drop) (See Figure 3.5)

A2, B2 Repetitive exercise two:

➢ Multiple choice test

A3, B3 Repetitive exercise three:

➢ Cloze test

Target vocabulary, firstly presented to learners in class (observe), later the learners studied the words on the web by reading the story accompanied by pictures, and completed the follow-up comprehension exercise (hypothesize) and at subsequent weeks, they revised all target vocabulary with an exercise at each application (experiment). The target vocabulary involved only the meanings of words studied in class previously. The researchers deemed three exposures altogether to be adequate for the addition of the lexical information into learners' long-term memory.

Figure 3.3. Sample text with clickable target words

Figure 3.4. True/False exercise

Figure 3.5. Fill in the blanks (drag and drop) exercise

Besides conveying the target words' meanings in context, their definitions, pronunciations and synonyms were presented in the form of a mini dictionary. There are many studies providing data in favor of dictionary use in addition to vocabulary embedded in a context (Al-Seghayer, 2001; Groot, 2000; Hulstijn, 2000; Knight, 1994; Lomicka, 1998; Luppesku & Day, 1993; Lyman-Hager, Davis, Burnett, Chennault, 1993; Lyman-Hager & Davis, 1996). Similarly, Johnson and Heffernan

(2006) stated that when L2 learners are presented with various forms of lexical information in addition to text, comprehension increases. That is, it was thought that this mechanism would help the learners who are in need of more lexical details for the comprehension of the target words.

To reinforce long-term memory residence of the words, exercises in the experiment stages at subsequent weeks were in the form of fill in the blanks (drag and drop), multiple choice and cloze tests. It is suggested by Nation (2001) that real vocabulary learning happens only if the vocabulary is used both receptively and productively by the learners. Therefore, the learning tasks or exercises on the system were designed to test not only recognition but also production level of learners.

3.8. Data Collection Instruments for the Pilot Study

The researcher applied self checklists to get perceptions of the participants about the first prototype.

- **Checklists**: A list of response categories provided by researchers to ask the participants to check the responses that apply to them is called a checklist (Johnson & Christensen, 2004). It is one of the most frequently used measurement instrument. It consists of a list of several characteristics or activities presented to the participants of the study and they are asked to study the list and mark opposite the activities or characteristics that they have dealt for a period of time (Fraenkel & Wallen, 2000).

  Similar to self-checklists, the researcher herself in this study prepared a type of checklist (Appendix B). The items in the checklist were decided on surveying the necessary literature and previous research studies. The researcher collected the items in the form of close-ended questions in a pool and later chose the most appropriate ones. Later these questions were expert-

reviewed for the validity. Some of the questions needed translation; therefore, they were double-checked by the language experts.

At the beginning of the study, the researcher thought to apply altogether four checklists after each weekly application; however, after experiencing that the participants did not return the first checklists or returned them very late without fully completing, she changed her mind and applied only one more checklist by decreasing the number of questions (Table 3.3).

- **Face-to-face Interviews:** During the process, the researcher aimed to collect data that would reveal the differences and/or similarities in the ideas of the interviewees and make comparisons; therefore she carried out "in-person interviews" which were face-to-face (Johnson and Christensen, 2004, p. 178). The researcher implemented interviews with 6 participants focusing on mainly the usability, practicality and efficiency of the web material. The participants' opinions about the content, visual and overall design were gathered. Researchers applied convenience sampling by including the users who were available, volunteered and willing to participate in the sample of this study (Johnson & Christensen, 2004). The interviews lasted almost half-an hour. After collected, the data was transcribed, segmented and coded.

- **Pre-post Attitude Questionnaires:** Although researcher applied pre questionnaire, she was not able to apply post questionnaire with participants due to the decrease in their attendance of the course towards the end of the course.

- **Pre-post Tests:** Similarly, because of decrease in attendance the researcher could not effectively gathered data with the English language vocabulary retention post-test.

Table 3.3. *The application time of data collection instruments in the pilot study*

1. week	**A,B**	Checklist for users A,B
2. week	**A1,B1**	
3. week		
4. week	**A2, B2**	Checklist for users A2, B2
5. week		
6. week		
7. week	**A3, B3**	Face-to-face Interviews

3.9. Results of the Checklists

Checklists required suggestions and the comments of the participants. Although participants were asked to fill in the forms completely, most of them preferred to reply many items just by ticking on as yes/no or not sure, and they ignored the comments parts in the checklists. And many other participants did not return checklists. Therefore, only 20 of the 38 participants efficiently participated in this evaluation. The findings of the checklists were as follows:

Content Design: Most of the informants (n=17) found the proficiency level of the content appropriate. Two learners stated that the texts should be more interesting and motivating. Though more than half of the respondents (n=15) were satisfied with the interest level of the texts, four learners commented that the texts should be more scientific, "be chosen from daily life themes or practices" or they should be changed into more interesting texts by adding some mystery to increase learners motivation. Almost all (n=18) informants declared that they, in general, knew words other than the target words in the content; therefore, it did not hinder their understanding of the stories and exercises. Four participants pinpointed that "there should be more target words on the web-based material", the number of the words in each application should be increased and they should spend more time than 15 minutes on the web-

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based material. Six learners reported that they found the True/False activity following the stories necessary.

Table 3.4. *The results of the checklists regarding content design of the web-based material*

	Criteria	Yes (n)	No(n)	Not sure(n)	Comments	Recommendation
Content Design	Appropriateness of the content for the learners' level of proficiency	17	2	1	No problem with understanding the stories and exercises	
	Suitability and interest level of the texts	15	4	1	The texts have to be more interesting, motivating, scientific or be chosen from daily life practices	Modify the stories or make some minor changes by adding interesting incidents.
	Effectiveness of contexts	18	1	1	No problem with understanding target words from contexts.	
	Vocabulary load suitability	13	6	1	There should be more target words	Increase the number of words
	Effectiveness of True/False exercise following the texts	18	1	1	This exercise is necessary.	

Visual Design: More than half of the informants (n=14) commented that they found the pictures illustrating the stories effective for the comprehension of the stories and the target words. One participant indicated that the agreement between the pictures and stories should be revised. And one other participant stated that the pictures were childish and there could have been real photos. Four of the participants indicated that the size of the letters should be increased to ensure easy readability of the content. Five informants stated that spacing between the lines should be more; therefore, they should be changed from single to double. Three participants pinpointed that the background should be other than white color on the exercises pages. One learner again criticized the current background of the system:

It would be better if the <u>exercise pages were more colorful and different than the one with a white background</u> since the current one has the look of white a paper on screen[1].

However, many other participants (n=17) declared that white background was good but the font size should be bigger.

Table 3.5. *The results of the checklists regarding visual design of the web-based material*

	Criteria	Yes (n)	No(n)	Not sure(n)	Comments	Recommendation
Visual Design	Effectiveness of pictures in telling the stories	14	4	2	Matching between the stories and the pictures should be revised. Pictures are childish, real photos are preferred. Pictures are effective for the comprehension of stories.	Check the harmony between the stories and pictures and if necessary modify pictures.
	Appropriateness of Font size	9	8	3	Font size should be increased to ensure easy readability.	Increase font size
	Appropriateness of Line spacing	8	9	3	Spacing between the lines should be increased. Spacing within the questions is appropriate but between the questions it should be more because it prevents readability.	Increase spacing
	Appropriateness of Background color	17	2	1	It should be other than white color on the exercise pages.	Change the background color

Overall Design: The informants' opinions about the web-based material as a whole were generally positive than the alternative supplementary materials and traditional

methods (n=18). Almost all of the learners (n=17) found the technique, use of contexts for teaching target vocabulary, helpful for comprehension and retention of those words. Again almost all except for two who had technical problems with server access declared that this material worked as an effective repetitive and supplementary material for the in-class learning. One participant reported that

> This is really <u>a good alternative way</u> for the revision of pre-learned vocabulary[2].

Table 3.6. *The results of the checklists regarding overall design of the web-based material*

	Criteria	Yes (n)	No(n)	Not sure(n)	Comments	Recommendation
Overall Design	Suitability of the web-based material as a supplementary material to in-class learning	18	1	1	An effective alternative way for the revision of pre-learned vocabulary Suitable and more effective than alternative supplementary materials	
	Provision of learners' needs	14	2	4	Learning would be more effective should the number of exercises be increased. Texts have to be improved and made more interesting.	Increase the number of exercises. Modify the texts.
	Effectiveness of vocabulary use in contexts	17	3	-	Helpful for the comprehension and retention of words	
	Effectiveness of online dictionary	12	7	1	It takes a long time to access online dictionary when a word clicked	Integrate dictionary mechanism into the material
	The benefit of seeing definitions of the words	9	3	1		
	The benefit of listening to pronunciations of the words	6	2	4		

Three learners believed that learning would be more effective should the number of exercises be increased. Three learners again declared that the texts (stories) should be improved and made more interesting. Eight learners declared that dictionary phase of the material should be improved since it took a long time for them to access words' definition and pronunciation when a new window was opened. To them, this mechanism should be embedded into the material.

3.10. Construction of Prototype 2

According to the results of the checklists some minor changes were made on the prototype. These were not very extensive changes but possible ones that would not interrupt the flow of the instructional sequence of WEBVOCLE. The changes included increasing the font size and at some parts some changes in the background color and increasing the line spacing. Although some other changes had been recommended by the students, the researcher, as aforementioned, decided to carry out only minor changes such as visual design not to affect the instructional program of WEBVOCLE and set aside the other major modifications to be done after the implementation of second prototype.

3.11. Results of the Interviews

The codes and specific comments about interview details were indicated within the tables below.

Content Design: Though nearly all (n=5) except one of the participants found the level and the length of the texts appropriate, when it comes to the number of exercises all of the participants declared that there should be more exercises and more words studied. Regarding the length of texts one of the participants commented that,

> When I sit in front of a computer to read the news from a newspaper's web-page I pass longer ones but if it is on the paper I don't do it; no matter how long it is, I read it. I mean <u>it changes when you read texts</u>

on a webpage; Therefore, <u>shorter a text, more it is read on a computer screen</u>[3].

In contrast to previous participant, another participant declared that,

<u>Texts were not too long</u> and it was better for us since we have just started to learn English. <u>Longer texts, however, would have made us bored</u>[4].

Table 3.7. *The results of the interviews regarding content design of the web-based material*

	Criteria	Yes (n)	No(n)	Not sure(n)	Comments	Recommendation
Content Design	Appropriateness of the content for the learners' level of proficiency	5	1	-	Appropriate.	
	Appropriateness of the length of the texts	5	-	1	Appropriate. "…shorter a text, more it is read on a computer screen".	Check the length of the texts
	Sufficiency of the number of exercises	-	6	-	There need to be more exercises.	Add more exercises and more words
	Suitability and interest level of the texts	-	3	3	Not a story but texts about daily events, social or scientific facts are preferred. "There might be something mysterious added to the texts…"	Modify the stories
	Effectiveness of contexts	6	-	-	No problem with understanding target words from contexts.	
	Vocabulary load suitability	6	-	-	There should be more target words to be studied.	Increase the number of target words

As for the success of the texts' motivation, participants had different ideas. Two of the participants uttered that they preferred not a story but texts about daily events, social or scientific facts. Three of the participants neither liked nor hated the texts. One other participant suggested that,

> There might be <u>something mysterious</u> added to the stories in order to increase motivation and interest and also to ensure our participation for the following weeks because you know <u>learners get easily bored of reading texts</u>[5].

Visual Design: Although five of the participants found the use of pictures illustrating the texts beneficial one of them suggested that these pictures should be improved. Only one participant stated that he ignored the pictures and did not deal with them. A participant suggested that there should be speech bubbles on every picture and the target words have to be studied in these speech bubbles. Another participant stated that,

> Each time when opened the web page and I saw the pictures with the reading texts I first examined them before reading the texts and made implications about the stories. Later I read the texts and checked if my guesses were correct. Though they were helpful to us to understand the details about the given text <u>I found the pictures too big on the web pages. They used to cover too much place on the page and hindered my following the story by separating the story. We had to continuously go up and down with navigation buttons while reading which made me bored</u>[6].

Concerning the font size and font style choice 5 out of 6 participants declared that font size should be increased. One of participants had a remarkable comment on this issue,

> <u>I did not like the font type and font size</u>. Pages looked like old-fashioned as if they were official papers. I felt like I was reading a legal paper only an embossed stamp was missing on it… [7]

The same participant added that,

…I wish the texts and the exercises were a little bit colorful with a bigger font size and on a different background. White background especially on the exercise pages disturbed my eyes since white color on computer screen creates and increases luminance or brightness[8].

Table 3.8. *The results of the interviews regarding visual design of the web-based material*

	Criteria	Yes (n)	No(n)	Not sure(n)	Comments	Recommendation
Visual Design	Effectiveness of pictures in telling the stories	5	-	1	There is no need to deal with pictures.	
	Quality of pictures	4	1	1	"…I found the pictures too big on the web pages. They used to cover too much place on the page and hindered my following the story." There should be speech bubbles on every picture and the target words have to be studied in these speech bubbles.	Improve pictures, add speech bubbles or indicate some words on the pictures
	Appropriateness of Font size	-	5	1	"I did not like the font type and font size. They looked like old-fashioned official papers…"	Increase font size
	Appropriateness of background color	4	2	-	"White background especially on the exercise pages disturbed my eyes since white color on computer screen increases luminance (brightness)".	Change background color

Overall Design: All participants (n=6) in the interviews stated that web-based materials are more organized, and handy in contrast to alternative supplementary vocabulary studying and repetition materials. One uttered that

> If I hadn't found the material helpful I would not have used it. It provided me a <u>systematic way of studying</u> and <u>the opportunity of repeating the words we had previously studied at school</u>… If a word is not repeated it is always forgotten in time. <u>If a word is studied at many sentences the rate of forgetting decreases</u>[9].

The participants especially liked online dictionary part but they also required some improvement for this mechanism of the web-based material. Three participants declared that they preferred to access the definition and pronunciation of the words faster without connecting to another web site. One stated that

> Seeing the definitions of the target words and hearing them when clicked is very effective but it would have been better and more practical if they hadn't been connected to another dictionary's web site. <u>I prefer to hear and see them directly without waiting to connect to another web site</u>. Also if the <u>target words' synonyms</u> had been given, it would have been more helpful[10].

Regarding interface design, participants suggested some changes. For example, concerned with navigation buttons, two of the participants suggested that the navigation through the material should be carried out with next-back page buttons instead of scrolling down and up on pages. They additionally warned that some instructions on pages should be either changed or improved since some didn't make sense. Moreover, again one participant stated that there should be some kind of information about each application before them.

As for the technical problems, two participants stated that they had forgotten their user names and passwords they were given at the beginning of the course to log-into the system. They often forgot them and required the system administrator to resend them. All participants stated that they preferred getting their user names and passwords by themselves or having the chance of changing them.

Table 3.9. *The results of the interviews regarding overall design of the web-based material*

	Criteria	Yes (n)	No(n)	Not sure(n)	Comments	Recommendation
Overall Design	Suitability of the web-based material as a supplementary material to in-class learning	6	-	-	Web-based materials are more organized, and handy. "…It provided me a systematic way of studying and repeating the words we had previously studied at school…".	
	Effectiveness of online dictionary	3	3	-	There should be direct access to dictionary without connecting to another web site.	Integrate the dictionary mechanism into the material. Add synonym's of the target words next to definitions.
	Appropriateness of interface design	3	2	1	Navigation through the material should be carried out with next-back page buttons instead of scrolling down and up on pages. Some instructions on pages should be either changed or improved since some didn't make sense. There should be some kind of information about each application before them.	Change navigation buttons. Check the instructions on each page. Put an introduction page before each application.
	Existence of Technical Problems	2	4	-	Login mechanism should be changed. Users should be able to register themselves.	Change login mechanism.

3.12. Construction of Prototype 3

Learners' responses to interviews led to significant changes, modifications and improvements in the key elements of the web-based material, software design and content of material. Some of these recommendations were similar to what is expected from traditional vocabulary teaching materials which indicates that either web-based or traditional for any vocabulary teaching material the most important thing is the design of content. The other recommendations were about the usability of the interface and some minor modifications.

Table 3.10. *Font size and font type applied in the applications of WEBVOCLE*

Font type : Arial								
		a		a1		a2		a3
Application	Story	True/False exercise	Combo boxes exercise	Fill in the blanks	Drag & Drop	Matching exercises	Multiple Choice	Puzzle	Cloze test
Font size in points	12	14	15	13	14	12	14	14	14
		b		b1		b2		b3
Application	Story	True/False exercise	Combo boxes exercise	Fill in the blanks	Drag & Drop	Matching exercises	Multiple Choice	Puzzle	Cloze test
Font size in points	12	14	14	13	14	13	14	12	14
		c		c1		c2		c3
Application	Story	True/False exercise	Combo boxes exercise	Fill in the blanks	Drag & Drop	Matching exercises	Multiple Choice	Puzzle	Cloze test
Font size in points	12	14	14	13	14	13	14	14	14

Texts (or stories) were rewritten to stimulate learners' interest for the learning environment. The number of the vocabulary exercises was increased for the learners' motivation. And some new sorts of exercises were added to the material. Navigation buttons were redesigned to make them user-friendlier, which enabled navigation to back and next between the pages there would be no more scrolling up and down. The instructions were either simplified or strengthened to increase their understandability. The general look (color, font size and style, pictures) and layout of the pages were made more consistent. The designer adopted the font type 'Arial' which is assumed to be one of conventional and familiar typefaces(Table 3.10). In the choice of font size how easily the reader could understand the information from the web-page was particulary considered and application specific sizes were chosen (Hartley, 1996).

Technical requirements of the web-based material was decreased and specified for novice users. Logging into the system was left to users by enabling them to enter the web site by their own user names and passwords. Multimedia used was revised to ensure enhancement, but not a distraction: for this aim pronunciation of the words phase was clarified and recorded; pictures' size on the web pages was adjusted and they were changed into interactive pictures with the addition of clickable words on them. A few pictures were supplied with animations and enriched with speech bubbles. A new definition and pronunciation of words mechanism added into the system, which let learners access pronunciation and definitions of target words without connecting to another web site. These changes were made through the guidance of human-computer interaction and usability experts.

Outcomes of the pilot study helped the researcher to make the necessary modifications on the design of the material and improve the prototype. The content of the third prototype was prepared by the experts (two teacher trainers) from the preparatory school of Middle East Technical University by either modifying the current stories and exercises in the second prototype or writing and adding some new ones. Vocabulary items in sets included the same words which were in the second prototype and some more which were taken from the same course book. However, these words were previously taught in-class to the learners in the study. The whole content was again peer and expert reviewed by other field experts.

3.13. Think Aloud Protocol

It is one of the techniques which have often been applied in information science research as well as in human-computer interaction studies worldwide. Actually, the use of verbalizations as indicators of cognition such as think-aloud protocol is a "decades- old data collection technique" (Johnston, Bottsford-Miller & Thompson, 2006). Used after pilot test, think aloud process aimed to obtain data from participants" in a natural situation without inserting any changes in their routines" (Fujita, Nardi & Fagundes, 2003, p.1). Similar to self-narration, it is mainly the

process of verbalizing aloud the thoughts and perceptions as s/he completes an activity. It is especially helpful for identifying the points that the participants interpret (Johnson & Christensen, 2004).

The think aloud protocol in this study was in the form of usability testing. Usability testing is described as the process of involving users to evaluate a system from the point of usability criteria, how useful or usable the system is (Corry, Frick and Hansen, 1997). After doing the necessary modifications on the web material with respect to the recommendations gathered through checklists and interviews, a think aloud protocol was carried out with 7 people. After informing users about the material, they were asked to act like preparatory school students who were using the new prototype of WEBVOCLE as a supplementary material to in-class learning. They were reminded to think a loud while they were using the material. The researcher did not interrupt or interfere the users as they were studying on the material but just observed behind and took notes which would enable her to make necessary modifications on the web-based material. Through taken notes, the web-based material had minor modifications. These were: colors of the navigation buttons were changed, buttons' size was adjusted and they were minimized; tones of the background color on the pages were adjusted to enable more readability; instructions on some pages were clarified; some spelling mistakes in the exercises were corrected, and the blank spaces for the dragged and dropped words were adjusted. After these modifications, a further and final examination of the material was carried out by three human computer-interaction experts.

3.14. Prototype 4

In the fourth prototype, again the observe-hypothesize-experiment cycle was used in the instructional process. After studying target vocabulary in the classroom, the learners on the web read the story accompanied by pictures on the web-based material at the beginning of each module (observe) (see Figure 3.6), and completed the follow-up comprehension exercise (hypothesize) (see Figure 3.8). In subsequent weeks, learners were exposed to all target vocabulary items of 3 times, in minimum 2

or 3 exercises (experiment) (see Figure 3.10-3.16). As the study and the web-based material did not attempt to provide the learner with all possible meanings of target words studied in class, the researchers deemed seven or eight exposures altogether to be adequate for the addition of the lexical information into learners' long-term memory (Table 3.11).

The research study indicates that, when foreign language learners are presented with various forms of lexical information about target words besides the texts, comprehension increases (Johnson and Heffernan, 2006). Thus, in the current study target vocabulary items in the texts were presented in the form of a mini dictionary with their English definitions, pronunciation, and synonyms if there had been any. Besides this, it was thought that dictionary mechanism would help the readers of the texts who might lack confidence in their guesses.

Vocabulary was reinforced in learners' long-term memory with subsequent exercises such as matching, gap filling, multiple choice and cloze tests next to puzzles and vocabulary games. As Nation (2001) suggests, real vocabulary learning happens only if the vocabulary is used both receptively and productively by the learners. Therefore, the learning tasks or exercises in the system were designed to test not only recognition but also production level of learners. Apart from aforementioned exercise types, comprehension exercises were added to each module after the texts believing that by doing comprehension exercises, the learners would become familiar with the meaning and usage of words. Vocabulary games, on the other hand, were included in the retention exercises to increase comprehension of the words and motivation of learners. According to the results of their study, Yip and Kwan (2006) commented that online vocabulary games help learners to learn better and the learned vocabulary is retained for a longer period of time. To monitor users' performance and the total time spent on the software, the scores obtained from the exercises in each application were recorded by the system and these data served to evaluate participation of the learners to WEBVOCLE.

WEB-BASED VOCABULARY LEARNING SYSTEM Exit Full Screen

At The Museum

Read the text. You can see the definitions and also hear the words in bold by clicking on them. Please, repeat each word after hearing it. Roll your mouse over the picture to see the hidden words."

It was almost the end of semester and the students were in a great hurry to finish their final assignments at E. T. University. Duru was just one of those students who felt really tired of burrying her head in books in libraries all the time. Still, with the last bit of energy she had, she went to the local zoology museum with her university friend Candan. This wasn't exactly her favourite place to go for an enjoyable afternoon but she needed to **participate** in a special summer seminar for their natural science **research**. She was **reluctant** to take part in this seminar, too; that is, she wasn't enthusiastic about doing such a research project. The reason was that she was more interested in topics such as foreign culture and history, like the ancient Egyptians and the pyramids. Duru was a rather quiet sort of girl, neither very ambitious nor very hardworking at her studies. Candan was quite the contrary. She was the most a hardworking student at school. She had always been successful at school so she was generally felt **confident** about achievement. She was very **assertive**. Otherwise, how could she have made Duru join her to go to the museum?

Now, they were at the entrance of the museum and Duru wanted to try her chances to avoid going there. She said that she didn't have money with her so she could not **afford** to pay for the entrance fee. This did not quite help her. Candan showed the sign on the door: "Free entrance".

As soon as they entered the large hall, Duru sensed a strange smell. The odor seemed to be everywhere around the place. Candan did not seem to feel anything strange at all so she followed her steps close behind to the dinosaur section. That area was even worse. There was a vast **range** of dinosaur skeletons, tusks and talons which were on **display**. Despite the stronger smell, Duru walked closer to a particular **item**. She stared at it for a while when she suddenly froze with fear. The bone was moving! It moved a tiny bit at first. Then it moved a bit more. It was rolling towards her faster and faster.

1 of 5   Next ▶

Figure 3.6. A sample story page from module A. The words in bold were clickable and when clicked the definition and pronunciation of the words were given. This constitutes the observation stage of the lesson

WEB-BASED VOCABULARY LEARNING SYSTEM Exit Full Screen

AT MRS. SCHMIDT'S OFFICE

Her effort paid off. It led her to a good result in a short time since she received the highest mark in her first English exam differing from her previous exams. Managing this in quite a short time was **incredible**. It was the same with many students who had studied English after school with extra materials. It was proved by a student **survey** that spending extra time studying at home was very useful. Most effective was the material especially **selected** by students themselves for getting good marks at all exams. Duru did not forget to thank her private teacher after her exams. She had not forgotten about her previous thoughts about going back to the museum to find out what was strange about the bones there.

◀ Back   5 of 5   Next ▶

Figure 3.7. A sample story page from module B

70
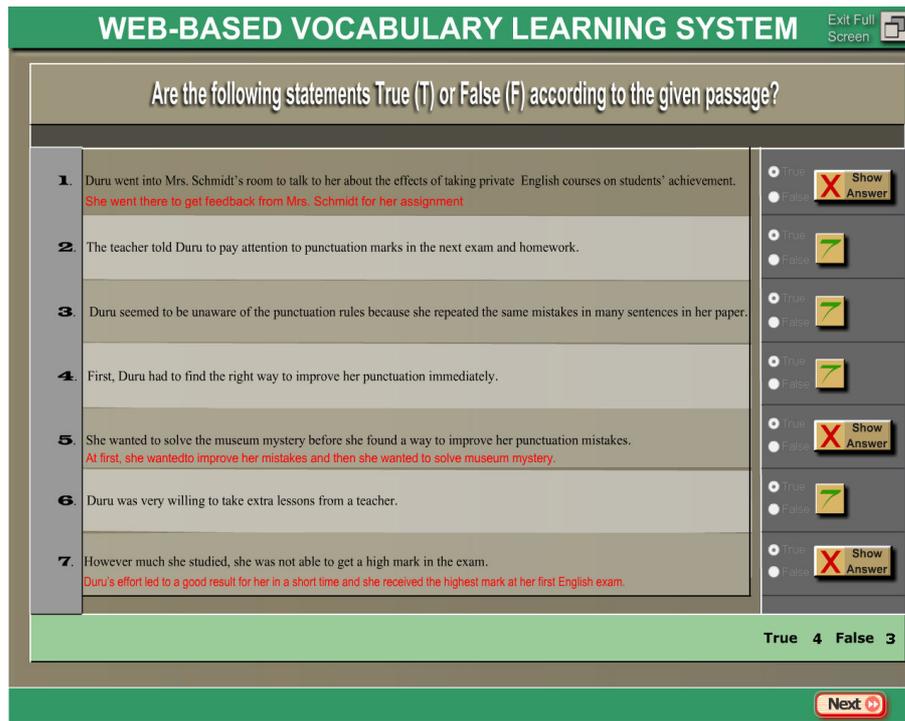
Figure 3.8. True/ False exercises that followed the story, a sample from the hypothesizing stage
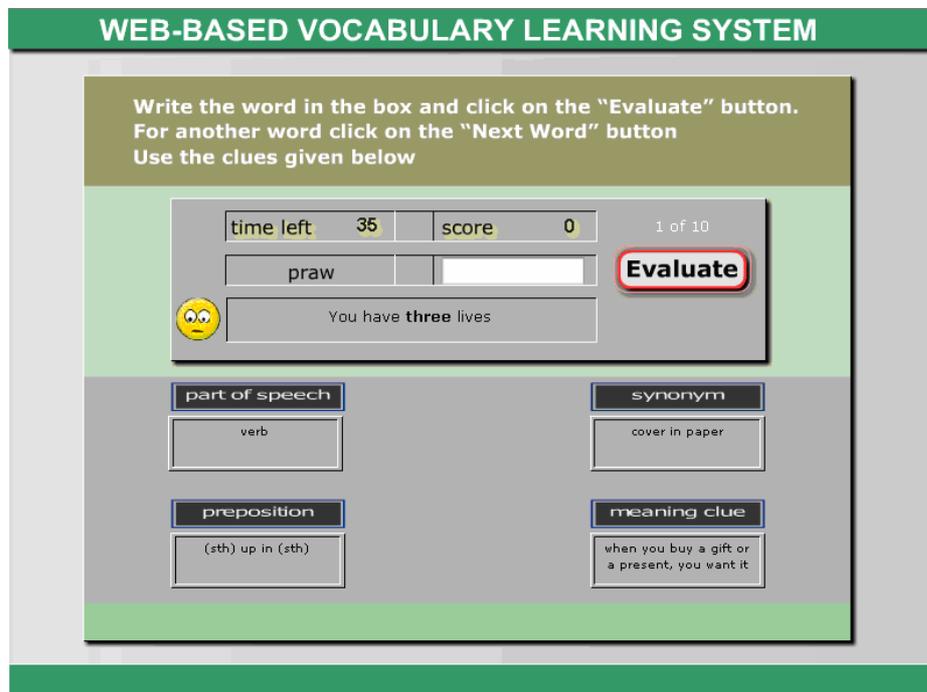
Figure 3.9. Vocabulary game, a sample from the experimenting stage

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Table 3.11. *Instructional Design Model of WEBVOCLE*

1. week	**A**
2. week	<u>B,</u> **A1**
3. week	C, <u>B1</u>
4. week	C1, **A2**
5. week	<u>B2</u>
6. week	C2
7. week	**A3**
8. week	<u>B3</u>
9. week	C3

A Words taken from the first set of vocabulary items. (Words are given in context followed up by a comprehension exercise and a vocabulary game) (Figure 3.6, 3.7, 3.8 & 3.9)

<u>B</u> Words taken from the second set of vocabulary items. (Words are given in context followed up by a comprehension exercise and a vocabulary game)

C Words taken from the third set of vocabulary items*. (Words are given in context followed up by a comprehension exercise and a vocabulary game)

*Vocabulary items in A, B, C sets included the same words which were in the first prototype and some more taken from the same course book. However, these words were previously taught in- class to the learners in the study.

The exercises in each application were as follows and in this order:

X1 Repetitive exercise one:

➢ Choose the appropriate word (in combo boxes) (Figure 3.10)

➢ Fill in the blanks by writing exercise. (Figure 3.11)

➢ Fill in the blanks exercise (drag and drop) (Figure 3.12)

X2 Repetitive exercise two:

 ➢ Matching exercise (Figure 3.13)

 ➢ Multiple choice test (Figure 3.14)

X3 Repetitive exercise three:

 ➢ Puzzle (Figure 3.15)

 ➢ Cloze test (Figure 3.16)

Figure 3.10. Choose the appropriate word from the combo boxes exercise

Vocabulary Exercise Descriptions

The exercises below were applied in WEBVOCLE in this order for every other module. Upon completing each exercise and answering all the questions, learners were expected to click on 'evaluate' button and then they were given feedback telling whether their answers were correct. The correct answers were also given.

Combo Boxes Exercise

This exercise included a drop-down list of two optional words allowed learners to choose from the list of existing options.

WEB-BASED VOCABULARY LEARNING SYSTEM

Duru and her private teacher have met at a café to have a cup of coffee and to talk about Duru's feeling towards her classmates.

Read the dialogue and fill in the blanks by writing one suitable word from the box

indication	prevent	wrap	apparent
appropriate	offended	praise	puzzled
conventional	commitment	admire	rectify

Duru : I'm really disappointed. I didn't expect this from my classmates, really.

Teacher : So you are saying that you felt .... when your classmates didn't congratulate you on your achievement.

Duru : Yes, but not because they didn't .... me or encourage me to improve further; no, it's because they were not sensitive enough to apologize and .... the situation.

Teacher : Maybe they couldn't find the .... time and opportunity to do so.

Duru : I don't know what to think; I'm really .... , because when we started this course together, there was no .... of disapproval or jealousy.

Teacher : I see, but sometimes it is difficult to anticipate what people really think and so you can't .... undesired behaviour.

Duru : This seems to be the conventional way of expressing people's real thoughts. Anyway, I'm sorry to bother you with my problems.

Teacher : No, that's OK. I hope you are feeling better now.

Duru : Oh, yes. Thank you. By the way, how...

True: 0   False: 0

Evaluate

Figure 3.11. Fill in the blanks by writing exercise

Fill in the blanks by writing

The learners were expected to type the words into the blanks. The correct words for the blanks were given above in order to reduce learners' point loss due to spelling mistakes. There was only one correct answer for each blank. There were more words given in the above list than the blanks.

Drag and Drop Exercise

In this exercise, learners filled in the blanks by choosing and dragging the words into the right blanks.

Figure 3.12. Drag and drop exercise

Figure 3.13. Matching exercise in which words' definitions were matched with the words

Matching Exercise

The learners were expected to match target words with their definitions on the right. Words' parts of speech were given in order to facilitate learners work and to make learners revise. More alternatives were given than the matching task required. After clicking on the "evaluate" button, learners were able to check their answers and by clicking on the "see answers" button they were able to see the correct answers on the same page with their answers which enabled them to compare their answers with the correct ones.

Figure 3.14. The multiple-choice test

Multiple Choice Test

This activity consisted of 4-choice vocabulary questions. This test was applied as an exercise but not as an achievement test in the web-based material. There was only one genuine correct answer for each question.
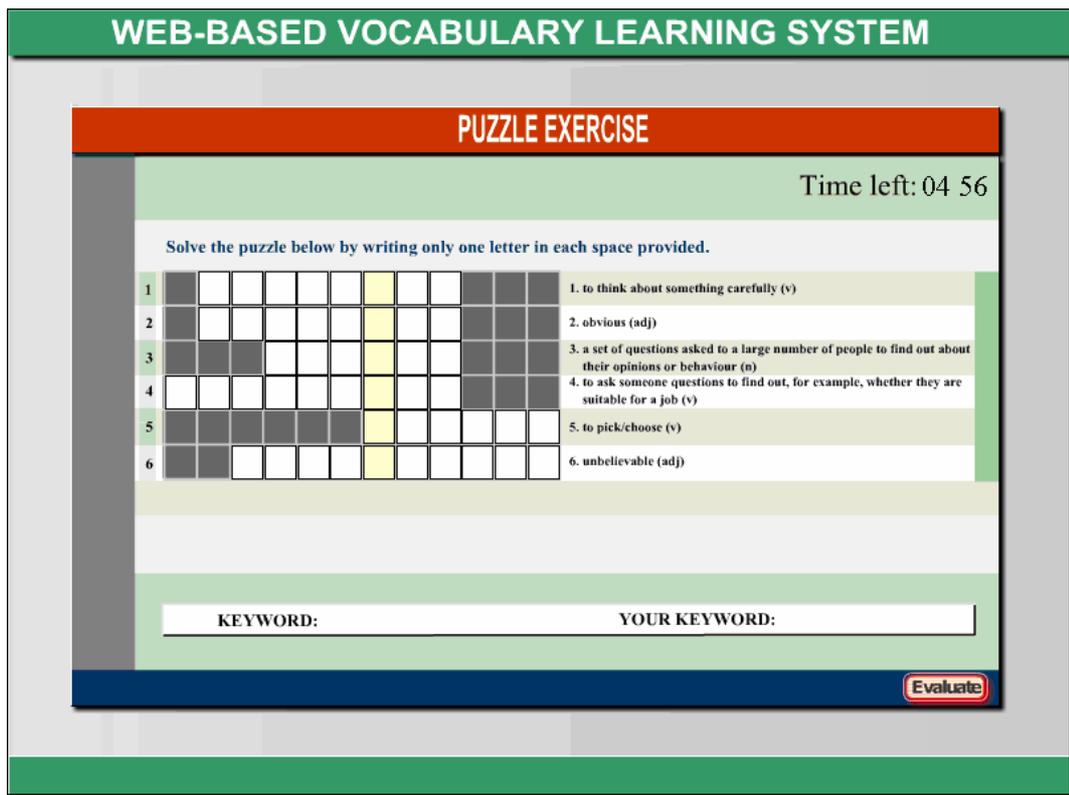
Figure 3.15. Puzzle: The definitions of the target words were given and learners were expected to write the word in the blanks in the correct way. This exercise also checked the spelling

Puzzle

Learners were supposed to fill in the blanks letter by letter with the correct word. Definitions of the words with their parts of speech were given as a clue for finding those words. After evaluating the answers any wrong letter in the answers was indicated with the red color even if the answer was correct to indicate correct spelling of the word. On the other hand, correct answers turned into green.

Cloze test

This activity is similar in style to the 'word in context' exercises. Learners read a text referring to the main text of the module and on the same topic. Learners type correct target word into the blanks, by choosing from given vocabulary list above. The blanks could be completed in any order.

WEB-BASED VOCABULARY LEARNING SYSTEM

EXERCISES-A2

Fill in the blanks by writing the correct word. Be careful there are more words given than you need

| considered | apparent | appeared | selections | devised |
| interviewed | survey | admired | advertisements | incredible |

Have you ever _____ going to a fitness center to lose some weight? Well, I have. I used to be a fat girl all my childhood and teenage years till two years ago. I would admire fit ladies who could wear whatever they liked. Actually, to everybody around me, I was not that bad in my appearance, but still I was not happy with my weight. Every time I looked in the mirror, I used to see a huge body and I was feeling gross. I should do something. First, I asked my friends for the right fitness center to go. I required a center with high energy and good music. They told me to buy a local newspaper and check the _____ of the centers in our surrounding since such _____ affect the outcome according to them. I bought one paper with lots of advertisements inside. When I was reading it, I saw that somebody _____ a famous top model for this. She was talking about a fitness center she had been going to for years. She was a real beauty whom I had always _____ and wanted to be like. I decided to go and register so I did. They _____ a specific exercising programme for me, that is, the programme was written according to my weight, height, amount of fat in my body etc. After several months, there was a(n) _____ change in my look. I _____ smaller in the mirror. I was much more ambitious about losing weight after I saw the change. Today, I am still going to that fitness center, following a much painless program to keep fit. I have never gained those kilos again and I am very pleased with my new appearance.

Evaluate

Figure 3.16. Cloze Test

Learners were given freedom and had autonomy in studying on the web-based material. As it is outlined in the principles of constructivist language learning, learners had the freedom of visiting and revising the exercises in each module of WEBVOCLE whenever they required. And again it is outlined in the design model and the "spaced repetition" technique principles, learners were allowed to practice the vocabulary items at specified intervals. Besides, the time of each repetition was decided on keeping in mind the fact that, to ensure 95% retention of words, vocabulary should be practiced 1-10 days after learning the word in class. Therefore, the first contextualized practice was carried out the day after in-class exposition of words, the second repetition was one week after that, the third one was two weeks after the first application and the last one appeared three weeks after the third one. Thus, the spacing between repetitions increased as the program of the material progressed.

The context-based vocabulary and other activities were continuously changed as the weeks progressed. After an application had been studied by the learners, it was

removed and the following one replaced. To exemplify, after studying Module A (Vocabulary in a story and comprehension exercise with a game-like activity), A1 was made available to the learners one week after the first practice with two gap-filling exercises (one drag and drop and one fill in the blanks by writing exercise) and with one choose the correct one exercise (combo boxes exercise). Next, A2 was made available with a multiple choice and vocabulary-to-definition matching exercise two weeks after the previous one, and finally, A3 came as a close test and a puzzle three weeks after A2. The exercises were provided in spaced intervals getting longer each time. That is, learners were not allowed to study the previous weeks' or months' vocabulary because the researcher aimed to see the effects of spaced repetition in such intervals.

With the provision of the web-based material, the learners, who often complained about forgetting learnt words and not finding sufficient exercises on pre-learnt vocabulary, were motivated to take free vocabulary revision program on the web by their instructors. They were told how to use the system and guided to login the system with their private passwords. According to Loucky (2005), there should be tracking or feedback mechanism in online vocabulary learning programs. With this in mind, all the activities had been designed to give feedback after each exercise is completed so that learners could both check their answers and see their progress through weeks. Similarly, the researcher and the other teacher could monitor learners' progress in vocabulary proficiency by checking the online reports concerned with learners' performance on WEBVOCLE. The researcher was responsible for maintaining an effective and efficient learning environment. When required, she provided a technologist to give technical support to learners and the instructor to overcome the technical barriers in the process.

In WEBVOCLE the first text in each module included the words hyperlinked and clickable and provided definition and pronunciation of those words with their parts of speech. Besides, a visual representation of the context in the story was provided to facilitate the comprehension of the texts. The parts of speech were given for each word to inform the learner more about the form of the words than just their meaning.

Thus, the learners would be able to see and learn the word's pronunciation, collocations, register and its use in a sentence. Besides the instructional content of the program, there were pre-post questionnaires given on the web. Program's software was employed in such a way as to ensure that each of these data collection tools was completed. Learners were not allowed to access the applications in the first and in the last week without wholly completing pre and post questionnaires.

3.15. The Study

The study was conducted in almost one semester (11 weeks), in spring semester from February to May. A within-subject design was used in this study with 69 participants who were exposed to web-based vocabulary again as a supplementary material, that is, the system to be used at present research study enabled the revision of pre-learned vocabulary items. The researcher decided to apply convenience sampling and studied on three available classes of intermediate level learners at the School of Foreign Languages (Preparatory School), at Gazi University. As known, a convenience sample consists of individuals who were conveniently available for study (Fraenkel & Wallen, 2000). The researcher included information on demographic and other characteristics of the sample in the study. The convenience samples in this study were considered to be representative of the population for all intermediate level learners at Gazi University Preparatory School since these learners had already taken the same determination exam of the preparatory school measuring their English language proficiency and passed with almost the same degree prior to beginning of the semester.

Before releasing the web-based material to the access of learners, the researcher applied an exploration hour with each of the three classes and told the students how to register, how to log-in and to log-out the system, how they will move between the pages, how to use other navigation buttons and some information about pop-up windows, how to adjust screen resolution etc. In fact, the researcher wanted to introduce the material for the learners who were supposed to be devoid of adequate computer skills (Roh et al., 2001 as cited in Pekel, 2002). Because there is not any

Internet access in the classrooms, the researcher brought her laptop for the presentation. This session took approximately 50 minutes for each class.

The implementation was carried out according to the table below. The researcher hoped mainly to measure; the effect of gender and place of the Internet access on learners' vocabulary retention levels; learners' attitudinal changes towards English language vocabulary learning and web-based English language vocabulary learning; the perceptions of the learners about the benefits and difficulties with the use of web based material's content with respect to collecting feedback on visual design, instructional design, usability, practicality, learning words in context, studying vocabulary on computers and/or through a web-based material and whether or not there was a significant difference in the vocabulary retention levels of the learners with respect to their participations to WEBVOCLE.

Table 3.12. *Implementation*

1. week	**A** (February 19-25)	Pre- attitude questionnaire, Pre-Test A*
2. week	B, **A1** (February 26- March 4)	Pre-Test B*
3. week	C, B1 (March 5-11)	Pre-Test C*
4. week	C1, **A2** (March 12-18)	
5. week	B2 (March 19-25)	
6. week	C2 (March 26- April 1)	Checklist for users A,B,C
7. week	**A3** (April 2-8)	Face to-face interviews
8. week	B3 (April 9-15)	
9. week	C3 (April 16-22)	
10. week	(April 23-29)	
11. week	(May 7-13)	Post- attitude questionnaire, Post-Tests (A,B,C)*. Round table interviews with focus groups. (Material is on screen in front of the learners)

*Tests A, B, C: English language vocabulary retention tests.

As uttered by Borne (1993, as cited in Nelson and Tsang, 2000), "motivating students to learn is a difficult task since the dawn of civilization" (p. 388) and when

it comes to a programmed environment and a design methodology it is much more difficult. The researcher herself experienced it during the implementation; therefore, she continuously reminded the users of the system and the due date for the present week's application. In fact the evaluation never ended even in the study. The researcher continuously evaluated and improved the material. As Khan (2004) suggested this is a typical behavior for many e-learning projects. Though summative evaluation is performed to assess the e-learning product finally, formative evaluation is inherent at the development stage of it. One of the recommendations offered by learners just after the first week was that there had to be detailed information pages describing what they were supposed to do before every application. In the second week, enriched informative pages were prepared and added to the material (Figure 3.17).
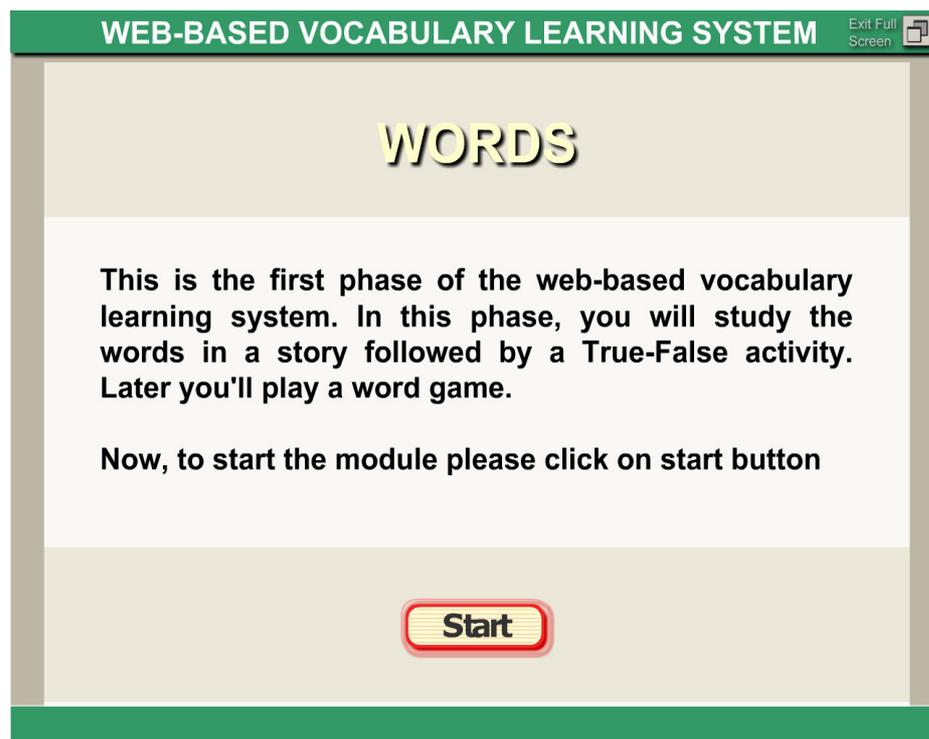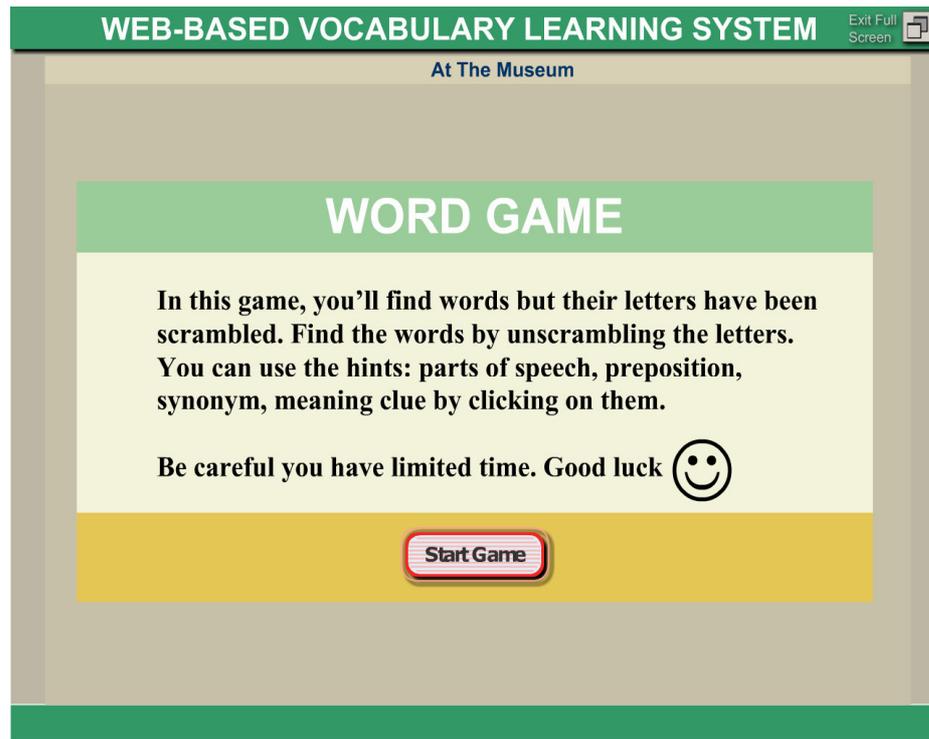
Figure 3.17. Sample informative pages

3.16. Data Collection Methods and Instruments

This developmental research primarily employed both descriptive and qualitative research methodologies. That is, reports of this developmental research took the form of qualitative research methodology and also the study encompassed some empirical measurements to explain material's (WEBVOCLE) effectiveness on learners' English language vocabulary retention and attitudinal changes quantitatively. Data triangulation was applied to overcome the weakness or intrinsic biases and the other problems that come from one single method; thus, qualitative data was collected by self checklists, by follow-up face-to-face and by focus-group interviews during and after the implementation. As known, data triangulation is described as one of the most important criteria for the provision of validity and reliability of a study and for testing the plausibility of the findings of it (Yıldırım & Şimşek 2000).

As known Hillman, Willis and Gunawardena (1994) added a fourth interaction, which is between 'learner and interface', to the Moore's (1989) identification of

interactive relationships regarding on-line learning: learner-content, learner-instructor and learner-learner. Throughout the implementation, the researcher aimed to obtain ideas of the learners about the material's content, its visual design, instructional design, usability, and effectiveness of the material through "checklists for users" and interviews for deeper understanding of users' thoughts. It was an effort to collect information from learners as an aid to better web-based material provision. Morse and Richards (2002) clarified that if the aim of a study is to learn from the participants in a setting or process what they experience, the meanings they put on the situation, and how they interpret what they experience, one needs methods that will allow him to discover and do justice to their perceptions and the complexity of their interpretations. As stated by Marshall and Rossman (1999), it is not possible to understand human actions without understanding the meaning that the participants attribute to those actions- their thoughts, feelings, beliefs, values, and assumptive worlds; therefore, researchers need to understand the deeper perspectives captured through face-to-face interaction (p.57). This study was carried out to evaluate the prototypical units of the software as well as to validate the design model. Learners' responses to checklists and the follow-up interviews provided valuable information about how learners found the web-based material regarding its usability, practicality and effectiveness and which would lead to significant changes, modifications and improvements in the key elements of the web-based material prototypes and content of it.

The researcher tried to understand and report learners' perceptions towards the web-based material by allowing the same participants to be exposed to the same treatment conditions. By using qualitative methods, it is possible to reveal what kinds of perceptions learners have towards the web-based material; therefore, the researcher decided to collect data mainly qualitatively. This non-numerical data was thought to help explain or develop a theory about a relationship and better understanding of the variables such as perceptions of the participants besides the numerical data explaining the improvement in English language vocabulary retention level and attitudes of them.

Throughout this development research study, by formative evaluations a spiral development work was done. The researcher carried both the roles of a designer and a researcher in order to get suggestions for improvement of the shortcomings of intervention and to test design principles. At the end of the study, with the findings the researcher hoped to make additions to the field's knowledge of instructional design, development, and evaluation and exhibit what was learned through whole process by reflecting lessons learned from new design and development of the material, evaluation processes and conditions facilitating its use.

The researcher expected to find sufficient details about the following items by using these instruments:

A Self-Checklist

To get learners' perceptions of the material was highly vital; thus, with their ideas the material was examined and improved. In Kirkpatrick's four levels of training evaluation (1994), it was implied as 'reaction evaluation' and the items that were checked with the checklists were:

- did the trainees like and enjoy the training?
- did they consider the training relevant?
- was it a good use of their time?
- did they like the venue, the style, timing, domestics, etc?
- level of participation
- ease and comfort of experience
- level of effort required to make the most of the learning
- perceived practicability and potential for applying the learning
- feedback forms based on subjective personal reaction to the training experience(Kirkpatrick, 1994).

According to Hémard (2006), checklists might be used for tried and tested heuristics closely related to design guidelines since they can provide a convenient and practical method to verify and compare specific aspects of the interaction and interface design.

In order to learn satisfaction level of learners of the web-based vocabulary learning material and model, the researcher applied self-checklists that were previously piloted in the first semester. Learners' responses to checklists in the pilot study led to significant changes in the key elements of the web-based material and the checklist it self. Some of the questions were deleted, combined and some new questions were added. Moreover, the places of some questions were changed which were under the themes 'content design, visual design and overall design'. (Appendix B)

The researcher particularly aimed to get the perceptions of the learners about the benefits and difficulties with the use of web based material's content with respect to collecting feedback on visual design, instructional design, usability, practicality and effectiveness of it through "checklists for users". It was an effort to obtain data from learners and their evaluations of the program as an aid to better web-based material provision.

The responses of the self checklists helped the researcher to collect qualitative data in order to explain the changes in pre and post applications. Moreover, outcomes of the checklists helped the researcher to make necessary modifications on the design of the web-based material and improve it during and after the research study. During the implementation, besides checklists, 8 purposively chosen subjects were interviewed so as to elicit a deeper understanding of their opinions and attitudes towards material. The data gathered through the interviews were compared with the data gathered through the checklists.

Criteria for the selection of checklist items were based on teacher beliefs and experiences about language and learning, previous questionnaire data and a review of literature. But for the most part, checklist items consisted of general but key language especially vocabulary teaching course elements that would be relevant to most teaching contexts. The items in the visual design were chosen from the items in visual design checklist of Heinich, Molenda, Russell & Smaldino (2002). What was more important than the selection of items was the extent to which data could be successfully interpreted and then translated. To get extensive written comments and

suggestions was necessary to interpret learners' perceptions. Only when these comments were combined with data obtained from Likert scale scores (with the attitude questionnaire) and examined as a whole it could be possible for the researcher to construct a reliable impression of learners' perception of the implementation. The participants were given the choice of agreeing, disagreeing, or taking the position of undecided and their comments were gathered to elicit in depth information for the questions in the checklist.

The checklist consisted of 25 close-ended questions focusing on the following main areas:

- Content Design; 8 questions
- Visual Design; 9 questions
- Overall Design; 8 questions.

Interviews

Interview is the most prevalent data collection instrument in social sciences and in the art of sociology (Briggs, 1986; Marshall & Rossman, 1999). Interviewing helps the researcher to understand other peoples' sights and perspectives (Patton, 2002). Through an interview, a researcher tries to get the experiences, attitudes, thoughts, ideas, comments, perceptions and responses of the interviewee. It could be assumed as a simple dialogue, that is, a talking and listening session; however, it is not always as easy as it is always seen. Its advantages are "flexibility, response rate, behaviors not seen, the control of the environment, the order of the questions, sudden responses, confirmation of the data provider, comprehensiveness and in-depth information" (Yıldırım & Şimşek, 2000, p. 97-98).

Yıldırım and Şimşek (2000) state that there are two common types of interview; a structured interview which consists of an interview protocol with close-ended standardized questions and an unstructured interview which consists of open-ended questions. Hémard (2006) suggests that no matter how good the evaluation of the

product are, inefficiencies as well as user behaviour and preferences will only come to light and be crosschecked with the mass use of directed and focus group interviews.

In this study, the researcher applied both types of interviews:

- **In-person Interview**: The researcher applied the same interview protocol that was piloted in the first semester for the reliability. The interview protocol covered the standardized close-ended questions of the checklists that had been previously asked to the interviewees and the interviewing process took approximately 30 minutes. Therefore, the interview included 8 questions about the content design, 9 questions about the visual design and 8 questions about the overall design of WEBVOCLE. The interviewees were also made to comment on their replies by the following "why" questions. In the choice of interviewees, the researcher applied stratified purposive sampling. The researcher divided the group of learners according to their interest and participation rates to applications in WEBVOCLE, that is she formed 'strata' as interested, not interested and fairly interested learners and then selected few learners among each strata (Table 3.16). This technique is described by Patton (2002) as selecting "samples within samples".

- **Focus Group Interview**: As being the moderator herself, after the implementation, the researcher led discussions with 3 small groups (including 4 participants each) to examine in detail how the participants think and feel about WEBVOCLE. These interviews lasted approximately 45 minutes. The researcher purposively applied homogenous sampling and brought together learners' of similar interest and similar participation rate in WEBVOCLE according to weekly applications. Since the system recorded the frequency of learners' participation in activities, the researcher was not coerced with determining the right learners for the groups. The groups were classified as strong (with high interest rate learners), medium (with average interest rate learners) and finally weak (with low interest rate learners). The unstructured

interview protocol consisted of one open-ended question to discover what the participants' ideas were about the common themes of the study. As suggested by Yıldırım and Şimşek (2000), the researcher refrained from asking too many questions and limited these sessions with one common question:

How did you find WEBVOCLE regards to its content, visual and overall design?

The researcher thought that she would get every member's reply of the focus groups by asking one broad-spectrum question and by the help of the atmosphere of the interview, without limiting the participants. Moreover, this prevented the researcher from getting only yes-no replies to the questions which might happen with a structured interview. However, apart from the interview protocol, the researcher asked some more specific questions about the systems' effectiveness on the retention of vocabulary, system's usability and efficiency of guessing target vocabulary from the contexts in order to get more in-depth data.

Either face-to-face or focus group, all interviews were audio-recorded by taking consent of the interviewees in order to facilitate data collection.And during all interviews, the web-based material was on and in front of the interviewees to remind them of the applications.

The Attitude Questionnaire

A questionnaire is commonly described as an inexpensive way of collecting data from a large group of respondents. It enables the researcher to be able to obtain the information about "the thoughts, attitudes, feelings, beliefs, values, perceptions, personality, and behavioral intentions" of a large group of people with minimum cost (Johnson & Christensen, 2004, p. 164).

Questionnaires could be used to obtain data with multiple research methods such as experimental, qualitative, correlational and so on. The construction of a questionnaire corresponds with the researcher's research objectives (Johnson & Christensen, 2004).

The attitude questionnaires in the research were prepared by the researcher and they were used to gather information on the attitudes of participants' towards web-based vocabulary learning. After choosing the 27 questionnaire items by surveying the literature and similar questionnaires in the field of study (Çakır, 2003; Pekel, 2002; Tokaç, 2005; Ekmekçi, 1999; Koçak, 1997), the researcher asked the experts to review all items for validity. Next, the expert-reviewed questions were organized and English written ones double-translated by the language experts. The data gathered by demographic survey was used to correlate with the results of the tests among the participants. (Appendix C)

The multiple-choice questions in the attitude questionnaire were carefully designed and to provide an accurate picture of the learners' opinions. The questions were closed-ended and required participants to choose from a limited number of responses with "a fully anchored rating scale" (Johnson & Christensen, 2004, p. 171). The rating scale consisted of

Table 3.13. *Rating scale in the attitude questionnaires*

5	4	3	2	1
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

The attitude questionnaire was divided into two sections and made up of 27 questions on a 5-point likert-type scale. The learners completed the questionnaire in Turkish.

The Effect of Demographic Characteristics:

There was a demographic characteristics survey to identify the learners' gender, previous experience with computers and with web based education, and learners' access of computers and of the Internet. It was only administered at the beginning of the study and some of the demographics were used to explain the impact of demographic characteristics on the English language vocabulary retention level of the learners.

English Language Vocabulary Retention Tests

Vocabulary retention tests were designed by the researcher and language experts to measure the degree of retention that has taken place after learners' exposition of the target vocabulary through web-based material. (Appendix D) They are supposed to fall under one of the "subject-completed instruments" as an achievement test (Fraenkel & Wallen, 2000). The researcher applied the same pre and post English language vocabulary retention tests at the beginning and at the end of the implementation.

The Contribution of Web-based material to Learners' English Language Vocabulary Retention:

In order to gather information about the learners' level of English language vocabulary retention, an identical pre- and post-tests were given to learners before and after the implementation. Kirkpatrick's four levels of evaluation (1994) state that this level of assessment, learning evaluation, focuses more on the learners' advance of skills, knowledge or attitude than their satisfaction. Application of pre- and post-tests are highly appreciated to determine the amount of learning that has occurred due to a training program (Winfrey, 1999).

Comparison of Test Performance
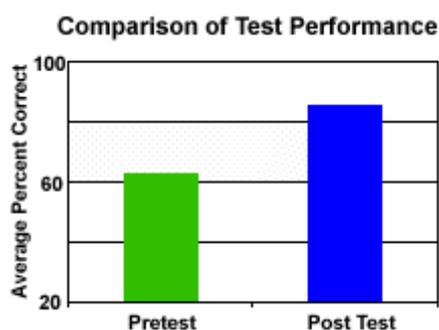
Figure 3.18. Level 2 Evaluation – Learning (taken from Winfrey, 1999)

The vocabulary retention tests were given both at the beginning of the semester (given after learners' first exposition of words in class) and in the end after the implementation to measure if there was a significant difference in the levels of learners with respect to English language vocabulary retention. The posttest was not administered until week 11 since the researcher believed that the results of such a test would better reflect subjects' relatively longer-term retention of words after some time passed. In order to understand learners' proficiency of words, learners were expected to do one or more of the following as suggested by Nation (2001):

- be able to recognize the word when it appears in a context,
- be familiar with written form of the word when met in reading,
- know what the word means in particular contexts.

The researcher did not have to decide herself which vocabulary items to provide with the material. With its function in supplementing in-class learning, the material covered some of the vocabulary previously taught at school. The numbers of test questions were as follows:

English language vocabulary retention Test A: 9 Questions (Prior to and after the implementation of module A)

English language vocabulary retention Test B: 10 Questions (Prior to and after the implementation of module B)

English language vocabulary retention Test C: 11 Questions (Prior to and after the implementation of module C)

It should be noted that learners were told before hand that they would study on the vocabulary they had studied in the classroom but they did not know which words they would study. The researcher informed the learners how to register, log-in and use the program prior to the beginning of the implementation. Although learners were tested before using the software, they did not expect a test afterwards. All instruments were piloted at the previous semester.

3.17. Selection of Samples

As described by Fraenkel and Wallen (2000) "a sample in a research study refers to any group on which information is obtained" (p. 103). In both studies, in the choice of classes the researcher applied convenience sampling and she included her sample the classes that were "available and could be easily recruited" (Johnson & Christensen, 2004, p. 214). The diversity of the students was not a factor as the study was a within subject design.

- **Sampling for the Pilot Study**

The researcher started to implement the pilot study at English Language Learning classes of the Certificate School of Middle East Technical University in the fall semester 2006-2007 since the researcher was a student at this university. These participants included of 38 learners from two intermediate classes. Learners were mostly research assistants from various universities or employed people learning intermediate level English. Participants' weekly number of lesson hours was 20 in intermediate level and the study took approximately two and half months. The participants of the study reported having no problems in accessing computers and the Internet connection.

With the demographic study, which was given at the beginning of the study to the learners, the researchers evaluated the rate of accessing computers and the Internet for the language learners. With the rate of the (%91.7), participants had no problems in accessing the Internet through their computers at work or home. The other participants (%8.3) followed the study at the Internet cafes. The researcher carried out checklists and interviews to determine learners' attitudes toward the web-based vocabulary repetition system which served as a supplementary material to in-class learning. However, the participation of students was severely decreased towards the end of the implementation and the researcher experienced some troubles in the collection of filled-in checklists. She applied convenience sampling again and carried out additional face-to-face interviews with whomever she could reach or whoever were volunteered. Because it was a certificate course and most of the students were working, several participants had dropped off the study or they had lost their interest. Therefore, the researcher decided to implement the study definitely at the Prep school of Gazi University, where she was working as an English language instructor.

- **Sampling for the Study**

The researcher decided to implement the study at two classes of her own and another class of researcher's colleague at Preparatory School of Gazi University. The classes approximately consisted of 24 students and she started the implementation with 73 students. However 4 of these participants dropped off the study at the very beginning of the implementation. Therefore, the participants in the study totally included of 69 intermediate level English language learners. The study was carried out in the spring semester of 2006-2007. Participants' weekly number of lesson hours was 20 in intermediate level and the whole study took one semester, which was approximately 4 months.

3.18. Validity and Reliability

Validity and reliability are two important issues in qualitative research studies in order to prove persuasiveness of the results (Cresswell, 1998). According to

Cresswell (1998), these concerns involve data collection, analysis and write-up process of a qualitative study. He emphasizes eight major verification procedures in the qualitative study these are as follows:

1. Prolonged engagement and persistent observation in the field
2. Triangulation: use of multiple and different sources, methods and investigations
3. Peer review or debriefing
4. Negative case analysis
5. Clarifying research bias
6. Member checks
7. Rich, thick description
8. External audits (Cresswell, 1998)

For quantitative studies, on the other hand, there are ways to attain reliability such as test-retest method, equivalent forms method, internal consistency method and inter-scorer reliability. Internal validity can be called as causal validity which means one's justification in making causal inference from one's data. Cook & Campbell (1979) define internal validity as "approximate validity with which infer that a relationship between two variables causal" (p.230, as cited in Johnson & Christensen, 2004).

In the study, to provide reliability and validity issues following concerns were taken into account. First of all, triangulation was applied by using data collection methods which were face-to-face interviews and checklists to confirm the evidence of the gathered data. Moreover, the checklist and interviews' schedule were prepared by taking experts' reviews to ensure validation. All interviews were audio-recorded with the consent of the interviewees and were completely transcribed by the researcher warily. Besides, coding system and codes of transcriptions were reviewed by experts and peers. For the quantitative data the conditions under which the study occurred were standardized which helped controlling of the location, instrumentations, subject attitude, and data collector threats. Information about the subjects was gathered which helped the control of subject characteristics threat and

mortality threat, as well as maturation and regression (Fraenkel & Wallen, 2000). To recap, in all processes reliability and validity concerns were taken into consideration by the researcher.

3.19. Validity Threats and Coping Strategies

As Fraenkel &Wallen (2000) state, in every study there is always the possibility of many alternative hypothesis that might exist and explain the outcomes of a study. "These alternative explanations are often referred to as 'threats to internal validiy' (p.190). The validity threats and coping strategies for the present research study are given below:

- Research Question 1: What are the effects of demographic characteristics of learners on English language vocabulary retention level gained through the web based material?

Although there are many other possible 'subject characteristics' that might have affected English vocabulary retention level of the learners, the researcher identified gender and age, computer access, Internet access, weekly Internet connection duration, experience of computers, previous experience with computers, the Internet and web-based instruction. These variables were controlled with the given demographic survey at the beginning of the study. Moreover, the effects of gender and the place of Internet access on the vocabulary retention level of participants were measured.

- Research Question 2: What are the perceptions of learners about the benefits and difficulties with the use of Web-based material in the learning of English Vocabulary during and after using the material?

In order to overcome the probable misinterpretations and facilitate attaining of the necessary data in the analysis of the checklists and interviews, the researcher previously prepared a template which included the main themes. The researcher

carried out the face-to-face interviews by following the same template and by questioning those necessary items. Thus, the researcher was able to overcome the threat called as 'instrument decay' in the literature (Fraenkel and Wallen, 2000).

- Research Question 3: Is there a significant difference in the attitudes of learners' towards web-based vocabulary learning before and after the implementation?

  o Is there a significant difference in the attitudes of learners' towards English language vocabulary before and after the implementation?

- Research Question 4: Does WEBVOCLE have an impact on the learners' English language vocabulary retention?

The validity threat which is called 'mortality effect' was likely to affect attitude questionnaire and vocabulary retention test scores. In order to overcome this, sampling number had been taken as high as possible and it had been announced that students' absenteeism on the web-based material would be seriously checked for all participants and for the whole semester.

All vocabulary retention tests were delivered by the testing office staff at the preparatory school not to evoke learners; thus, learners thought that they were taking a typical pop-quiz test which they weekly take at school. Even the layout of the tests were same with that of pop-quizzes of preparatory school. All participated classes took the tests from the same person, at the same lesson hour within the same duration in order to prevent data collector bias. The number of the questions in the tests were reasonable and enough to measure learners' retention level of target vocabulary. The questions were not long or difficult to be easily scored by the researcher.

In order to eradicate 'testing threat', learners were not informed about the post-tests. The post-tests were again in the form of pop-quizzes and were applied in the middle of an lesson hour. Finally, because the implementation was on the web in order to

prevent 'history' effect, which was called as an occasion, one or more anticipated and unplanned for that might affect the responses of the participants of the study (Fraenkel & Wallen, 2000), the researcher was continually alert to the technical problems. If any occurred, she immediately tried to solve the problem or overcome it by notifying the technical person about it. She did not let any technical problem interrupt the flow of the research study.

3.20. Analysis of the Data

In the study, data was gathered through qualitative and quantitative techniques with lots of data collection tools in the spring semester of 2006-2007. The summary of the detailed data collection procedure is indicated in Table 3.17.

- **Analysis of Quantitative Data**

The answers given for the demographics, fully-structured attitude questionnaire with close-ended questions and vocabulary retention pre- and post tests were used to collect data through quantitative techniques. These data were, firstly, transferred to the digital environment. After finishing the necessary consistency checks (editing) and coding were complete, secondly, they were analyzed using SPSS statistics software. The reliability check of the attitude questionnaires were carried out. According to Pallant (2001), in terms of reliability most significantly the Alpha value is evaluated which is Cronbach's alpha coefficient. If the value is above .7, the questionnaire could be considered as reliable. In the current study the Cronbach alpha coefficient was .75 for both attitude questionnaires.

The first question of the study investigated the effects of demographic characteristics such as gender and participants' access to the Internet (e.g at home, in residence halls, at Internet cafes on the English language vocabulary retention level of the learners improved through the web based material. For this aim, firstly, frequencies and percentage frequency tables were calculated and graphics were outlined. For gender effect on the English language vocabulary retention level of the learners

improved through the web-based material, independent samples t-test was measured because there were two independent groups for the analysis: such as female and male for the grouping variable gender and the test variable as vocabulary retention level. On the other hand, for the analysis of the effect of the place at which learners' access to the Internet on the vocabulary retention level of the learners improved through using the web based material, a one-way ANOVA was measured. With the large sample size 69 one of the assumptions which is the test variable is normally distributed in each of the two populations was not violated (Green & Salkind, 2005). Moreover, the variable vocabulary retention level was a continuous variable.

The third research question of the study investigated whether there was a significant difference in the attitudes of learners' towards English language vocabulary learning and web-based English language vocabulary learning before and after the implementation. For measuring the changes, a paired-samples t-test was used.

In order to check one of the assumptions of the paired-samples t-test which is difference scores are normally distributed in the population, the kurtosis and skewness statistics were computed for both pre and post implementation total scores of attitudes towards English language vocabulary learning and web-based English language vocabulary learning gained from the same sample. The results of Kolmogorov-Smirnov statistics are given below.

Table 3.14. *The results of Kolmogorov-Smirnov statistics for attitude questionnaires*

	Attitudes towards English language vocabulary learning		Attitudes towards web-based English language vocabulary learning	
	Pre	Post	Pre	Post
SKEWNESS	-1.01	-0.24	-0.40	0.10
Kurtosis	1.96	-0.38	1.08	0.01

The results of kurtosis and skewness statistics illustrate that the difference scores are normally distributed for the reason that the values are between -1 and +1. The

Kurtosis value for the pre-test of attitudes towards English language vocabulary learning is out of given range; however, since attitude questionnaire scores are continuous variable and the sample size is larger than 30, the assumptions of paired sample t test was supposed to be met (Green & Salkind, 2005).

The fourth research question of the study investigated whether WEBVOCLE have an impact on learners' vocabulary retention. For measuring the changes, a one–way ANOVA was used. The factor was the number of participation to each application of modules A, B and C and the dependent variable was vocabulary retention level regarding post test-pre test differences. Learners' participation number for each of the four applications of Module A, B and C were recorded during the study, this data was computed by giving 1 point for each participation number.

A   A1   A2   A3
B   B1   B2   B3
C   C1   C2   C3

In order to check one of the assumptions of the one-way ANOVA which is the dependent variable is normally distributed for each of the populations as defined by the different levels of the factor, the kurtosis and skewness statistics were computed for both difference scores between the pre and post implementations gained from the same sample. The results of Kolmogorov-Smirnov statistics are given below.

Table 3.15. *The results of Kolmogorov-Smirnov statistics for the retention tests*

	Post A-Pre A	Post B-Pre B	Post C-Pre C
SKEWNESS	0.26	-0.11	0.99
Kurtosis	1.30	0.09	4.26

The results of kurtosis and skewness statistics illustrate that the difference scores are normally distributed for the reason that the values are between -1 and +1. The kurtosis value for the difference scores of post A-pre A vocabulary retention level

100

and for the difference scores of post C-pre C vocabulary retention level are out of given range; however, since vocabulary retention scores are continuous variable and the sample size is larger than 30, the assumptions of one-way ANOVA was supposed to be met (Green and Salkind, 2005).

- **Analysis of Qualitative Data**

The basic purpose of the qualitative approach was to strengthen the research process and explain the quantitative data which was collected to reveal the level of retention for the learners' vocabulary after the implementation. The data collected by qualitative techniques (54 checklists, 8 interviews and 3 focus-group interviews) were firstly transcribed, segmented, color coded to be ready for enumeration. At this enumeration point, the researcher decided how frequently coded categories appeared in the data and then the data was grouped under main themes in an excel list, and then reported. The purpose of transforming qualitative data into quantitave data was to increase reliability, decrease subjectivity, to have the opportunity of comparing codes or themes (Yıldırım & Şimşek, 2000).

The participants' responses were determined by using codes to characterize the themes and patterns of the web-based material's usability, practicality and effectiveness regarding its content and design. For this reason, all comments provided by checklists and the responses given both for face-to-face and for focus-group interviews were color coded according to categories of content, visual and overall design. Responses which did not fit (or were irrelevant) within the categories were separately coded and grouped. Coding the data by using color-coding approach enabled the researcher to count the data and determine the frequencies of responses made by informants more easily. Furthermore, the researcher applied the same colors for both face-to-face interview responses and checklist notes to a greater extent of data analysis. The researcher needed to verify the results of checklists, thus, compared replies of the 8 interviewees with their comments in their checklists. In order to be able to see the whole picture, the researcher read all data many times.

- **Coding Plan of Data in the Face-to-Face Interviews**

In order to compare the results of the checklists with interviewees' results, each interviewee was coded as presented below.

Table 3.16. *Codes used in the face-to-face interviews*

Participant	Participation level to WEBVOCLE
S1	Interested learner
S2	Interested learner
S3	Interested learner
S4	Fairly interested learner
S5	Fairly interested learner
S6	Uninterested learner
S7	Uninterested learner
S8	Uninterested learner

Table 3.17. *Detailed summary of data collection procedure which is in the third phase of the developmental research*

	1	*2*	*3*	*4*
Research Questions	What are the effects of demographic characteristics of learners on English language vocabulary retention level gained through the web based material?	What are the perceptions of learners about the benefits and difficulties with the use of Web-based material in the learning of English Vocabulary during and after using the material?	Is there a significant difference in the attitudes of learners' towards web-based vocabulary learning before and after the implementation?	Does WEBVOCLE have an impact on the learners' English language vocabulary retention?
Instrument	Demographic survey	Checklists, Face-to-face Interviews, Focus Group Interviews	Pre-post Questionnaires	Pre-post Vocabulary Retention Tests
Sample size	69	54 Checklists, 8 Interviewees 3 Focus Groups (4 participants each)	69	69
Data Analysis	Gender effect: Independent-Sample t-test The place of Internet access affect: One-way ANOVA	Data segmented, coded to be ready for enumeration, color coded, grouped, frequencies determined	Paired samples t-test	One-way ANOVA with post-hoc tests

CHAPTER IV

FINDINGS

4.1. Introduction

The purpose of this study was mainly to identify the influence of a web-based multimedia environment as a supplementary material on the vocabulary retention of intermediate level university prep-class learners. That is, the current research study suggests that a supplementary web-based foreign language vocabulary material with spaced repetitions may have an important impact on the learners' vocabulary retention levels, on their attitudes towards web-based learning and on their perceptions towards web-based vocabulary learning material. Therefore, the main focus of this study was to find out, the improvements made in web-based vocabulary learning and retention of the learners', how this implementation affected participants' perceptions and whether it changed participants' attitudes towards web-based vocabulary learning or not.

Using the methodology outlined in Chapter III, a large amount of data was gathered and analyzed through vocabulary retention tests as pre- and post tests, attitude questionnaires, checklists, interviews, and focus group interviews.

4.2. The Participants

Background information of the participants is important in order to understand the overall picture of one study and this information might affect the findings of a study.

Therefore, in the study the descriptive information was collected by a short survey before the implementation.

4.2.1 Gender and Age

In the study, 39 out of 69 participants were female whereas 30 males participated in the study. A great majority of the participants were between the ages 19 to 20 (Table 4.1).

Table 4.1. *Frequencies of participants concerning their gender and ages*

		Age					Total
		19	20	21	24	25	
Gender	Female	27	10	1	0	1	39
	Male	23	6	0	1	0	30
Total		50	16	1	1	1	69

4.2.2 Computer Access

The participants' computer access was investigated in order to understand learners' availability to participate in WEBVOCLE implementation. According to results, more than half of the participants were available to participate in the implementation with their own computers underhand. The other learners were, as indicated in the results of place of the Internet access, were supposed follow the implementation on the computers in their residence halls or at some Internet cafes (Table 4.2).

Table 4.2. *Frequencies and percents of participants concerning their computer access*

	Frequency	Percent
Yes	53	76.8
No	16	23.2
Total	69	100.0

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4.2.3   Weekly Internet Connection Duration

In order to understand Internet connection duration effect on participants' following WEBVOCLE, their weekly Internet connection duration were examined. More than half of the participants were connecting to the Internet a few times in a week (Table 4.3).

Table 4.3. *Frequencies and percents of participants concerning their weekly Internet connection duration*

	Frequency	Percent
Less than one hour a day	5	7.2
1 to 3 hours a day	23	33.3
3 to 5 hours a day	3	4.3
More than 5 hours a day	1	1.4
A few times a week	37	53.6
Total	69	100.0

Furthermore, which part of the day participants mostly connect to Internet was also investigated. The results which were presented in Table 4.4 indicated that a great majority of the participants connected to Internet at nights.

Table 4.4. *Frequencies and percents of participants concerning their daily Internet connection time*

	Frequency	Percent
In the morning	10	14.5
In the afternoon	5	7.2
At night	54	78.3
Total	69	100.0

4.2.4   Participants' Experience of Computers

From the output shown below it is understood that 63 participants (%91.3) had experience of computers (Table 4.5). According to Illinois Schools Report (1984), CAI works best for learners if learners have previously encountered to educational computing in some other contexts.

Table 4.5. *Frequencies and percents of participants concerning their previous computer experience*

	Frequency	Percent
Yes	63	91.3
No	6	8.7
Total	69	100.0

However, when it comes to participants previous experience of computers for educational purpose, only 42 (% 60.9) out of 69 participants studied on computers for an educational purpose (Table 4.6).

Table 4.6. *Frequencies and percents of participants concerning their previous computer use for an educational purpose*

	Frequency	Percent
Yes	42	60.9
No	27	39.1
Total	69	100.0

Although more than half of the participants had computer experience for educational purpose, when experience of computers was investigated specific to vocabulary learning, the number decreases to 33 (% 47.8) (Table 4.7).

Table 4.7. *Frequencies and percents of participants concerning previous computer use for vocabulary learning*

	Frequency	Percent
Yes	33	47.8
No	36	52.2
Total	69	100.0

Additionally, the participants' previous web-based learning experience was investigated. They rated the following options according to their previous experiences: I have attended one or more than one web-based learning applications which were completely via Internet (1), I have attended one or more than one blended learning applications (2), I have experienced one or more than one web-supportive instruction by visiting some educational web sites, forums and used list servers (3), and I have not experienced any web-based instruction before (4) (Table 4.8).

Table 4.8. *Frequencies and percents of participants concerning experience in web-based learning*

	Frequency	Percent
2	1	1.4
3	15	21.7
4	53	76.8
Total	69	100.0

The results indicated that, there was not any participant who had previous experience of web based learning. Only 1 out of 69 participants had experienced blended learning and 15 of the participants benefited from Internet as a supportive material to their in-class learning by visiting some educational web-sites, forums or by the list servers.

4.3. Effect of Gender and The Place of Internet Access on the Learners' Vocabulary Retention Levels

4.3.1 Effect of Gender

In order to reveal prospective gender differences in the current case of foreign vocabulary retention level, gender differences of the learners were investigated (Table 4.9).

Table 4.9. *Means and standard deviations of participants concerning gender*

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Total of differences between pre-post scores of Vocabulary Retention tests	Female	39	5.26	3.050	.488
	Male	30	4.37	4.165	.760

As previously indicated, 39 out of 69 participants were female whereas 30 male participated in the study (Table 4.9). The effect of learners' gender on their English language vocabulary retention levels was checked by an independent samples t-test (Table 4.10).

Table 4.10. *The effect of participants' gender on their English language vocabulary retention levels*

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Total of differences between pre-post scores of Vocabulary Retention tests	Equal variances assumed	1.743	.191	1.025	67	.309

An independent-samples t-test was conducted to investigate if there was a significant difference in the total pre and post scores differences of vocabulary retention tests of male and female groups. That is, the effect of gender on vocabulary retention level of learners was investigated. Levene's Test for Equality of Variances indicated that the population variance of those two groups are equal ($F=1.74$, $p=.19$). Thus, equality of variances assumption was met. The independent samples t-test was not significant, $\underline{t}$ (67)= 1.025, $p=.30$. However, females were more successful on the average (M=5.26, SD=3.05) than males (M=4.37, SD=4.165) with a .89 mean difference. Although the female learners on the average seemed to be higher than male learners, the results were statistically not significant ($p>0.05$). The English language vocabulary retention level of the learners improved through the web-based material seemed not to change regarding the gender of the learners. There was no relationship between gender and vocabulary retention level of learners (Table 4.10).

4.3.2 Effect of the Place of Internet Access

The researcher additionally investigated the effect of places where participants' accessed to the Internet on vocabulary retention level of the learners. Less than half of the participants had an Internet access at home; therefore, more than half of the participants were supposed to follow the implementation from an Internet café or in their residence halls (Table 4.11).

Table 4.11. *The places of the Internet access for the participants*

	Frequency	Percent
At home	25	36.2 %
At an Internet cafe	31	44.9 %
In the residence hall	13	18.8 %
Total	69	100.0

Next, the effect of the place of the Internet access for the learners on their vocabulary retention levels was checked by a one-way ANOVA (Table 4.12).

Table 4.12. *The effect of participants' place of Internet access on their English language vocabulary retention levels*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17.816	2	8.908	.690	.505
Within Groups	852.010	66	12.909		
Total	869.826	68			

	N	Mean	Std. Deviation
At home	25	4.88	3.295
At an Internet cafe	31	4.45	3.529
In the residence hall	13	5.85	4.259
Total	69	4.87	3.577

A one-way analysis of variance was conducted to evaluate the relationship between the place of access to technology and vocabulary retention level of learners which was improved via the web-based material. The independent variable, place of access to technology had three categories: home, the Internet café and residence hall. On the other hand, the dependent variable was total differences between pre-post scores of vocabulary retention tests. Means and standard deviations for three groups were reported in the Table 4.12. The ANOVA was not significant, $F_{(2.66)}=.69$, $p=.51$ ($p>0.05$). Although in the residence hall (M=5.85, SD=4.26) on the average seemed to be higher than both at home (M=4.88, SD=3.30) and at an Internet café (M=4.45, SD= 3.52), the results were statistically not significant. This result indicated that the place of access to technology did not significantly affect participants' vocabulary retention level. Thus, there was no relationship between place of access to technology and vocabulary retention level of learners. However, it should be noted that learners accessing the web-based material in their residence halls were the most successful while those at internet café were the least successful (Table 4.12).

According to results of the analyses shown in ANOVA, there was not a significant difference between the place of the Internet access for the learners and the total differences of pre and post scores of English language vocabulary retention tests because the p value is more than .05 ($p>0.05$). The English language vocabulary

retention level of the learners improved through the web-based material seems not to change regarding the places of the Internet access for the learners. Although most of the learners declared that it was impossible to study on a web-based material at Internet cafés, there was not a statistically significant difference found among the places.

4.4. Perceptions of the Learners

In order to get learners perceptions towards the use of the web-based material, the way of learning new vocabulary through a web-based material, with spaced repetitions and within contexts, checklists, face-to-face interviews and focus group interviews were applied. In the analysis of qualitative data gathered through checklists and face-to-face interviews, frequencies of the data were additionally given in order to provide an overall understanding of what qualitative data mean at first look and to facilitate researcher's work for writing inferences of the learners in the discussions section.

4.4.1   The results of the Checklists and Face-to-face Interviews

In order to identify the factors which contributed to participants' web-based supplementary material use and to reveal their experiences with the material and get their suggestions about the weaknesses of the material to improve it, first a checklist with 26 open-ended questions was delivered to 69 learners. Of those, 54 (% 79.4) of them filled in and returned the checklists. Next, an interview with 8 participants on the same items was implemented. After the intervention 3 final focus-group interviews were carried out with 12 participants altogether. Throughout the following section, representative quotes from participants' written responses in the checklists will highlight the findings.

In order to support checklists, the researcher applied face-to-face interviews with eight interviewees as a follow-up study. The interviewees were chosen purposefully in accordance to their interest and participation in the web-based material. Three of

these participants coded as S1, S2 and S3 were highly interested in the web material and their participation was perfect, two of these participants coded as S4 and S5 were medium at their interest and participation in the material and the last three who were coded as S6, S7 and S8 were poorly interested and participated in the web-based material. Because the researcher had records of students' weekly participations to the web-based material, she without doubt chose the interviewees from the list, put differently, and from the 'strata' called as interested, uninterested and fairly interested learners. Each interview lasted almost half an hour. The questions asked during the interviews included the same interview protocol in checklists and covered the standardized close-ended questions. The interviewees were additionally required to comment on their replies by the following "why" questions.

Findings of the Checklists' regarding the Content Design

The first question was posed to find out whether the content was appropriate for the learners' level. An overwhelming majority of learners' responses (n=50) to this question clearly indicated that they did not have any problems with understanding the texts and exercises. The learners reported that the texts and exercises were easily understood and they were almost at the same level with the exercises they did at school. One learner reported that,

> To me they are appropriate. There are not many unknown words. Generally, the definitions of unknown words are given. So, <u>it does not hinder a lot our level of understanding [11]</u>.

Similarly, another learner pointed out that,

> We can easily understand given stories. <u>Existence of the unknown or forgotten words [in the texts] except for the [target] words that we have to study improves our vocabulary proficiency[12]</u>.

Few learners (n=4) took the position of undecided about the questions. Two of them reported that they wished the stories [texts] had been much more interesting and shorter.

The second question sought to check whether learners were able to grasp meaning of the target words from given contexts. More than half of the respondents (n=35) declared that they were able to understand target words from given contexts because the texts and exercises were helpful for it and they were also including the necessary clues for making guesses. One respondent stated that, given texts were appropriate for target words' use and retention. Another respondent corresponded proficiency level of given texts with the success at guessing target words' meanings from those contexts. He explained that,

> Because the given text was appropriate to our level, I could easily understand it, because I understood the story, I could understand the meaning of the words from the contexts. Not all but most[13].

There were 12 negatively responded learners. Two of these participants entirely disagreed with positive effectiveness of the use of contexts for vocabulary learning because this was not their learning style. The rest were undecided (n=17) and they mostly reported that sometimes they could get the meaning of the words from the given contexts but sometimes not.

The third was one of the highly reported questions. It aimed to get learners' ideas about the appropriateness of the length of given texts. Respondents' answers were almost equal for the groups who find it appropriate (n=18), not appropriate (n=19) and who were uncertain about it (n=17). Almost all of the respondents (n=25) who found the texts' length inappropriate and who were undecided commented that texts were long so they made them bored. One respondent uttered that,

> They [The texts] could have been shorter. Too long and they might be boring because they are long…because it is sometimes impossible to read such a long story. After sometime the concentration distracts and the subject is not well understood [14].

Some other respondents (n=5) explained that because they study the web material at the Internet cafes but not at home it was not easy for them to concentrate on such long texts. One stated that,

> …I study at an Internet café and there is inevitable noise. <u>Also, when
> it [the text] is long, the concentration is difficult[15].</u>

The fourth question was about the texts suitability and interest level. Almost half of the students (n=24) found the texts not interesting, they preferred a topic more daily, interesting, realistic, scientific, mysterious, exciting and enthusiastic. One of the respondents suggested that,

> While such an intervention is being made <u>different texts have to be
> applied regards to people's interest fields.</u> It might be more helpful
> when the texts are chosen through options. Anyway, the same words
> might be embedded into those texts[16].

One of the undecided respondents (n=13) stated that,

> Honestly, if there were <u>texts prepared that would develop general
> knowledge more</u>, I wouldn't get bored even if they had been long.
> But I found the text a little boring[17].

The others (n=17) were pleased with the texts and mostly commented that stories were not boring but interesting.

The fifth question examined whether the vocabulary load was suitable for the learners. More than half of the respondents (n=36) found the number of target words which were between 10 and 12 in every module appropriate, neither few nor a lot. Moreover, some of the negatively responded learners (n=7) suggested that the number of words could be increased. One of the undecided respondents (n=10) reported that,

> In fact <u>more target words could have been given</u>. Because I've found
> out that the words I learned there [on the web material] are <u>more
> permanent</u> than others because we did continuous repetitions.
> Perhaps it would be more difficult at the beginning but we would
> understand how helpful it is later[18].

The sixth question was posed to learn about the effectiveness of true/false exercises following the texts. A very high majority of the respondents (n=46) found the

true/false exercises following the texts helpful for the comprehension of the texts. One respondent stated that,

> While checking the answers of the exercises I realized that I had misunderstood some points. Because true/false exercises are often asked in the exams and I often lose points at this part superfluously, I prefer the number of questions be higher[19].

There were few learners who were undecided (n=5) and only three learners who responded negatively. One of these reported that,

> If a text is understood, there is no problem. A true/false activity only informs the person who asks [questions about] the text about the fact whether the reader has read the text or not. Otherwise, I don't think it has a benefit[20].

The seventh question was related to the previous one and it was posed to check whether the respondents found out the number of true/false exercises reasonable. Again really a high majority of respondents (n=49) found out the number of true-false questions which are between 7 and 11 appropriate and enough. Only very few (n=4) respondents disagreed with the number of the exercises and reported there should be more true/false exercises. In contrast, only one respondent declared that the number of questions should be decreased.

The eighth question was about the comprehensibility of instructions. An overwhelming majority of the learners (n=48) found the instructions on the web material obvious, comprehensible, noticeable, and familiar. They mostly stated that, they did not have any problems in the application of and following the exercises. There weren't any respondents dissatisfied with the instructions but only undecided learners (n=6).

Summary of the results of the Checklists regarding Content Design

It is obvious from the responses provided for the theme 'content design' that nearly all learners found the content appropriate for their proficiency level. Learners

additionally found true/false exercises helpful for the comprehension of the texts and that the number of true/false questions which were between 7 and 11 reasonable. To respondents, instructions on the web material were user friendly, given contexts were helpful for the deduction of target words. Vocabulary load was also found to be sensible; moreover, the number of vocabulary items could be increased. However, two issues on which learners mostly and in agreement commented were the length and interest level of the texts. Learners found the texts too long and not very interesting which made some learners bored and demotivated. According to learners, such texts particularly if they were to be delivered on web should be shorter and they should comprise of daily, interesting, scientific, mysterious, exciting and enthusiastic topics (Table 4.13).

Table 4.13. *Checklist results with frequencies regarding the content design*

	Criteria	Yes (n)	No(n)	Not sure(n)
Content Design	Appropriateness of the content for the learners' level of proficiency	50	-	4
	Effectiveness of contexts	35	2	17
	Appropriateness of the length of the texts	18	19	17
	Suitability and interest level of the texts	17	24	13
	Vocabulary load suitability	36	8	10
	Effectiveness of True/False exercises	46	3	5
	Appropriateness of the number of True/False exercises	49	4	1
	Comprehensibility of instructions	48	6	-

Findings of the Face-to-face Interviews regarding Content Design

The first question sought to check whether the content was appropriate for learners' level. Apart from one, all interviewees responses (n=7) to this question clearly indicated that they did not have any problems with understanding the texts and exercises. The interviewees reported that there were only a few words they could not understand but still it did not hinder their understanding of the texts and exercises. One interviewee commented,

> Some of the words were challenging in the reading text but other exercises were appropriate. <u>I wasn't coerced with understanding the stories, because I could build up relationships among the words[21]</u>. (S1, interested learner)

Another interviewee found the level of the content appropriate and stated that,

> It was appropriate. I have had difficulty in some of the sentences but there were also unknown words for me. I have skimmed and understood the general idea [of the text][22]. (S3, interested learner)

Although one participant had positively responded to the question in her checklist, this time she had a negative response in the interview and said,

> It wasn't appropriate to me. Because there we were supposed to find the meanings of words without looking them up in a dictionary at the beginning[23]. (S6, uninterested learner)

The second question was posed to find out whether learners were able to grasp meaning of the target words from the given contexts. Four of the interviewees had a positive response and stated that they could understand the words from the contexts, three were not sure about it and one had a negative response for the question. One positively responded interviewee explained that,

Even if there had been an unknown word I could deduce it from the sentence. In the same way, I deduced target words from the sentences there[24]. (S1, interested learner)

Another interviewee emphasized online dictionary as an alternative help for the comprehension of targer words' meanings and he replied in the same way as he commented in the checklist about the issue,

Sometimes I could not deduce [target words' meanings] and looked them up in a dictionary. Just like the words I don't know, I could sometimes deduce [their meanings] but sometimes I could not understand. But I had a dictionary under my hand, there was the Internet, I could check them there[25]. (S5, fairly interested learners)

The third question was asked to get learners' ideas about the appropriateness of the length of given texts. Two of the four interviewees responded positively and the other two responded negatively to the question. The other 4 interviewees were not sure about it. Two of the interviewees who were in the position of undecided to the appropriateness of level of the texts emphasized that actually the texts were not very long perhaps this was because they had to study on the web-based material at Internet cafes. One of the interviewees who criticized the length of the texts in the checklists still had the same opinion about the issue. He indicated that,

The length of the texts was actually typical but because we don't have a computer at home and we study outside, there happened an adaptation problem. They could have been shorter. I study at an Internet café and I cannot fully concentrate [because] there is noise. Because of this if it had been shorter, it would have been better for the ones [studying] outside[26]. (S1, interested learner)

Although he commented in the checklist that he had found the length of the texts appropriate, one interviewee responded negatively in the interview and suggested that,

The first story was a little long…later it was gradually balanced, learners also got used to. At the beginning a little shorter one could have been added there in order to motivate people study there, later

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long ones, [the stories] could have been extended gradually…[27].
(S2, interested learner)

Another participant with a negative answer replied that because the stories were boring he found texts too long to read.

The fourth question was posed to learn about the texts' suitability and interest level. Apart from two all other interviewees had negative opinions about the suitability and interest level of the texts regarding their topic. Four of these negative interviewees were in agreement on the idea that if the texts had been about daily and/or scientific topics, it would have increased curiosity, attracted learners and motivated them. One of them suggested topics like the life of a writer, a scientific paper about brain or the characteristics of an animal. The other participants related the decrease of interest with the texts with their lengths. According to them, longer the texts less is the level of interest in them. In order to increase interest in the texts, one participant of the study had repeated his previous suggestion in the checklists that there should be varieties of texts on different fields of interest. He responded that,

> You can use the words you like, for example there were [the words] reluctant, assertive at the beginning, in any text if you want. Those words can appear in some part of the sentence, anyway. Thus, everybody learns the same words in different texts according to their interest fields...[28] (S2, interested learner)

The fifth question examined if the vocabulary load was suitable for the learners. Except for one, all other interviewees were pleased with the number of the target vocabulary presented. Three of these interviewees claimed that if the number of the target words had been increased, this would have hindered their learning, increased confusion in learnt words because those words had been learned in the same text. Three of these interviewees again reported that the number was appropriate in each module which was 10 to 12. One participant stated that she had learnt words more easily on the web-based material; therefore, the number of target words could be increased.

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The sixth question was posed to learn about the effectiveness of true/false exercises following the texts. Two of the positively responded interviewees (n=5) stated that while doing the true/false exercises they were checking their understanding of the stories and this exercise helped them a lot. One interviewee repeated his reply that he had given in the checklist and clarified that,

> There were a lot of key questions in thhose true-false exercises. I had to turn back to the story…of course it helped me for better understanding the story…. <u>I read the parts I had passed quickly in detail this time</u>...[29] (S5, fairly interested learner)

The other three participants who were negative claimed that there was no need for true/false exercises, since they believed that those exercises did not help their understanding of the stories.

The seventh question was related to the previous one and it was posed to check how the respondents found out the number of true/false exercises. Four of these interviews believed that the number was appropriate, where as two respondents believed they could be increased and the other two undecided respondents believed they could be decreased.

The eighth question was posed to check the comprehensibility of instructions. Except for one, almost all of the interviewees (n=7) satisfied with the instructions and their comprehensibility.

Summary of the results of the Face-to-face Interviews regarding Content Design

It is obvious from the responses provided for the theme 'content design' that nearly all learners found proficiency level of the content appropriate and that learners were able to deduce unknown words' meanings from given contexts. However, learners were not sure about the appropriateness of the length of the texts. The learners, especially, the ones studying at the Internet cafes preferred shorter texts to current ones. They seemed not to be satisfied with the topics of the given texts. As they stated, they preferred scientific, daily topics that were attractive and arising curiosity.

Whereas, learners were satisfied with the number of vocabulary given in each module. As inferred, true/false exercises made learners read the texts in detail allowing them to go back and this helped better comprehension of the texts. The number of the true/false exercises was found enough; however, for some learners it could be increased. Learners did not have any problems with the comprehensibility of instructions (Table 4.14).

Suggestions to improve the Content Design of WEBVOCLE:

There were some suggestions of the interviewees regarding content design. The following list of suggestions were inferred and rephrased from interviewees' transcribed suggestions:

- Learners should be provided with varieties of texts on varieties of interesting topics from which they can choose. (S2, interested learner).
- Videos could be used about the topic of the texts. (S2, interested learner)

Table 4.14. *Interview results with frequencies regarding the content design*

	Criteria	Yes (n)	No(n)	Not sure(n)
Content Design	Appropriateness of the content for the learners' level of proficiency	7	1	-
	Effectiveness of contexts	4	1	3
	Appropriateness of the length of the texts	2	2	4
	Suitability and interest level of the texts	2	6	-
	Vocabulary load suitability	7	1	-
	Effectiveness of True/False exercises	5	3	-
	Appropriateness of the number of True/False exercises	4	2	2
	Comprehensibility of instructions	7	1	-

Findings of the Checklists regarding the Visual Design

The first question checked ideas of the learners on the appropriateness of the interface design and the effectiveness of the physical look of the picture, text and exercises on the web-pages. In their responses to the question, most of the respondents (n=46) indicated that the web pages were well-designed, colorful, interesting, not tiring their eyes, items were well-located so that everything could be easily found on the pages. Emphasizing the importance of the lay-out of web-pages a respondent reported that,

> It is a successful work regards to its design. Because it was successful, I didn't have any difficulty in following the exercises. I felt as if I had used it before[30].

Similarly, another respondent reported that, when everything was at the right place on a web page, comprehension was easier. Only a small number of learners (n=7) were undecided about the question. The following statements are some examples made by the undecided respondents indicating their suggestions. "text might be shortened and [more] pictures be added…and page numbers be increased". There was only one respondent who was not satisfied with the web-page design.

In the second question, participants were asked to assess the quality of the pictures, and they were asked whether they have found the pictures attractive. Approximately, half of the respondents (n=26) commented that pictures were interesting, made reading of texts more enjoyable and made web-page look more attractive. A number of respondents were undecided (n=11). Very few (n=2) of these participants commented that the pictures were childish and that they preferred real photos. Again two of these undecided respondents emphasized that pictures were helpful but because the stories were not interesting so were the pictures. The rest of the respondents (n=17) thought that pictures should be improved.

The third question examined the effectiveness of pictures in telling the stories. Though only half of the students found the quality of pictures good when it came to

pictures' effectiveness of depicting stories most of the learners'(n=41) reacted positively. These learners' overall responses were that, the pictures were very helpful for the comprehension of the stories, because they were successfully depicting the details of the stories and what heroes did. Informants reported that pictures made studying on the texts more enjoyable so there should have been more. Regards to animated items on the pictures, one respondent stated that, when a picture was put together with the animated elements, it became much more comprehensible. The others who were undecided (n=13) and who were not satisfied with the pictures (n=10) commented that pictures could be more detailed, could be more in number so that they could depict not only some but more parts of the stories. Some of these respondents again associated their dissatisfaction of the pictures due to the topics of the stories.

The fourth question was posed to discover the benefit of pictures in the comprehension of target vocabulary. More than half of the respondents (n=37) agreed with the question. Of those who agreed with the question declared that pictures helped the comprehension of the stories (n=9) and helped the retention of target words (n=4). One of these respondents reported that,

> [Pictures] helped us to imagine the story in our minds so that it helped us to understand the topic easily. When we understood the topic, we deduced [target] words [from the contexts] more easily and we learned them better[31].

Similarly, another respondent pointed out that,

> Pictures were depicting a section of the told event, I understood the text better by looking at those pictures[32].

One other reported that,

> …particularly, as in the first activity, the way objects in the pictures became active when [a mouse] moved on them was good for learning[33].

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Only four of the respondents disagreed with this question and some (n=13) were undecided. Some of these respondents (n=5) stated that pictures were only helpful for the comprehension of the stories but not the target words.

The fifth question was posed to find out if the use of color on the web pages was successful. Most of the learners (n=40) found the use of colors successful by indicating that these colorful pages were superb, soft, in a harmony and they did not disturb their eyes or distracted their attention. One respondent stated that,

> It was appropriate. Although I studied for four hours on the web-based material, I did not see any page that would disturb my eyes[34].

Supporting this response, another respondent pointed out that,

> …I think that [the choice of] color or colors on [computer] screen has an important effect on eye tiredness and the studying time on computers. The web-based material was successful with respect to this issue[35].

Only two learners were unsatisfied with the use of colors and the rest (n=12) were undecided about the issue. However, most of these undecided respondents reported that they did not care for the use of colors which might mean that the colors anyway did not disturb them.

The sixth question was posed to check whether the navigation buttons were practical and easy to use. A great many learners (n=45) responded that these buttons facilitated their work and they were useful. One respondent stated that, especially drag and drops were very successful. The others who were undecided (n=3) and who were not satisfied (n=6) with navigation buttons declared that they could not find the back, next page and log-out buttons or they could not operate these buttons and were stuck on a web-page. One respondent suggested that the system could run on every browser other than Internet explorer. According to him, this might be the reason for the problem of not accessing some navigation buttons on the web-based material.

In their replies to question seven, most of the respondents (n=41) acknowledged that background colors were appropriate, not distracting, not tiring the eyes, attractive. One respondent explained that, if they had not been in that way, we would have had problems in reading the texts and exercises. Except for one, rest of the respondents (n=12) were undecided about this question. Of these respondents, few commented (n=7) that they did not care for the background color or they were not knowledgeable enough to comment on the issue.

The eighth question was posed to find out whether the font type and size facilitated their studying on the web-based material. Most of the learners (n=40) were satisfied with the font size and type. One of these respondents stated that,

> [Letters] did not make tired of the eyes. <u>It did not engender any problems in following the written texts[36]</u>.

Few of these positively responded respondents (n=6), unpredictably, commented that the type or the size of the letters did not affect their studying. The rest of the respondents were either not satisfied (n=6) or were undecided (n=8). These respondents commonly reported that font size should be increased.

The ninth question was posed to learn whether the learners found line spacing appropriate. Again, lots of the students (n=40) declared that the line spacing between the exercises and within the texts were appropriate and they had no problem with reading and following the lines. One respondent commented that,

> Written things could be easily read. <u>Besides, because we had the opportunity of enlarging [the pages], spacing did not have a serious affect[37]</u>.

Similarly another respondent reported that,

> I didn't have any problem in reading [the texts and exercises]. To me, it was enough. My eyes are very sensitive, when I read 2-3 pages on computer screen, my eyes get watered but while doing these exercises I did not have any problems[38].

Some of the rest of the respondents were undecided (n=8). These respondents commented that sometimes the lines look jumbled. On the other hand, some other respondents who were not satisfied with line spacing (n=6) stated that it could be increased. One of these respondents by denoting multiple choice exercises commented that,

> To me it is not appropriate. Particularly in the multiple choice test the <u>line spacings are little and this hinders following the questions</u>....To me, half of these exercises should be transferred to another page[39].

Table 4.15. *Checklist results with frequencies regarding the visual design*

	Criteria	Yes (n)	No(n)	Not sure(n)
Visual Design	Appropriateness of Interface design	46	1	7
	Quality of pictures	26	17	11
	Effectiveness of pictures in telling the stories	31	10	13
	Benefit of pictures in the comprehension of target vocabulary	37	4	13
	Use of Color	40	2	12
	Practicality of navigation buttons	45	6	3
	Appropriateness of background color	41	1	12
	Appropriateness of font size and type	40	6	8
	Appropriateness of line spacing	40	6	8

Summary of the results of the Checklists regarding Visual Design

It is clear that learners found the interface design user friendly and organized. However, only half of the learners found the pictures qualified, interesting, and enjoyable, the others thought that they should be improved. According to respondents, pictures were helpful for depicting the details of the stories and they made reading of the texts more enjoyable. Besides, pictures helped learning of target words indirectly. Learners found choice and use of colors successful. They described that colorful pages were attractive, soft, in a harmony and not troublesome. Learners mostly found navigation buttons user friendly and background colors appropriate because they were not disturbing their eyes. Learners seemed to be satisfied with the font size, font types and line spacing used on the web-based material (Table 4.15).

Findings of the Face-to-face Interviews regarding the Visual Design

The first question checked the ideas of the learners on the appropriateness of the interface design and the effectiveness of the physical look of the picture, text and exercises on the web-pages. In their responses to the question, all of the 8 interviewees reported that as there was nothing disturbing them and/or troubled them about the interface design. They found it organized.

In the second question participants were asked whether they have found the pictures attractive and qualified. Almost all of the interviewees (n=6) found the pictures qualified and the drawings successful; however, some of these participants commented that they were not interesting in the pictures because they were related to the stories. One respondent who replied in the checklists that the pictures were suitable for telling the stories this time took the position of undecided about the issue 'quality of pictures' and stated that,

> They were not very interesting. They were mostly for primary school students. They were childish but also amusing…I am thinking of our level. In fact, the drawings were excellent[40]. (S3, interested learner)

The third question was posed to check the effectiveness of pictures in telling the stories. Most of the interviewees (n=6) agreed on the issue. Regarding the benefit of pictures on the comprehension of stories, one interviewee repeated her comments in the checklist and stated that,

> They helped. <u>Anyway, I was looking at the pictures at first and I was imagining as it would happen like this</u>, when I read it from the story, I was getting understood[41] (S6, an uninterested learner).

Another interviewee who had indicated in the checklists that the pictures and stories were related stated that,

> …If there weren't pictures, they needed to be more carefully read then... <u>Pictures help, anyway they show the event, where it takes place, who there were at that moment[42]</u>. (S5, a fairly interested learner)

The forth question was asked to check the benefit of pictures in the comprehension of target vocabulary. Three of the interviewees stated that the pictures were helpful for imagining the stories. The rest of the interviewees (n=5) commented that the pictures did not help their comprehension of the target words since the vocabulary appeared on the pictures were some other vocabulary which were different than the target words. Regarding the use of animated figures given with their names on the pictures, two interviewees suggested that their number should be increased.

Another participant stated that the use of pictures had a positive effect on the comprehension of the stories. On the other hand, some interviewees (n=3) stated that the animated figures on the pictures were really interesting.

The fifth question was posed to find out if the use of color on the web pages was successful. Almost all of the learners (n=7) explained their positive responses about the issue by stating that, nothing disturbed them with the use of colors and the colors on the pages were not glaring. The negative responded interviewee explained that because the colors were not attractive, they were not well.

The sixth question was about the practicality and usability of the navigation buttons. Most of the interviewees (n=6) responded positively to the issue by stating that they had no troubles with the buttons. However, two of them stated that some of their friends had problems and suggested that the log-out button should be changed in order to eradicate the problem of leaving the web-page by clicking on 'x' and the appearance of the navigation buttons such as 'next' and 'back' should be checked in case some learners might use other browsers other than Internet explorer.

The seventh question was posed to check the appropriateness of the background color on the web-pages. All of interviewees had positive responses to the question and in agreement commented that it was fine and not disturbing them. One interviewee stated that it did not disturb them and it was not tiring their eyes because there were soft and light colors used. Interestingly, an interviewee suggested use of white background on pages which was actually found inappropriate by the participants in the pilot study.

The eighth question was posed to find out whether the font type and size facilitated their studying on the web-based material. Most of the learners (n=5) were satisfied with font size and type. One participant commented that they had read the whole content on the web pages without difficulty as if they had been reading from a book; one other stated that the use of fonts were similar to or same as the ones on regular Internet pages and that if the letter had been bigger it would have been inappropriate. However, the other interviewees (n=3) were not satisfied with font size. One of them stated that specifically the multiple choice exercise disturbed her eyes. Similarly, another one commented that the letters were small for the texts and that he read the pages by getting closer to the screen.

The ninth question was asked to check whether learners found line spacing in the web-pages appropriate. Again, most of the interviewees (n=6) declared that the line spacing among the exercises and within the texts were appropriate and they had no problems with it. One of those two interviewees who had problems with line spacing repeated her comments that she had made in her checklist and declared that,

I had problems. <u>I was following the lines with the mouse while I was reading. It happened at the story pages, [the lines] could have had more spaces between the lines[43]</u>. (S3, interested learner)

Summary of the results of the Face-to-face Interviews regarding Visual Design

According to learners' comments, it is clear that learners were satisfied with the Interface design of WEBVOCLE because there was nothing disturbing them or troubling them. Learners mostly found the pictures qualified although some thought that they were uninteresting. They think that pictures help in the comprehension of the stories by exhibiting the details such as heroes, setting and episode. They mostly found pictures beneficial for the comprehension of the stories but not target words. They particularly liked use of animated figures given with their names on the pictures. It is clear that learners of WEBVOCLE did not insist on the use of certain colors and they were pleased with chosen colors unless they are glaring or abrasive on the web pages. However, on the background the learners preferred light and soft colors. Apart from the learners using different browsers, learners seemed to have no technical problems. They were satisfied with the chosen font type and size on the web pages. Regarding it, learners declared that while they were reading something on a web-page, they would like to have the feeling and comfort as they had while reading a paper-based book. Although satisfaction with font size is very changeable with respect to learners' taste, the common idea of WEBVOCLE users was that letters should not be too small on compter screen. As for line spacing, all learners seemed to have been satisfied with it on the material (Table 4.16)

Suggestions to improve the Visual Design of WEBVOCLE:

There were some suggestions of the interviewees regarding visual design. The following list of suggestions were inferred and rephrased from interviewees' transcribed suggestions:

- The target words also should be animated on the pictures.(S8, uninterested learner)

- The exercises should be passed without completing all of the questions (S8, uninterested learner).

- The exercises should be passed and later be returned (S5, fairly interested learner).

Table 4.16. *Interview results with frequencies regarding the visual design*

	Criteria	Yes (n)	No(n)	Not sure(n)
	Appropriateness of Interface design	8	-	-
	Quality of pictures	6	1	1
	Effectiveness of pictures in telling the stories	6	2	-
Visual Design	Benefit of pictures in the comprehension of target vocabulary	3	2	3
	Use of Color	7	1	-
	Practicality of navigation buttons	6	1	1
	Appropriateness of background color	8	-	-
	Appropriateness of font size and type	5	1	2
	Appropriateness of line spacing	6	2	-

Findings of the Checklists regarding the Overall Design

The first question was asked to learn about the motivational attractiveness of the web-based material. The learners were asked if the web-based material motivated

them or not for studying vocabulary at subsequent weeks. The responses to the question almost evenly distributed among the groups. Some of the respondents (n=18) reported that the web-based material was beneficial and they liked the exercises especially the puzzle. Some others (n=15) who were negatively responded reported that they wished the stories on the material were shorter and interesting; moreover, they stated that if they had had a chance, they would have preferred to study at home but not at an Internet café. The rest of the respondents who were undecided (n=21) commented that; if technical problems such as logging in and out of the system were eradicated they would log-in and study more diligently on the web-based material and added that they required some stories with different topics to study.

The second question was posed to find out the suitability of the web-based material as a supplementary material to in-class learning. A great deal of learners (n=37) were positive towards the appropriateness of the web-based material as a supplementary in its function in-class learning. These learners commented that learning words is easier, enjoyable, and retention is higher in this way with continuous weekly repetitions, it is better than memorizing words on a paper and this material meets their expectations of extra practices on the pre-learned vocabulary. One respondent declared that, studying vocabulary from the course book was boring, this was much more exciting. One other participant marked that the material facilitated recall of target words. Another respondent emphasized that,

> If this implementation is actively, continuously used, there might be unexpected improvements. I can state that it is really a good way of learning words[44].

Some of the respondents (n=12) were undecided about this question and again some (n=5) others negatively responded. These students commonly complained that the system did not include all the words that they weekly learned in class and that there should be more target words there and the program should be more comprehensive.

In the third questions, learners were asked whether the teaching technique, contextual guesswork was appropriate to their vocabulary learning styles. Lots of the

respondents (n=40) replied positively to this question. They emphasized that with this technique retention was higher, word learning was easier and it taught words' form and usage. A few of the undecided respondents (n=13) declared that this method was not their styles of learning words because they could not deduce words' meaning from the given contexts and that it was a waste of time. However, a few of these respondents indicated that though it was difficult to deduce words' meanings from given contexts, still they found it efficient. Some of these respondents, on the other hand, stated that they could not find their style of learning new vocabulary so they did not know which technique worked best for them. Only one respondent negatively responded to the question.

The forth question was posed to find out whether repetition of vocabulary within such a system helped learners' recall of those words. A great majority of respondents (n=46) thought that it helped recall of those words, facilitated learning and retention of those words. Some additionally stated that seeing those words especially in a visually aided text helped their retention and recalling. One respondent uttered that,

> …the words that are immediately forgotten when looked up in a dictionary are kept in mind more easily by this way because there are repetitions every week. At the beginning, I was forgetting words immediately and I was looking the words up in a dictionary but now I don't need it[45].

Another respondent stated that the system helped him learn a lot of words. He suggested that if this implementation was improved it would serve as a mass vocabulary learning system. He impressively reported that,

> What was pleasant for me with this implementation was that: every week continuous stories are given and the program goes on in parallel to school since I have experienced similar implementations before and these might make the [learner] bored…[46]

Few students (n=8) were in the position of undecided for this question. These respondents had very different comments for their replies.

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The next question checked whether seeing the definitions of target words helped learners. An overwhelming majority of respondents (n=47) reported that it helped them to learn better particularly with the given parts of speech and that learners did not need any other dictionary while studying on the web-based material. Very few of (n=3) these respondents suggested that there should be more target words and Turkish translations of words besides English definitions. One respondent claimed that the words he had learned best were learned by him via this web-based material. One other respondent uttered that it was a good idea to give the definition of words in the puzzle since there was time-running. One of those who were undecided (n=5) stated that he sometimes could not understand the definitions. Only two respondents negatively responded to this question.

The sixth question, similar to the previous one, was about online dictionary mechanism and checked whether listening to the pronunciation of target words helped learners. A great many respondents (n=40) reported that, listening to the pronunciation of target words helped them to improve their pronunciation of these words and their spoken English. Listening to the pronunciation of words provided a comprehensive way of learning them which is often ignored in class. Most of those who were undecided (n=11) declared that they did not listen to the words, ignored this mechanism. One of these had an explanation for ignoring this mechanism,

> I don't think listening to the pronunciation of words is effective since
> we don't have such a lesson and it is not given importance much at
> school[47].

There were only three respondents who negatively responded to this question but they did not comment.

The seventh question was posed to learn about success of web-based material at its provision of a fast and organized learning environment differing form other alternative supplementary materials. About half of the learners (n=29) responded positively by reporting that the material made them study those words much more and increased retention of them via pre-arranged repetitions it provided. These

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participants additionally declared that the material was organized and enjoyable. Some of these participants (n=4) declared that words were studies via this material in a fast manner. Two of those who responded negatively (n=6) commented that they preferred studying vocabulary by writing on a paper or on their course books. The undecided respondents (n=19) unexpectedly did not comment.

The eighth question was posed to discover the technical problems learners suffered while using the system. About half of the learners (n=29) reported that they did not have any technical problems and they were able to access the system easily and fast. One respondent claimed that even a child could use this program. The others (n=22) who had technical problems commented that; they had problems while logging into the system at the beginning; the web-pages were sometimes frozen and did not move; the program (internet explorer) was not suitable for everybody's computer; the system did not record some part of their studies there because they had not left the system with 'log out' button but by clicking on 'x' button. One respondent stated that the technical problems he had suffered made him unwilling to enter the system. There were only three respondents who were undecided but they did not report.

Summary of the results of the Checklists regarding Overall Design

It is clear that learners' motivation to a web-based material is dependent on the materials length and interest level for the learners. In the current study, it is inferred from learners' responses that if the texts had been shorter and if there had not been any technical problems, they would have been more motivated to study on it. Learners seemed to be satisfied with the material as a supplementary material to in-class learning because it was more enjoyable and easier to learn with, more significantly, the retention was higher comparatively to studying vocabulary from a course book. However as learners indicated, the material should incluse whole vocabulary that they had learned at school so that they could be highly effective for the learners. For all learners of WEBVOCLE, who were familiar and used to learning words by contextual guesswork, it was easier to learn with this strategy and the retention of those words was higher, besides, this strategy also lead learners to learn

words' form and usage. However, for others whose learning strategy for vocabulary was other than contextual guesswork, it was difficult and it was a waste of time. A great majority of learners believed that a repetitive system helped learners recall those words easily and facilitated retention of them. Moreover, learners believed that when definitions of the words particularly with parts of speech were given, it was easier to learn words. Similarly, listening to the pronunciation of target words help learners improve their spoken English correspondingly. Learners found the web-based material organized, enjoyable and faster to study vocabulary with. Technical problems learners were often exposed to were due to low connection speed, use of a different browser and about logging into and out of the web material (Table 4.17).

Table 4.17. *Checklists results with frequencies regarding the overall design*

	Criteria	Yes (n)	No(n)	Not sure(n)
Overall Design	Motivational attractiveness of the material	18	15	21
	Suitability of the web-based material as a supplementary material to in-class learning	37	5	12
	Appropriateness of the technique 'Contextual guesswork' for learners' learning styles.	40	1	13
	The benefit of the repetitions to learners recalling of the target words	46	-	8
	The benefit of seeing definitions of the words	47	2	5
	The benefit of listening to pronunciations of the target words	40	3	11
	System's effectiveness at providing a fast and organized learning environment	29	6	19
	Existence of Technical Problems	22	29	3

Findings of the Face-to-face Interviews' regarding the Overall Design

The first question was checking the motivational attractiveness of the web-based material. As they stated, half of the interviewees (n=4), were motivated to study on the web-based material. One participant who had positively responded to the question in his checklist commented that,

> Honestly, we are anxious about what we will do at next week; we are now more willing to participate in the application. When [the texts] were long at the beginning, we were getting bored but when they are short as they are now, there is no problem[48]. (S4, fairly interested learner)

It was observed by the researcher that some of the interviewees developed self-awareness regarding their improvement in their vocabulary competence by the help of the web material. They stated that their mistakes decreased at the subsequent weeks (S2), they learned almost all of those target words (S7), they still remembered those words which had been given at the first weeks and did not forget them (S8) and that they believed they would not forget those target words easily (S3).

However the other half of the interviewees were either unsatisfied (n=2) or undecided (n= 2) about the issue and they stated in agreement that the stories were not interesting and they were too long. One of them who reported that she had found the story boring in the checklist explained that,

> The topic [of the text] was not attractive, if it had been interesting, I would have logged-in. A person who has computer under hand logs in if there is something new…The topics should be very interesting so that people would like to log-in...That is, the logged-in person should be satisfied on working it[49]. (S7, uninterested learner)

The second question was posed to find out the suitability of the web-based material as a supplementary material to in-class learning. All interviewees (n=8) including even uninterested learners believed that this way of learning words with many repetitions was better than memorizing the words or studying from a course book (S1,S2).

One interviewee indicated that although there were many materials that could be downloaded from the Internet or be accessed on-line such as dictionaries or some other course books' web sites, he discriminated this material from the others by stating that it supported in-class learning in an organized way and that everything they discussed at school could also be studied at home (S2).

Concerning the technique spaced repetition, one respondent commented that seeing words in different sentences at different times is very beneficial (S2). Another participant agreed and satisfied with the provision of the same words at many weeks and thought that it was very helpful to keep those words in mind. (S7). One interviewee who had commented in the checklists that when they did not repeat pre-learned words they often forgot them and that this material and program provided them with the necessary repetition of words, uttered that,

> It was appropriate of course, briefly, how often we repeat the words, they retain in mind to that extent. Also, because we are always on the Internet, a web-based [material] is more appropriate for our learning[50]. (S6, uninterested learner)

In the third question, learners were asked whether the teaching technique, contextual guesswork was appropriate for their learning styles. Almost all of the interviewees (n=7) were satisfied with this learning style and beleieved that is was more helpful to retention. However, some of them (n=3) stated that they had different learning styles before such as memorization of words by writing which they left later. One interviewee who had positively responded to the question in the checklist stated that,

> Before, I was writing the words and memorizing their Turkish translations. I wasn't writing sentences next to them but as I have understood, writing a sentence makes them more comprehensible and more permanent. For example, when somebody says 'indicate', I remember a sentence now, I remember at once[51]. (S3, interested learner)

Another participant repeated his words he had previously made in the checklist and uttered that "of course use of words in a sentence is important for learning how to

use a word." (S5) However, one of the uninterested learners who had positively replied to this question in the checklist uttered that,

> I study words by writing, I cannot deduce their meanings from a sentence, <u>I am not successful at it</u>. I write their Turkish translations and memorize them[52]. (S7, uninterested learner).

The fourth question was posed to find out whether repetition of vocabulary within such a system helps the learners' recall of those words. All of the interviewees (n=8) shared that it was helpful to their learning and that they learned those target words permanently. One interviewee repeated his previous positive comment in his checklist and uttered that,

> Of course, <u>when I repeat [a word] many times, it becomes permanent. And when it is [supported] with a picture and a story, that word is remembered instantly</u>. In other words, it becomes more permanent[53]. (S5, fairly interested learner)

Another interviewee who had commented in the checklist that he had learned most of the words provided with the material and that he had mostly liked 'to be continued' style in which stories appeared every week suggested that, the researcher should improve the web-based material for mass learners. In the interview stated that,

> …a person learns something watched on TV more easily because he both hears and sees and also turns all his receivers there. It is same in this application; moreover, words are exercised again and again. To me, this [application] could be developed for a great mass of learners[54]. (S2, interested learner)

Other two interviewees claimed because there were always the same words, they memorized them unavoidably.

The next question was posed to check whether seeing the definitions of target words helped learners. Except for one, all of the interviewees (n=7) responded positively to this question. The interviewee who had positively responded in the checklist this time responded negatively and explained that,

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> I cannot always understand English definition of the word. I have to see Turkish equivalence of that word. Seeing the definitions did not help, because we also forget their English definitions[55]. (S4, fairly interested learner)

The sixth question, similar to the previous one, was posed to check whether listening to the pronunciation of target words helped learners. Again except for one, all of the interviewees (n=7) responded positively to this question. Although she had taken the position of undecided in the checklist, in the interview she explained that,

> … <u>it is important to learn the pronunciation of a word while learning its meaning and spelling</u>. I have repeated that words it was really good[56]. (S2, interested learner)

The seventh question was posed to learn about web-based materiall's success at providing a fast and organized learning environment differing form other alternative supplementary materials. Except for one, all of the interviewees (n=7) responded positively to this question. One interviewee maintained his positive attitude towards the material and brought out that,

> Normally, everything is stashed before the exam and one starts studying one week before the exam. Then everything gets amassed. <u>By the help of this program, because it is spread to weeks, our work load diminishes prior to exams</u>. We study at ease and you don't try to memorize a word directly[57]. (S1, interested learner)

Another interviewee maintained his previous attitude towards the material and emphasized that,

> Learning cannot be carried by expecting most of the class deduce the words from the course book. The majority will not make it as I suppose. With this way, it is better and easier[58]. (S4, fairly interested learner)

Another participant who had positively responded to the question in the interview, this time particularly indicated how fast was to revise words via this material. He declared that,

> You could study [the exercises] here in 5 or 10 minutes, that is, it was at most taking half an hour. It would be different when you

studied at home. If you had studied at home, you would have to spend at least one or one and half an hour. <u>Here it is in a short time</u>…if I had done 2 or 3 [of the exercises], they would have taken only half an hour of me. <u>I could learn at ease. It is more organized[59]</u>. (S3, interested learner)

The negatively responded interviewee who had claimed in the checklist that the best way to learn words was writing them on paper maintained her opinion and commented that this way of studying words was not organized according to her and that she preferred studying them on a paper. (S7, uninterested learner)

The eighth question was posed to discover the technical problems learners suffered while using the system. More than half of the interviewees (n=5) stated that they did not have any technical problems. The rest talked basically about the same technical problems; the logging in, registering and logging out problems which a few learners had suffered from. Although a participant who stated that he had not suffered any technical problems in his checklist, this time stated that some of his frends had technical problem just because of the use of another Internet browser use.

Summary of the results of the Face-to-face Interviews regarding Overall Design

It is clear that, learners developed self-awareness regarding their improvement in their vocabulary competence by the help of the web material and felt curiosity prior to each week's application which increased their motivation towards the material.

The only reason of the decrease in learners' motivation was seemed to be the uninteresting topic of the texts. As for the materials effectiveness as a supplementary material to in-class learning, learners believed that learning words with many repetitions was better than memorizing the words or studying from a course book. They stated that the material supported in-class learning in an organized way through the Internet technology which learners often used. Learners mostly believed that learning words in contexts was better for retention and learning use of those words. There were some learners who stated that they had left their old strategy of learning words and started to benefit from contexts while studying and learning words.

However, there seemed to be learners also who convinced themselves that they could not deduce words' meaning from the contexts. Learners believed that by repetitions target vocabulary was learned unavoidably and permanently so that this advantageous material could be developed for a great mass of learners.

Table 4.18. *Interview results with frequencies regarding the overall design*

	Criteria	Yes (n)	No(n)	Not sure(n)
Overall Design	Motivational attractiveness of the material	4	2	2
	Suitability of the web-based material as a supplementary material to in-class learning	8	-	-
	Appropriateness of the technique 'contextual guesswork' for learners' learning styles.	7	1	-
	The benefit of the repetitions to learners recalling of the target words	8	-	-
	The benefit of seeing definitions of the words	7	1	-
	The benefit of listening to pronunciations of the target words	7	-	1
	System's effectiveness at providing a fast and organized learning environment	7	1	-
	Existence of Technical Problems	3	5	-

Learners stated that seeing the definitions of target words helped them although sometimes they could not understand definitions. Learners were all pleased with the material's provision of target words' pronunciations and they mostly believed that studying and learning words via WEBVOCLE was more organized and faster. The learners who had technical problems mainly talked about the logging-in, logging-out

and registration problems and a few others because of different Internet browser use (Table 4.18).

4.4.2   The results of the Focus-Group Interviews

After the implementation, the researcher carried out three focus groups interviews (strong, medium and week) determined with respect to learners' participation and interest at web-based material. These groups included 4 participants each. Each time prior to interviews, the researcher prepared the environment for the participants; she called the students a day before to come to director's office where there was an available computer, arranged the seats around the computer and then opened the concerned web-pages. She chose module A and its subsequent applications as a guide for the interviews. Group members' ideas about each application were gathered by opening the application pages one by one.

The interviewees in three groups were chosen purposefully in accordance to their participation in web-based material and the groups were named as strong, medium and weak. Incidentally, the researcher cared for not choosing the same participants who participated in face-to-face interviews. Interviews were from beginning to end audio-recorded.

Content Design

- **Stories**

Strong group: The participants were in agreement in that the stories were all at the appropriate level which was slightly increasing but as learners stated they were very long, boring and flowing. They stated that they wished that stories had been shorter, interesting and their topics included a crime, murder, action something exciting, increasing curiosity. One participant commented that the same story in a "to be continued" style had not worked because it had caused distractions or had been forgotten till the next week. However, learners were pleased with the vocabulary load.

Medium Group: All participants liked the way proficiency level of the content gradually increased and found it very reasonable as their level of proficiency at school was also increasing day by day. One participant uttered that,

> Briefly, there has to be somewhere we had a mistake so that we could see and correct our mistakes and this will improve us[60].

Similar to strong group participants, these participants in this group stated that the topics of the stories could have been more interesting, attractive or about daily events. One stated that they could have been detective stories and included action in order to enhance curiosity for the following weeks. On the other hand, one participant found the stories childish.

Two of the participants declared that the number of target words also might be increased because there were some other words they did not know in the texts. To them, these words could also be taught in the forthcoming versions of WEBVOCLE.

Weak Group: Except for one all participants declared that they did not have any problem with the proficiency level of the stories and exercises. As participants declared the reasons of the decline in their interest towards the material were because of the following issues: use of long texts and the uninteresting topics of the stories. As they suggested the texts had better be about daily events or be chosen by the users from different topics according to their interests. One participant made an interesting explanation for the issue,

> To me, because we are stil not competent in English, stories always become a little weird and boring to us, if there had been another one put there, it would be closer to this and it would be at the same boredom level[61].

The participants all reported that they found vocabulary load appropriate. However, they found the texts too long as they demotivated them. One participant stated that if the texts had been shorter, they would have finished them quickly which in turn would not have made them get bored. Another participant who left studying on the material after the second week and turned back at subsequent weeks criticized the

length of the texts by saying that the first text took two hours of him to finish. Besides, he added that,

> It takes a lot of time for me to read them. That is, because they are over my level of proficiency it takes a long time. That is, there are a lot of unknown words for me, a translating them etc. If they had been shorter, it would been beter[62].

- **Online Dictionary**

Strong Group: The participants all replied that they checked the target words' definitions and listened to their pronunciations which they found very useful and necessary. One of the participants stated that,

> Pronunciation is often ignored and passed at school; therefore, it was beneficial. Besides, listening to words' definitions helps our speaking because we sometimes abstain from speaking in case we would pronounce words wrong[63].

Another participant commented on seeing the definitions of words,

> At this very first application I checked the words meanings by clicking on them because sometimes the meaning of the word cannot be deduced from the context, therefore, I used[64].

Medium group: All participants were in agreement on the benefit of listening to words' pronunciation for the improvement of their spoken English and for being aware of their pronunciation mistakes. One participant stated that it was better to see words' definitions in English compared to their Turkish equivalences because otherwise it would be too easy for them and not improve their written English. Another participant supported him and stated that,

> It is better to see them in this way since if Turkish equivalences were given then, to me, they would have been forgotten. We think more comprehensively in this this way and I think that is words are more permanent[65].

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Participants also declared that the definitions were comprehensible and that they listened to the pronunciations of all target words and two of the participants stated that they repeated the words which they believed helped to improve their spoken English.

Weak Group: They stated that they all used the dictionary given there but ignored the pronunciations except for one participant. One of these participants declared that he understood some of the words from their definitions but he could not understand some definitions so he tried to deduce those words from given contexts. Two others stated that they additionally used their own dictionaries to look up words' Turkish translations which made them understand words' meaning faster.

- **True/False Exercises**

Strong Group: All participants replied that this exercise checked the comprehension of the stories and they had the chance of turning back and finding the right answers for the questions, therefore, it was a superb way of revising the stories.

Medium group: Except for one who found true/false exercises very easy, everybody in the group was satisfied with the exercises. One participant indicated how true-false exercises were pleasurable when compared with wh-questions. She stated that,

> I was afraid at the beginning that you would ask wh-questions. True-false exercises were more reasonable for us. Because after reading texts there are often wh- questions and they are boring; therefore, I was afraid. If there had been others instead of true-false questions, I would have still done them but this is more pleasurable because the answers are there in the story. Both types of exercises, check comprehension but this one is more pleasurable[66].

Another participant supported her and stated that if it had been wh-questions, he would have passed them over.

- **The Vocabulary Game**

Strong Group: Participants shared that vocabulary game was enjoyable, instructive and exciting with the given restricted time to find the words. They believed that it helped to improve spelling and the clues were very beneficial to find the right answers.

Medium group: Three of the participants who played the vocabulary game all found it enjoyable. To them it was beneficial for repeating target words and improving spelling since the game did not accept if there had been a word miswritten. They specially found the given clues as parts of speech of the words helpful for finding answers.

Weak Group: They declared that they all enjoyed from the vocabulary game which helped them to learn the words' parts of speech with the given clues and made them repeat the words and which additionally helped them to improve spelling of those words.

- **The Combo Boxes Exercise**

Strong Group: The participants especially liked the way two alternatives were given in the combo box exercises. They were in agreement on the description of it as an enjoyable, beneficial, easy and superb exercise.

Medium group: As the participants stated, except for one all did the exercise at ease and found it superb. However, they had a suggestion about increasing the number of alternatives in the answers. There were two alternatives which could have been increased to 3 or 4 with addition of other words from the material for increasing its difficulty and for learning more words.

Weak Group: Of the participants who studied on the exercises declared that this exercise was superb because it provided two options to them to choose from. One

participant was hesitate about the exercises and she stated that although writing exercise was more beneficial than this one she enjoyed doing it because she sometimes felt indolence. Another participant supported her reply about the issue.

- **Fill in the Blanks by writing exercise**

Strong group: Two of the participants reported that because the texts of this exercise were about the story or seemed to be stories' summary, it was easy for them to comprehend the texts in the exercises which in turn helped them to find the words for the blanks. All participants declared that this exercise was very beneficial for improving their spelling of words. One participant even stated that this exercise was better than drag-and-drop exercise.

Medium Group: All participants admitted that this exercises helped them improve their spelling and writing without making mistakes.

Weak group: All participants who did the exercise found it helpful for improving their spelling.

- **Drag and Drop Exercises**

Strong group: All participants in agreement stated that drag-and-drop exercises were practical and enjoyable since it was easier to study on the exercise by clicking and that they did not have any problem while dragging and dropping of words. One participant stated that,

> …I wrote there why I should write it again here you say. It is more practical. Drag it and drop there, that is all[67].

Medium group: All participants found the exercise practical and time-saving. To them, it was easier relative to previous fill in the blanks by writing exercise because of its technical characteristic although previous one was better for improving spelling.

Weak group: Only one of the participants had done the activity and she declared that it was easier to do than others.

- **The Matching Exercise**

Strong group: The participants all liked the activity and found it helpful; however, they had a suggestion about the format of seeing the right answers. They preferred to see right answers on the same page again but not matched as in the form of 1.a, 2.b so on. Because as they experienced that matched answers caused confusion especially when they made lots of mistakes.

They additionally agreed on the effectiveness of the way more answers were asked to be matched than the number of questions. Moreover, they were all pleased with seeing the parts of speech next to target words as a clue in this exercise.

Medium group: Two of the participants particularly found this exercise more enjoyable compared to others. They all declared that given parts of speeches as clues were useful and that this exercise was helpful for preparing them for the exams at school because there were always exercises asked in this way. Similar to strong group, these participants found reasonable to be exposed to more alternative answers than the questions. However, differing from the strong group members, these group members liked the way answers were shown to them. They also appreciated seeing answers on the same page with the exercise which enabled them to compare their replies with the correct answers.

Weak group: They reported that they all liked the activity. One participant stated that the letters were very little and the exercise was massed at some place of the page although there was enough place at other sides of the page. One participant was pleased with given parts of speech of the words and declared that,

> Whether [the word] is a noun or a verb is very important for me.
> Say, if I had to rush in an exam and had to finish questions fast, the

verb there or 'to' in explanations are very helpful to me. That is, I could do it by revising it once or twice in a short time[68].

One participant said that alternatives more than questions were really good and added that especially seeing answers there was very helpful since otherwise they would not check their answers and learn their mistakes. Another one, on the other hand, criticized the answers box and suggested that it should be in the form of 1.a 2.b which would not make tired of their eyes.

- **The Multiple Choice Test**

Strong group: Unpredictably, three of the participants admitted that they did this exercise by just checking the distractors without reading the questions. One participant declared that in each question one distractor was the target word they studied on the web-based material, the others were different words; therefore, he unwittingly chose the right answers. This highly surprised the researcher since she had missed this detail while preparing the content.

Medium group: All participants in the group commonly declared that they liked tests more than other exercises because they had got used to studying on tests due to university entrance exam. Moreover, they reported that this type of exercise was easier to do than others because you find the right answer by eliminating the others. Concerning this one participant stated that,

> …<u>at first you don't remember it but when you see the alternatives you think on them as the answer can be this or that</u>. But when there aren't alternatives you get nervous and try recalling it. Consequently, it is easier to choose the correct [word] from the others[69].

Weak group: Three of the participants who did the exercise found it helpful particularly for determining the minor differences among the distractors. One participant had a suggestion for the exercise,

> Actually, it could be better if the words could be clicked and [the differences among those words] could be indicated after the answers

are shown. As in the story, the definitions were shown when clicked
on the words in the story[70].

They did not have any complaint about the design of the exercise on the page as the strong group.

- **The Puzzle**

Strong group: All participants complained how difficult was to fill in the puzzle with the words and they all declared that the main problem was that the cursor itself was not moving to the next box after writing a letter which made users push the letters with one hand on the keyboard and click mouse with the other hand. They claimed that it was almost impossible to complete whole puzzle within given time because of this shortcoming.

Medium Group: Differing from strong group members, they all stated that they did not have any problem with filling in the puzzle. They particularly liked the way the wrong letters were indicated with the red color after evaluating their answers which warned them about the spelling mistake they had made. One participant also emphasized that,

> Maybe we find the right word [for the blanks] but we are writing it
> wrong, in this way we also learn to write [the word] correctly[71].

Two of the participants suggested that there should be more clues for finding the words.

Weak group: One participant stated that it was very difficult to fill in the puzzle. Another participant confessed that he found answers by using other online dictionaries on the internet. He added that he especially liked the way the letters became red when they had been written wrong. The last participant who completed the puzzle did not have any complaint about it.

- **The Cloze Test**

Strong group: Three of the participants declared that cloze test was beneficial for improving the spelling of words. Only one participant stated that the blanks should be asked in sentences or in short paragraphs but not in a whole text because of its difficulty. However, another participant refused it and stated that it was also beneficial to study on the text for improving their reading.

Medium Group: All participants agreed on that this fill in the blanks by writing exercise was better than the other fill in the blanks in the dialogue by writing exercise because this time you fill in the blanks in a text which is easier to find answers with given clues and details in the text. They declared that this exercises is one of those mostly asked types of questions in their exams; therefore, it was important for them and they added that they did not have any difficulty in understanding the text.

- **Varieties of exercises**

Strong group: They all commented that because there was diversity of exercises, it prevented boredom. To them, doing always the same times of exercises caused boredom.

Medium group: They liked the diversity in exercises and stated that these were the types of exercises they would often become face-to-face in any English exam in their lives. One of them uttered that,

> We often could not find sample sentences for the learnt words; therefore, this way of studying words was helpful to us[72].

One participant claimed also that paragraphs were mostly asked in their exams at school even more than dialogues; therefore, the material was very helpful for studying exercises within paragraphs.

Visual Design

Strong group: All participants declared that the use of colors on the material was effective, there was nothing disturbing their eyes. The use of red color which was indicating their mistake was also effective. Pictures were high quality and effective in telling the stories. Participants stated that they particularly liked the way words appeared on the pictures with animated figures and they suggested that their number should be increased. Briefly and the most significantly there was nothing visually to distract their concentration on the texts and exercises.

Medium Group: They all liked the harmony in colors on the web-pages. They all declared that pictures were useful for emphasizing details of the stories or the outlines of the story and for raising curiosity. One participant uttered that,

> At least, when we first open the text we could say "yes here he would say this" by looking at the pictures and this increases curiosity. Moreover pictures attract attention for example the skeleton figure there is attractive. You say why that talon is there shaking[73].

They all admitted that particularly the animated figures on the pictures were very attractive and interesting. Two participants were pleased with seeing pictures next to texts on the web-pages. One of them had a remarkable comment on the use of pictures,

> My first thought was in this way, at least when I opened the page I didn't see only the texts which I was pleased with. This way it is much more interesting. Only text is always repulsive for me[74].

Although two of the participants had some suggestions about background color use such as there should be more colors or more pale ones on the background, the other two participants refused it and stated that the color use was appropriate and that more colorful pages could have caused problems.

All participants were pleased with the "back" and "next" options which particularly enabled them to go back and check their answers in true/false exercises. However, two participants stated that they wished that they could have had the chance of passing some exercises which made them bored.

They found helpful to see correct answers button for checking their answers and for seeing where their mistakes were. One participant stated that,

> Seeing our mistakes was very helpful. We think what we know is correct, <u>unless we see our mistakes we can not improve ourselves</u>[75].

Additionally, they all liked the way mistakes had been shown to them with red color.

The participants were all satisfied with the font size and they surprisingly stated that bigger letters may distract concentration since in such a case the text will get longer.

Weak group: They all liked the use of pictures on the material. One participant stated that

> It is excellent that it has pictures because we could imagine. For instance when we have difficulty in understanding a paragraph, we could guess what is being told there from the pictures[76].

Other two participants emphasized that animated pictures were superb. Concerning font size, one participant stated that reading the texts was a little challenging and that they were getting exhausted up to final pages. One participant has an interesting comment on this issue,

> In general, there was smallness in the whole system, but apart from this because we do not log-in the web site for entertainment there is no problem. The person does not have a concern about entertaining there or seeing showy colors there[77].

Only in multiple choice test they found line-spacing inappropriate and suggested that the distractors should have a different background color in order to overcome this problem.

Overall Design

Strong group: All participants were able to understand the instructions on the pages and they were satisfied with the comprehensibility of the instructions. They especially liked the informative pages appearing just before the exercises pages. Concerning this, one participant stated that,

> There wasn't any informative page before the first application. For example, before the vocabulary game there was just a 'start game' button; however, you added later, it was really good. Because when there wasn't any informative page we were opening the page and finding ourselves suddenly in the game and the time was running[78].

Medium group: The partcicpants were in agreement on the comprehensibility of instructions and admitted they did not have any problems with instructions. One participant stated that,

> Before every application, I read the instructions. They are also important in midterm exams. We do the things in a wrong way due to not reading them. So I always care for reading them. Instructions were all in a comprehensible level for us[79].

Weak group: They declared that instructions were important which prevented them from making mistakes and they stated that they had found all instructions clear. One participant commented that he did not need to read instructions because everything was easy to understand.

- **Learning Words in Contexts**

Strong group: Three of the learners admitted that this type of learning words in context were their own way of learning vocabulary because they did not believe

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memorization was an effective way of learning words. Only one participant declared that she was learning words by writing on a paper and memorizing, yet she accepted that this was not a good technique for her. She uttered that,

> I was studying the words by writing. But by writing, the memorized words were kept in mind at most 3 or 4 days. And I didn't have time to study on that paper later or perhaps I had time but because of my laziness… but with this system because we repeated the words continuously for two months the words were easily located [in mind]. I don't think that I will forget them again[80].

Medium group: They all believed that this type of learning words in context is much more permanent than other techniques. One participant stated that this had not been his way of learning words beforebecause he had been writing Turkish translations of the words and memorizing them in the past. However, the same participant stated that he found this way of learning words and doing many exercises on those words in different contexts more effcicent.

One participant declared that given definitions were only a support because they could anyway deduce those words from the contexts easily which indicates that contexts were well-prepared and appropriate for those words.

Weak group: Three participants declared that they did not have any problem of guessing target words from the contexts.

- **The Repetitive Supplementary Web-based Material**

Strong group: This was all participants' first experience on an instructional web-based material. They were all pleased with the material and particularly the way it provided repetitions of pre-learnt words many times at different weeks and with different exercises.

Medium group: Participants found learning words with the web-based material interesting, enjoyable, beneficial for revising words and practical with the multimedia provided. One participant captured the benefit of such materials definitively:

> Recently, I have started to use computers more often. To me, the existence of such systems is good for accesssing and learning words faster and more easily. Because technology has developed and at every house computers are being used, the extension of such systems is important[81].

Sharing the idea of the previous participant, another participant added that,

> These systems are more practical and more interesting compared to dictionaries because people are these days communicating and learning via computers. [Learning via these materials] is easier, more efficient and comfortable[82].

The participants were satisfied with the way the web-based material had to be followed weekly. One participant stated that,

> In such a program we at least feel ourselves responsible. We have to log in and check what happened this week? We say to ourselves what happened this week, what the changes are there[83].

The other participants supported her by stating that,

> The person wonders, he feels the necessity of checking it when he looks at, he learns new things[84].

Another participants stated that,

> There is curiosity and it is provided by the story. With its continuity every week and break at a certain point[85].

Another participant confessed that,

> To me, there has to be more applications such as this one to make people love English more. Briefly, as I said before I don't like

[studying] English but it is important to me that it attracted me and made me love [studying] English with such an application and with different exercises[86].

Weak group: They commented that the material helped them to repeat the words and recall them easily. One participant affirmed that,

It is something general it is also beneficial and superb but if it were completely parallel to lessons, it would be more benefical[87].

- **Technical Problems**

Strong group: Two of the participants had problem at the first week when registering the material. Therefore, they all believed there should be a 'forgot my password' and 'change my password' buttons added.

Medium group: They all explained their only problem was with logging off the web-based material since they clicked on 'x' instead off 'log off' button therefore their studies were not recorded by the system in the first week. And two participants complained about the cut in their Internet connections because their study was interrupted in the middle.

Weak group: Again logging-out was the common problem for two of the participants of this group. One participant also stated that Turkish letters were not accepted by the system.

One participant emphasized when they logged-into the system for studying, therefore, how colorful was it, how enjoyable were the pictures were not important for her. She stated that they were not kindergarten children but teenagers aware of their purpose of logging in the material. To her, unless anything made their eyes tired there was not a problem.

- **Studying at Internet Cafes**

Strong group: All of the participants in the group followed the web-based material at Internet cafes. Except for one, the other three participants stated that they were not able to listen to words' definitions effectively because of the dominant noise and loud music at Internet cafes. One participant additionally stated that there was a problem of connection speed which caused screen loading problems; one computer was accessing the web pages the other did not.

- **Suggestions**

Strong group: Three of the participants emphasized that Internet cafes were not appropriate places to study on such an educational material because of the noise there. Therefore, one of the participants suggested that this application should be implemented at a lab at a certain time because not everybody had a computer at home.

Another suggestion came from two participants of the group; they wished that there had been dialogues in the texts supported with pictures which they believed would improve their spoken English.

They in agreement suggested that the exercises should be passed if needed. This is very important when they felt bored with the exercise and when they could not remember the right answers, that is, they all wished that they could skip the exercises and turn back whenever they required. Since otherwise, they randomly answer the questions in order to be able to leave the material.

Medium group: Two of the participants in the group suggested that there should be more speech bubbles added into the pictures which make reading the text more interesting. They suggested that this material be improved and included all the learnt vocabulary from their course book because they often had problems in finding exercises about the learnt vocabulary at school. To them, the next web-based

vocabulary learning material should completely proceed in line with learners' course book which could get interest of many students.

Weak group: They all agreed on that the material was really helpful repetitions of the vocabulary. One of the participants suggested that song lyrics be used for studying words. Another one criticized that there was not any possibility of leaving the material and again turning back to the same place when logged in next time therefore, they were completing the exercises randomly because the material did not otherwise let them log out. Similarly, they criticized that the exercises could not be passed or some questions could not be skipped and because of this some of them confessed that they were wittingly misfilling the exercises. This characteristic of the web-based material was common to all exercises that one user should complete all the exercises for his answers to be recorded by the system. However, this created a limitation for the learners and handicapped the ones who wanted to log in the material for a short time because when they logged in, they were supposed to finish all exercises. Briefly, they suggested that every movement of a learner did on the material should be recorded step by step so that he could turn back and go on from the exercise he last stopped.

Summary of the Perceptions of the Learners

General summary with the themes and codes gathered through checklists, interviews and focus group interviews are given below. The percents of the issues were computed according to checklist results.

Table 4.19. *General summary of the learners' perceptions*

Issues
(Learners' impressions: Positive, Negative, Undecided)
Perceptions of learners regarding use of material
Content Design
Appropriateness of the content for learners' level of proficiency Positive: (93 %) Negative: (0 %) Undecided: (7 %)
Effectiveness of contexts Positive: (65 %) Negative: (4 %) Undecided: (31 %)

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Table 4.19. *Continued*

Appropriateness of the length of the texts
Positive: (33 %) Negative: (35 %) Undecided: (31 %)

Suitability and interest level of the texts
Positive: (31 %) Negative: (44 %) Undecided: (24 %)

Vocabulary load suitability
Positive: (67) Negative: (15 %) Undecided: (19%)

Effectiveness of True/False exercises
Positive: (85 %) Negative: (6 %) Undecided: (9 %)

Appropriateness of the number of True/False exercises
Positive: (91 %) Negative: (7 %) Undecided: (2 %)

Comprehensibility of instructions
Positive: (89 %) Negative: (11 %) Undecided: (0 %)

Visual Design

Appropriateness of Interface design
Positive: (85 %) Negative: (2 %) Undecided: (13 %)

Quality of pictures
Positive: (48 %) Negative: (31 %) Undecided: (20 %)

Effectiveness of pictures in telling the stories
Positive: (57 %) Negative: (19 %) Undecided: (24 %)

Benefit of pictures in the comprehension of target vocabulary
Positive: (69 %) Negative: (7 %) Undecided: (24 %)

Use of Color
Positive: (74 %) Negative: (4 %) Undecided: (22 %)

Practicality of navigation buttons
Positive: (83 %) Negative: (11 %) Undecided: (6 %)

Appropriateness of background color
Positive: (76 %) Negative: (2 %) Undecided: (22 %)

Appropriateness of font size and type
Positive: (74 %) Negative: (11 %) Undecided: (15 %)

Appropriateness of line spacing
Positive: (74 %) Negative: (11 %) Undecided: (15 %)

Overall Design

Perceptions of learners regarding learning words via a web-based material

Motivational attractiveness of the material
Positive: (33 %) Negative: (28 %) Undecided: (39 %)

Suitability of the web-based material as a supplementary material to in-class learning
Positive: (69 %) Negative: (9 %) Undecided: (22 %)

The benefit of seeing definitions of the words
Positive: (87 %) Negative: (4 %) Undecided: (9 %)

Table 4.19. *Continued*
The benefit of listening to pronunciations of the words
Positive: (74 %) Negative: (6 %) Undecided: (20 %)

System's effectiveness at providing a fast and organized learning environment
Positive: (54 %) Negative: (11 %) Undecided: (35 %)

Perceptions of learners regarding the way of learning new vocabulary with spaced repetitions

The benefit of repetitions to learners' recalling of the target words
Positive: (85 %) Negative: (0 %) Undecided: (15 %)

Perceptions of learners regarding learning words in context

Appropriateness of the technique 'Contextual guesswork' for learners' learning styles.
Positive: (74 %) Negative: (2 %) Undecided: (24 %)

Other issues

Technical Problems
Positive: (41 %) Negative: (54 %) Undecided: (6 %)

Studying an Instructive Web-based material at an Internet cafe
(New code emerged at Focus Group Interviews)

4.5. Changes in the Attitudes of Learners

In the study, two types of attitudes were measured by pre- and post attitude questionnaires. An 18-item-attitudes towards English vocabulary learning questionnaire and a 9-item web-based English language vocabulary learning questionnaire were used. Overall reliability of both questionnaires was measured by SPSS and Cronbach Alfa Coefficient was found 0.75 for both questionnaires which was above .7; therefore, the questionnaires were considered to be reliable.

4.5.1 Attitudes Towards English Language Vocabulary Learning

Table 4.20 shows the mean of the attitudes scores of the questionnaire on English language vocabulary learning. The mean was computed as 64 before the intervention (M=63.83) and 69 after the intervention (M=69.25). The correlation between the attitude scores of the two questionnaires was .57. There was a moderate positive correlation between two variables at P<0.05 level. The positive correlation indicated that as learners attitude scores increased in the pre- questionnaire, the scores of the

same learners in post-questionnaire increased. Although the correlation found to be moderate, the relationship among the scores was significant. The result shows that as the attitude scores of the learners in the pre-questionnaire increased, their attitude scores in the post-questionnaire increased.

The value 'pre' in the tables indicates the total pre implementation scores of replies that participants gave for the 18-item English language vocabulary learning attitude questionnaire; where as 'post' indicates the total post implementation scores of replies that the same participants gave for the 18-item English language vocabulary learning attitude questionnaire.

Table 4.20. *The results of paired-samples t-test on pre- and post-test questionnaires of attitudes towards English language vocabulary learning*

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	post	69.25	69	5.400	.650
	pre	63.83	69	7.668	.923

Paired Samples Correlations

	N	Correlation	Sig
Pair 1 post & pre	69	.574	.000

Paired Sample Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 post – pre	5.420	6.356	.765	3.893	6.947	7.084	68	.000

Besides the analysis of correlation coefficient, the statistical difference between pre and post-test attitude scores in the vocabulary learning questionnaire was evaluated

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by using paired-samples t-test. The results indicated that the mean score for post-questionnaire (M= 69.25, SD=5.4) was significantly greater than the mean score for pre-questionnaire (M= 63.83, SD=7.7), T(68)=7.08, p<.05. Therefore, there was a significant increase in learners' attitudes towards English language vocabulary learning after the intervention.

4.5.2 Attitudes Towards Web-based English Language Vocabulary Learning

Table 4.21 shows the mean of the attitudes scores of the questionnaire on web-based vocabulary learning. The means were computed as 27.87 before the implementation and 28.68 after the implementation, in order to check whether there was a statistical difference between pre and post-test attitude scores in the web-based vocabulary learning questionnaire, the results were measured by using paired-samples t-test. The correlation between the attitude scores of the two questionnaires was .33. There was a slight positive correlation between two variables at P<0.05 level. There was a positive correlation but it was low for the relationship. It was assumed that by increasing sample size, the strength of the correlation might increase.

The value 'pre' in the tables indicates the total pre implementation scores of replies that participants gave for 9-item web-based English language vocabulary learning attitude questionnaire; where as 'post' indicates the total post implementation scores of replies that the same participants gave for 9-item web-based English language vocabulary learning attitude questionnaire.

Table 4.21. *The results of paired-samples t-test on pre- and post-test questionnaires of attitudes towards web-based English language vocabulary learning*

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	post	28.68	69	5.198	.626
	pre	27.87	69	4.731	.570

Table 4.21. *Continued*

Paired Samples Correlation

	N	Correlation	Sig
Pair 1 post & pre	69	.334	.005

Paired Sample Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 post – pre	.812	5.743	.691	-.568	2.191	1.174	68	.245

Besides the analysis of correlation of coefficient, the statistical difference between pre and post test attitude scores in the vocabulary learning questionnaire was evaluated by using paired samples t-test. The results indicated that the mean score for post-questionnaire (M= 28.68, SD=5.1) was greater than the mean score for pre-questionnaire (M= 27.87, SD=4.7) but there was not a statistically significant difference between pre and post test attitude scores of the learners T(68)=1.17, p>.05.

4.6. Vocabulary Gain and Retention

In the study, there were three English language vocabulary retention tests in the form of pre and post tests for each module of A, B and C. The number of words and corresponding questions that were measured for each test was as follows:

English language vocabulary retention Test A: 9 Questions (Prior to and after the implementation of module A)

English language English language vocabulary retention Test B: 10 Questions (Prior to and after the implementation of module B)

English language English language vocabulary retention Test C: 11 Questions (Prior to and after the implementation of module C)

The learners' English language vocabulary retention of three modules A, B, and C were tested as a pre-test after their first exposition to target vocabulary in-class and before the implementation. Learners' total gain or savings as a result of the implementation comparative to their prior to implementation situation was indicated in Table 4.22.

Table 4.22. *Means of the pre-test and post-test scores*

Descriptive Statistics

	Posttest-Pretest A	Posttest-Pretest B	Posttest-Pretest C	Pre test A	Post test A	Pre test B	Post test B	Pre test C	Post test C
N	69	69	69	69	69	69	69	69	69
Minimum	-4.00	-4.00	-3.00	1	1	0	0	0	0
Maximum	7.00	5.00	11.00	9	9	10	10	9	11
Mean	1.9275	.3333	2.6087	4.75	6.68	6.48	6.81	4.57	7.17
Std. Deviation	1.88897	2.03402	2.08790	1.973	2.152	2.343	2.421	2.285	2.651

As shown, there was an increase in the means of pre and post-test scores which means that the number of words learners remembered increased after the implementation with respect to the number of words they remembered after their first exposition to those words in-class and before the web-based material's implementation. In order to see each applications' effect on learners' vocabulary retention, a more detailed analysis with ANOVA was computed for each module's tests by taking account of learners participation number.

Results of pre-test and post-test of Module A

First, whether there was any difference in English language vocabulary retention concerning the words of Module A before and after the intervention was investigated. Therefore, the pre-post tests of Module A were implemented. The difference between two test scores was measured and it was taken on as a dependent variable.

Table 4.23. *The means of the differences between learners' pre-test and post test scores with respect to their participation to Module A*

Descriptives

Post test A - Pre test A

Applications of Module A	N	Mean	Std. Deviation
.00	2	-.5000	.70711
1.00	3	.3333	.57735
2.00	13	.9231	2.10006
3.00	14	2.0000	2.28709
4.00	37	2.5135	1.44571
Total	69	1.9275	1.88897

The changes in the learners' English language vocabulary retention level which was gathered through pre and post tests were measured by taking account of the learners' participation to A, A1, A2 and A3 applications. According to findings: the mean difference was -0.5 between the pre and post tests scores of the learners who did not participate any applications; the mean difference was 0.3 who participated in 1 application; the mean difference was 0.9 between the pre and post tests scores of the learners who participated in 2 applications; the mean difference was 2.0 between the pre and post tests scores of the learners who participated in 3 applications; the mean difference was 2.5 between the pre and post tests scores of the learners who participated in 4 applications. According to findings, as learners participated in the applications there occured a moderate increase in the level of their English language vocabulary retention.

In order to investigate, learners' means of pre-test and post-test score differences according to their participation number to applications A, A1, A2, A3, a one-way ANOVA was computed.

Table 4.24. *The results of ANOVA analysis concerning Module A*

ANOVA
Post test A- Pre test A

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	45.305	4	11.326	3.673	.009
Within Groups	197.333	64	3.083		
Total	242.638	68			

According to the results of ANOVA indicated in table, the test was significant, $F_{(4,64)}= 3.67$, $p= .009$. Therefore, there was a statistically significant difference in pre-test and post-test scores' differences of learners ($p<0.05$). In other words, there is a difference in the number of words learners remember from Module A before and after the implementation, by taking account of these learners' participation number to applications of A.

Because the test was significant, follow-up tests were conducted to evaluate the pairwise differences among the means. Put differently, in order to determine the reason of the difference from which application numbers it was caused of, multiple comparisons were carried out. In order to decide on the right post-hoc procedure, the group's homogeneity of variances was checked. The significant value was .29 which was greater than .05, therefore the assumption of homogeneity of variance was not violated (Pallant, 2001). Next, post-hoc comparisons (Tukey HSD) were applied.

Table 4.25. *The results of homogeneity-of-variance test and post hoc comparisons*

Levene's Test of Equality of Error Variances
Post test A- Pre test A

F	df1	df2	Sig.
1.272	4	64	.290

Table 4.25. *Continued*

Multiple Comparisons

Dependent Variable: Post test A – Pre test A

(I) A Participation to the applications of A	(J) A Participation to the applications of A	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
.00	1.00	-.83333	1.60295	.985	-5.3329	3.6662
	2.00	-1.42308	1.33373	.823	-5.1670	2.3208
	3.00	-2.50000	1.32737	.337	-6.2260	1.2260
	4.00	-3.01351	1.27475	.139	-6.5918	.5648
1.00	.00	.83333	1.60295	.985	-3.6662	5.3329
	2.00	-.58974	1.12470	.985	-3.7469	2.5674
	3.00	-1.66667	1.11715	.571	-4.8026	1.4692
	4.00	-2.18018	1.05409	.246	-5.1391	.7787
2.00	.00	1.42308	1.33373	.823	-2.3208	5.1670
	1.00	.58974	1.12470	.985	-2.5674	3.7469
	3.00	-1.07692	.67633	.508	-2.9754	.8216
	4.00	-1.59044(*)	.56614	.050	-3.1796	-.0012
3.00	.00	2.50000	1.32737	.337	-1.2260	6.2260
	1.00	1.66667	1.11715	.571	-1.4692	4.8026
	2.00	1.07692	.67633	.508	-.8216	2.9754
	4.00	-.51351	.55097	.883	-2.0601	1.0331
4.00	.00	3.01351	1.27475	.139	-.5648	6.5918
	1.00	2.18018	1.05409	.246	-.7787	5.1391
	2.00	1.59044(*)	.56614	.050	.0012	3.1796
	3.00	.51351	.55097	.883	-1.0331	2.0601

* The mean difference is significant at the .05 level.

Post hoc comparisons (Tukey HSD) showed there was no statistically significant mean difference between 0 and the other groups; 1 and the other groups; 3 and the other groups because p values were greater than .05 but between the learners with the participation number 2 and 4, there was a slight significant difference p= .05 (p<0.05). As indicated in the mean differences column this difference in means was based on the learners with the participation number 4. If the mean difference score of the participants with the participant number 4 and the mean difference score of the participants with the participant number 2 are checked, it is found that the former one's mean score is more than the latter one. It means that the learners who had participated in all 4 applications remembered slightly more words than the ones who

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participated in only 2 applications of Module A. The line chart indicates the changes in the mean difference scores regarding vocabulary retention test A for the participation number 0,1,2,3 and 4. Figure 4.1 shows the distributions of the five participation groups.

Means Plots
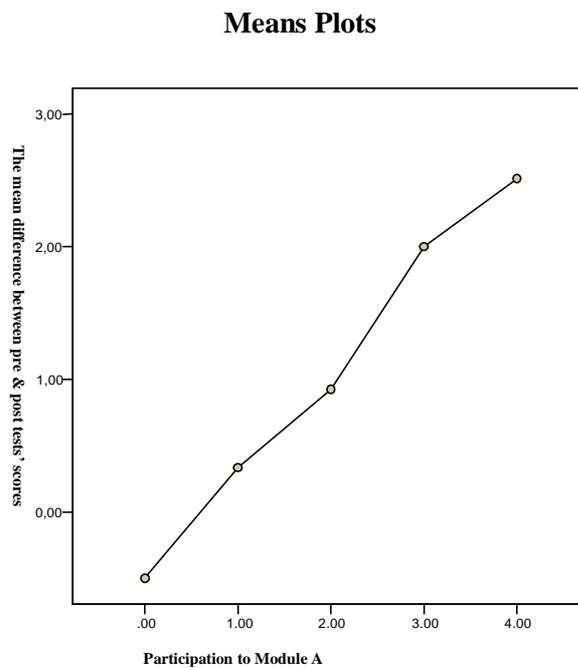
Figure 4.1. Changes in the mean difference scores of test A for the participation number 0, 1, 2, 3 and 4

Results of pre-test and post test of Module B

Learners' mean difference between pre and post test scores of B, namely, the number of words they remember, was measured. This mean difference between pre and post test scores of B was taken on as a dependent variable for the analysis.

Table 4.26. *The means of the differences between learners' pre-test and post test scores with respect to their participation to Module B*

Descriptives

Applications of Module B	N	Mean	Std. Deviation
.00	6	-1.1667	1.72240
1.00	7	-.5714	1.90238
2.00	13	.0000	2.51661
3.00	16	.4375	1.63172
4.00	27	1.0000	1.92154
Total	69	.3333	2.03402

The changes in the learners' English language vocabulary retention level gathered through pre and post tests was measured by taking account of learners participation to B, B1, B2 and B3 applications. According to findings: the mean difference was -1.1 between the pre and post tests scores of the learners who did not participate in any application; the mean difference was -0.5 between the pre and post tests scores of the learners who participated in 1 application; the mean difference were .0 between the pre and post tests scores of the learners who participated in 2 applications; the mean difference was 0.4 between the pre and post tests scores of the learners who participated in 3 applications; the mean difference was 1.0 between the pre and post tests scores of the learners who participated in 4 applications. According to findings, as learners participated in the applications there occured a slight increase in the number of their English language vocabulary retention.

Table 4.26 gives the means of the differences between learners' pre-test and post test results with respect to their participation to Module B. In order to investigate, learners' mean of pre test and post test score differences according to their participation number to applications B, B1, B2, B3 a one-way ANOVA was computed.

Table 4.27. *The results of ANOVA analysis concerning Module B*

ANOVA

Post test B- Pre test B

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	32.848	4	8.212	2.115	.089
Within Groups	248.485	64	3.883		
Total	281.333	68			

According to the results of ANOVA indicated in Table 4.27, the test was not significant, $F(4,64)= 2.12$, p= .089. Therefore, there was not a statistically significant difference in pre-test and post-test scores' differences of learners (p>0.05). In other words, there was not a difference in the number of words learners remembered from Module B before and after the implementation, by taking account of these learners' participation number to applications of module B. This means that learners kept the same level of retention for pre-learnt words from Module B before the beginning of implementation and after it. The line chart indicates the changes in the mean difference scores regarding vocabulary retention test B for the participation number 0, 1, 2, 3 and 4. Figure 4.2 shows the distributions of the five participation groups.

Means Plots
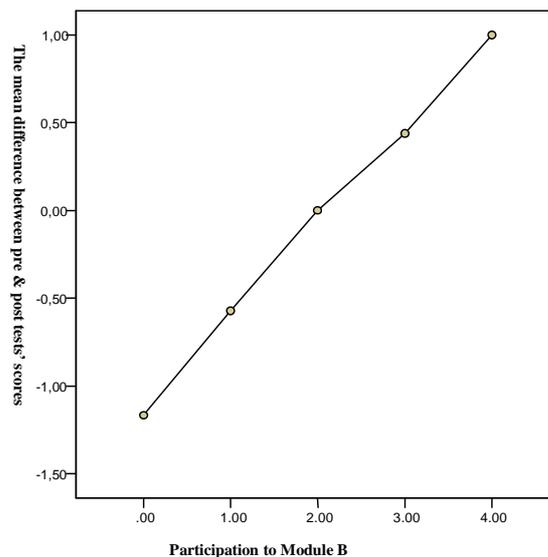
Figure 4.2. Changes in the mean difference scores of test B for the participation number 0, 1, 2, 3 and 4

Results of pre-test and post test of Module C

The pre-post tests of Module C were applied. The difference between two test scores was measured and it was taken on as a dependent variable in the following analysis.

Table 4.28. *The means of the differences between learners' pre-test and post test scores with respect to their participation to Module C*

Descriptives

Post test C- Pre test C

Application of Module C	N	Mean	Std. Deviation
1.00	8	.6250	2.26385
2.00	9	1.6667	1.41421
3.00	21	3.0476	2.31249
4.00	31	3.0968	1.70009
Total	69	2.6087	2.08790

The changes in the learners' English language vocabulary retention level gathered through pre and post tests was measured by taking account of learners participation to C, C1, C2 and C3 applications. According to findings: the mean difference was 0.62 between the pre and post tests scores of the learners who participated in 1 application; the mean difference was 1.6 between the pre and post tests scores of the learners who participated in 2 applications; the mean difference was 3.04 between the pre and post tests scores of the learners who participated in 3 applications; the mean difference was 3.09 between the pre and post tests scores of the learners who participated in 4 applications. According to findings, as learners participated in the applications there was a moderate increase in the number of their English language vocabulary retention.

In order to investigate, learners' means of pre test and post test score differences according to their participation number to applications C, C1, C2, C3, a one-way ANOVA was computed.

Table 4.29. *The results of ANOVA analysis concerning Module C*

ANOVA
Post test C- Pre test C

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	50.898	3	16.966	4.491	.006
Within Groups	245.537	65	3.777		
Total	296.435	68			

According to the results of ANOVA indicated in Table 4.29, the test was significant, $F(3,65)= 4.49$, p= .006. Therefore, there was a statistically significant difference in pre-test and post-test scores' differences of learners (p<0.05). In other words, there was a difference in the the number of words learners remembered from Module C before and after the implementation, by taking account of these learners' participation number to applications of C.

Because the test was significant, follow-up tests were conducted to evaluate the pairwise differences among the means. Put differently, in order to determine the reason of the difference from which application numbers it was caused of multiple comparisons were carried out. In order to decide on the right post-hoc procedure, the group's homogeneity of variances was checked. The significant value was .80 which was greater than .05, therefore the assumption of homogeneity of variance was not violated. Next, post-hoc comparisons (Tukey HSD) were applied.

Table 4.30. *The results of homogeneity-of-variance test and post hoc comparisons*

Levene's Test of Equality of Error Variances
Post test C- Pre test C

Levene Statistic	df1	df2	Sig.
.336	3	65	.800

Table 4.30. *Continued*

Multiple Comparisons
Dependent Variable: Post test C- Pre test C

(I) C Participation to the applications of C	(J) C Participation to the applications of C	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	-1.04167	.94441	.689	-3.5318	1.4485
	3.00	-2.42262(*)	.80751	.020	-4.5518	-.2934
	4.00	-2.47177(*)	.77074	.011	-4.5040	-.4395
2.00	1.00	1.04167	.94441	.689	-1.4485	3.5318
	3.00	-1.38095	.77434	.291	-3.4227	.6608
	4.00	-1.43011	.73592	.220	-3.3705	.5103
3.00	1.00	2.42262(*)	.80751	.020	.2934	4.5518
	2.00	1.38095	.77434	.291	-.6608	3.4227
	4.00	-.04916	.54930	1.000	-1.4975	1.3992
4.00	1.00	2.47177(*)	.77074	.011	.4395	4.5040
	2.00	1.43011	.73592	.220	-.5103	3.3705
	3.00	.04916	.54930	1.000	-1.3992	1.4975

* The mean difference is significant at the .05 level.

Post hoc comparisons (Tukey HSD) showed that there was no statistically significant mean difference between 2 and the other groups but there was a significant difference among the groups with the participation number 1, 3 and 4 p=.020 and p=.011 (p<0.05). This difference in means were based on the learners with the higher participation number 4. There was a difference between the learners who had participated 1 application and all 4 applications. This difference occurred due to the high level of words remembered by the learners who had participated in all 4 applications. Similarly, there was a difference between the learners who had participated 1 application and 3 applications. This difference occurred due to the high level of words remembered by the learners who had participated in 3 applications. The line chart indicates the changes in the mean difference scores regarding vocabulary retention test C for the participation number 1,2,3 and 4. Figure 4.3 shows the distributions of the four participation groups.

Means Plots
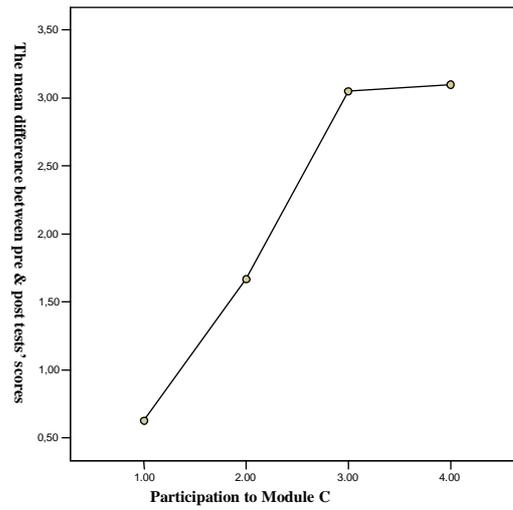
Figure 4.3. Changes in the mean difference scores of test C for the participation number 1, 2, 3 and 4

CHAPTER V

DISCUSSIONS AND CONCLUSION

5.1. Introduction

The instructional parameters and objectives for Web-based vocabulary learning in this study represent three ares drawn or synthesized from theory and practice in the fields of foreign language vocabulary learning, distance education and human psychology. The purpose of this study was mainly; to discover the influence of a web-based multimedia environment encompassing a spaced repetition design as a supplementary material on the English language vocabulary retention of intermediate level university preparatory class learners; to identify the perceptions of learners towards the web-based material and the changes in the attitudes of learners towards English language vocabulary learning and web-based English language vocabulary learning; and to investigate the changes in the vocabulary retention levels of learners.

5.2. Discussion of Findings

Effects of Demographics on the English Language Vocabulary Retention Level of Learners

The studies on lateralization indicate that not only the brain organization for language but also gender difference might influence the ability to acquire a second language. It is claimed that girls are substantially better second language learners than boys. The greater bilateral organization of a first language in girls enables them better able to acquire a second language (Gleason, 2001). As stated in the literature, the gender makes a difference in participants' learning of second language.

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In the study, whether the gender differences had an effect on learners' English language vocabulary retention level which was improved through a web-based material was investigated. Although there was a difference in the means of pre-test and post-test score differences of two groups, this was not statistically significant. That is, the English language vocabulary retention level of the learners improved through the web-based material seemed not to change regarding the gender of the learners. Similarly, according to the findings of the study which investigated college students' attitudes and perceptions towards language learning on the web by Yang (2001), there was no differences between gender groups on the enhancement of language ability who studied on the web.

Although most of the learners declared that it was impossible to study on the web-based material at the Internet cafés because of the intense noise and loud music; and in residence halls because of low connection speed and the long cues in front of the computers for which learners had to wait long hours to access computers, there was not a statistically significant difference found among the vocabulary retention level of the learners studying at home, in residence halls and at the Internet cafes regarding their vocabulary retention level. The difference in means of the total scores of the tests of vocabulary retention level which was improved through the web-based material can be attributed to a number of issues including the motivation level of the learners and the fact whether learners self regulated themselves or not. This might be explained by the fact that learners who studied the material on the available computers in their residence halls might have studied on the web-based material more concentrated on their work within their limited time than that of the learners studied at home.

Addititonally, the findings are concerned and could be explained with the fact whether learners self regulated themselves or not. Self regulation includes the process of implementing, monitoring, controlling and regulating one's cognitive activities, motivation and behaviours for the purpose of knowledge growth (Garcia & Pintrich, 1994). The learners might have actively controlled the various resources such as their time to study on the material through time management and

organization, their study environment and they might have self-regulated their learning, their thoughts, feelings and actions systematically toward attainment of their own goals through their study and learning strategies. This concerned with the individuals' ability and motivation and involves the regulation of their learning.

Perceptions of learners about the benefits and difficulties with the use of web-based material

Regarding the perceptions of learners on the material, findings were reported according to the previously decided themes content design, visual design and overall design. However; because the findings about overall design revealed many independent themes, these were independently reported under some new themes.

- **Perceptions of learners regarding the use of material**

As Pusack and Otto (1997) argue it is important to take into account the fact that learners might have personal modes or combinations of modes that work best for them as individuals. Therefore, the data given in this part of the study focuses on common perceptions held in by most of the learners regarding use of material, learning vocabulary through a web-based material, the way of learning new vocabulary within spaced repetitions and learning vocabulary in context.

Content Design

Firstly and most importantly, it can be palpably inferred from learners' responses that the length and the interest level of the texts are so significant for learners that it could affect their motivation and continuity of studying on the web-based material at subsequent weeks. It is very clear that longer the texts the participation decreases. Longer texts by some mean cause boredom, concentration distraction, and difficulty in the comprehension of texts which is likely to happen while reading a paper-based text. For some learners of WEBVOCLE, who had been accustomed to learn in a traditional classroom environment and who had no experience with web-based

learning as indicated in the demographics, the completion of reading the texts on the we- based material seemed like a lengthy experience (35 %). However, what was more important according to learners' reports that, even if learners wanted to study on the long texts; physically their eyes did not let it since their eyes get blurred or watered because of computer screen. In fact, as pointed out by Skaalid (1998), recommendations regarding text density on a computer screen are very contradictory and most of the research about it was carried out previous to 1990. In some studies target people required of high density screens (Morrison, Ross, Schultz & O'Dell, 1989) whereas in some other studies some others suggested lower density screens (Ross, Morrison & O'Dell, 1988). However, as stated by Grabinger (1998) low-density text screens were found to be as effective as high-density text ones for teaching expository lesson. As for users' preferences, on the other hand, low-density texts were appreciated more by the learners due to short lesson completion time. According to Grabinger's studies (1984, 1987, 1993, as cited in Grabinger, 1998), readers prefer shorter rather than longer-lined texts especially when they are single-spaced that is likely because shorter lines produces shorter texts consisting of manageable chunks of information. Grabinger (1998) stated that when lines are too long it becomes difficult to follow the lines of the text completely across the screen and that readers prefer "lines about eight to ten words or 45 to 60 characters long" (p. 4). Smart and Cappel (2006), state that completion time required for the online modules and the length of the assignments as key considerations about online learning because they seriously affect the motivation of students. As a consequence, it is quite likely that learners' perceptions of the WEBVOCLE would have been more complimentary if there had been shorter texts. Particulary, the learners who followed the web-based program from the Internet cafés explained that it was almost impossible to read longer texts there because there was often intense noise and music.

Besides this issue, learners mostly expect topics that are attractive, interesting, daily, hot, scientific, realistic, mysterious and enthusiastic. They prefer stories that included action, crime, murder and so on which in some way increase curiosity of them. A few learners of WEBVOCLE stated that they found the texts uninteresting and not

satisfying, and added that they would appreciate if there had been various texts on WEBVOCLE on some interesting topics so as to enable them choose according to their interests. As Yang (2001) emphasized interest is the impetus of learning. Moreover, some other research suggests that among the most important factors that influence learners' motivation is their interest towards the content (Adler, Milne & Stablein, 2001; Burke & Moore, 2003).

As indicated in the findings, learners ignore a few unknown words in texts unless their number increases, unless they hinder learners' comprehension and exceed learners' proficiency levels. Furthermore, when the proficiency level of the texts are appropriate to learners' level of understanding, learners unequivocally can deduce the meanings of the target words' from the contexts more easily. As Pulido (2004) suggested, comprehension of the texts is important which would increase the chances of making form-meaning connections for new lexical items encountered through reading. As Nation suggests (2001) a text should include eighty percent of known words to enable learners guess words' meanings from the contexts. According to learners' reporting, proficiency level of the whole content in the WEBVOCLE was appropriate for almost all of the learners (93 %), in that they did not have any trouble in the comprehension of these texts and in the deduction of unknown meanings from given contexts. Additionally, learners found the slight proficiency increase in content through the weeks as reasonable because their level of proficiency at school was also in progress.

According to learners' reports it was found out that most learners (67 %) were pleased with the number of target words which were between 10 and 12 in every module. However, a few learners believed that this number could be increased perhaps with the participation of other unknown words chosen from the texts because of the fact that in such a repetitive environment it was easier to learn. This finding is confirmed with that of Davies' study (2006) which found out that learners overwhelmingly requested more vocabulary input and they were enthusiastic for their vocabulary development.

As inferred from learners' responses, it is obvious that learners care for instructions which guide them what to do on the web-based material. They think that it is very important to read instructions which would prevent them from making mistakes at every learning environment and when it is on a web-based material instructions become much more important. This necessity can be explained with the fact that when studying on an asynchronous web-based material, a learner is alone with a computer and the only guidance or help comes from the available instructions there. In WEBVOCLE, a great many learners (89 %) did not have any problem in understanding the instructions on the web-based material. Moreover, learners required extra instructions or informative pages prior to every application after the implementation started and some additional informative pages were embedded into the system after the first week. Supporting this, the findings of a study investigating the preferences of adolescents between 12 and 16 regarding various features of the design of textbooks indicated that, readers appreciate access features such as headings, a section which to tell the reader what the chapter is about, similar to informative pages, more important than tables, graphs, questions and suggestions for further reading parts (Little cited in Hartley, 1996). It is clear that learners overrate any informative page in a web-based learning environment.

Varieties of Exercises

As inferred from the comments of the learners of WEBVOCLE , they were pleased with the diversity of exercises. It is suggested by a great many researchers in the literature that, learners should be offered numerous reinforcement opportunities of the vocabulary for effective vocabulary acquisition; they should be engaged particularly in vocabulary exercises such as multiple choice, definition matching, cloze test and so on to carry out mental processing of those words and to create a memory trace on the learners (Dixon-Krauss, 2001; Wesche, & Paribakht, 2000; Laufer & Hill, 2000). There is a consensus in the literature that indepth processing is a crucial variable for vocabulary retention (Segler, Pain & Sorace, 2002). It is further suggested in the literature that when words are practiced with vocabulary-focused exercises following a reading task instead of additional exposure to texts it is better

for the retention of those words (Paribakht & Wesche, 1997 as cited in Laufer & Hulstijn, 2001). As learners declared, because they could not easily find exercises on the pre-learned vocabulary, these exercises were always very valuable for them.

Most of the learners (85 %) particularly appreciated true-false exercises as a follow-up activity after reading texts. They agreed that studying on these exercises helped comprehension of the texts, revision of the texts in detail for being aware of any misunderstanding regarding the texts. It is stated in the literature that particularly to force passive learners to take primary ownership of their own learning process, the requirements and assessments of the task should force learners to synthesize and incorporate information within a text (Yang, 2001). Most of the learners (91 %) were pleased with number of true-false exercises on WEBVOCLE which were between 7 and 11 for texts including between 702 and 999 words (Module A, 702 words 10 questions; Module B, 811 words 7 questions; Module C, 999 words 11 questions). As learners declared, when they were required to make a choice between wh-questions and true/false exercises, they preferred true-false exercises because these exercises were more pleasurable although both type of exercises checked comprehension of the texts. According to these learners, wh- questions make learners bored.

The findings revealed that learners found the vocabulary game on WEBVOCLE enjoyable, beneficial, instructive and exciting with the restricted time to find words. Learners claimed that the game helped them to revise target words and to improve their spelling of those words because they were expected to write letters-jumbled word in the correct way. This result is supported by the study carried out by Klein (1990) which examined the effect of an instructional game on learners' motivation and found a significant effect of it on the learners' motivation. The learners of WEBVOCLE particularly liked the way they studied the parts of speech of target words by the help of the game. Yip & Kwan (2006) found in their experimental study that the group played educational games were more successful in their performance in the post tests than the group who preferred conventional-activity based lessons.

Combo boxes exercises, on the other hand, were another type of exercise learners mostly enjoyed from. The learners found them pleasurable, easy to apply, superb and beneficial. As inferred from the learners' comments, they enjoyed choosing the right word from given alternatives type exercises. They declared that the number of alternatives would be increased for enhancing the difficulty of these exercises which would support them for learning more words.

Almost all learners in the study found fill in the blanks by writing exercises beneficial for improving the spelling of target words. By this point of view, it was more beneficial than drag and drop exercise. However, according to learners, drag and drop exercises were more practical and timesaving since they only had to drag and drop the right words into the right blanks which were very easy and enjoyable.

According to findings, learners were pleased with studying on the matching exercises. As they reported, regarding the exercise, they especially liked the manner words' parts of speech were presented and more alternatives than the questions were given. As learners often emphasized learning parts of speech of the words seemeed to be very important for the learners. According to them, parts of speech of the words are particularly helpful for completing vocabulary exercises in the exams. Learners, on the other hand, declared that they were pleased with seeing the answers on the same page with the questions; however, they preferred the answers were shown to them in the form of 1.a, 2.a etc. but not in a matched form in order to prevent complexity in checking answers.

The multiple choice exercises seem to be generally liked by the learners more than other exercises. As learners declared the reasons were that this exercise was almost the easiest one to do just by choosing the right answer among the wrong alternatives and it was the most familiar practice or testing type learners were used to. Another benefit of doing multiple choice exercises for learners was that, it motivated them so that they could remember the right answer by glancing through given distractors. However, it was experienced in WEBVOCLE that some learners chose the right answer unwittingly; they had developed test wiseness and their own strategy to find

the right answers. Because multiple choice exercises was arranged to be one of those revision practices for target words, the researcher and the content writers overlooked the fact that if one target word was supposed to be the right answer the other distractors should be chosen from other target words. Some learners of WEBVOCLE only chose the correct answer by considering that they had studied that word on the web-based material before; therefore, that word must have been the answer and ignored other distractors. Some responses of the learners revealed that the page design of multiple choice tests was not user-friendly because of the line spacing.

Almost all learners commented that puzzle was highly difficult to fill in. It is obvious that, when an activity is not user-friendly or difficult to complete, it is passed or ignored next time. Red color use as an indication of mistakes was told to have been helpful for the learners of WEBVOCLE even though there was not an instruction explaining its use. Learners understood that red color indicated that they had made a spelling mistake in their answers even if they had found the right answer. These kind of exercises which made learners write the correct word letter by letter in a correct way were believed to improve the learners' spelling in writing.

According to learners' comments, it is clear that cloze tests are also found to be beneficial for improving their spelling of target words and for preparing them for their exams at school. However, because of its characteristic this exercise was also accepted as more difficult than other exercises because learners had to understand given texts entirely in order to fill in the blanks.

Visual Design

Developers of computer-assisted design systems increasingly coming to know that the success of their productions and proposals depend on the construction of a suitable human interface design; therefore, the researchers are endeavouring to understand and measure human performance on the issue (Shneiderman, 1998). As for interface design of WEBVOCLE, most learners (85 %) stated that they found its interface design organized, well-designed, colorful, user-friendly and most important

than all, they did not feel uncomfortable while studying on the web-based material which was not disturbing or tiring their eyes and which was not distracting their concentration. This result support the conception that perceptions of interface aesthetic is noticeably affect a system's acceptability and usability (Tractinsky, 1997). As learners declared, their continuity of studying on the web-based material at the subsequent weeks and their comprehension of the content on the web pages had been very much related to the extent of web-based material's user frendliness since otherwise they had not been able to focus on texts or exercises; they would have felt uncomfortable and wanted to cancel studying on the web-based material. Although there is correlation between aesthetices and usability of an interface, they are assumed to be two different aspects (Tractinsky & Zimiri, 2005). As understood learners give much more priority to usability of an interface design if two aspects are under consideration which is concerned with the interdisciplinary field human computer interaction, a field of study derived from traditional cognitive sciences and concerned primarily with practical problems of design, evaluation and implementation of interactive computing systems for human use. Its main premise is that a system is more than the software including human users (Preece et al., 1994 as cited in Hémard, 2006).

The color choice is also another important issue which commonly affected learners' studying or studying period on the web-based material. Almost all of the learners (74 %) were satisfied with the color choice and use on the web-pages of WEBVOCLE. Most of the learners preferred colorful pages, the choice of dominant colors on the web-based material was significantly important because the pages with soft or light colors and with the ones used in-harmony were mostly respected by users of the web-based material. This perception of learners was valid for both of the colors used with the fonts and the ones used in the background (76 %). As declared, glamorous or dazzling colors were abrasive for a great many learners which might disturb them while studying on the web-based material. However, there were also learners who believed that too much colorful pages would cause some problems. As understood from learners' comments, the use of red color for indicating mistakes was a good

decision because they believed that red was the common color for indicating mistakes.

It can be obviously inferred that common navigation buttons such as back, next, drag and drop; the others used for matching did not create problems and they were found to be user-friendly for a great many learners of WEBVOCLE (% 83) who had previous computer experience (% 91). However, it was observed during the implementation that, other buttons such as log-in and log-out should be clearly told to learners prior to applications or the programming of the system should be designed by considering it especially if there was a recording data base in the system. As stated, although most of the learners had previous experience of computers, they did not log out the web-based material clicking on 'log out' button. Moreover, most of the learners reported to have the flexibility of skipping some exercises and turning them back later. Learners, additionally, emphasized the importance of 'seeing correct answers' button which made them aware of their mistakes and helped them refrain from making those mistakes again. For that reason, 'see correct answers' button was said to be very significant for any instructive web-based material.

As understood from learners' comments, if reasonable font size and font type were used, written texts or exercises could not disturb learners. As learners underlined font size which was 14 with the font type 'Arial' was appropriate for the texts' readability in WEBVOCLE (74 %). Although satisfaction with the font size is very changeable with respect to learners' tastes, the common idea of WEBVOCLE users was that letters should not be too small on computer screen for ease at readability. Some learners believed that bigger letter use may create longer texts which learners for the most part refrain from reading. Similarly, line spacing was another factor affecting readability of the text as in paper-based materials. In WEBVOCLE, the amount of spaces was proportionally used between the single lines and paragraphs of the texts which could be assumed to be traditionally spaced pieces of texts with separate paragraphs by one line space (Figure 3.5). Although the research indicates that readers usually prefer lengthy paragraphs which are set in a more open manner (Hartley, Trueman & Burnhill, 1980 as cited in Hartley, 1996), regarding use of line

spacing, most learners of WEBVOCLE (74 %) commented that traditional and single line spacing did not disturb them while studying on the texts. However, as a few pointed out multiple choice exercises were inappropriate regarding its readability because of the single lines used on the exercise page. According to these learners, this problem might be overcome by using distractors on a different background color. It could be inferred from learners' responses that they were pleased with adjustable web-page sizes in WEBVOCLE which would enable them to enter or exit full screen mode.

- **Perceptions of learners regarding the way of learning new vocabulary through a web-based material**

Picture and Animation Annotated Vocabulary Learning

Based on the findings inferred from checklists and both interviews, it is clear that learners found learning new vocabulary via web-based material more interesting, practical and enjoyable particularly with the multimedia provided. More than half of the learners (57 %) underlined that use of narrative pictures with the texts helped significantly to the comprehension of texts. Similarly, more than half of the learners (69 %) declared that pictures indirectly helped comprehension of the target vocabulary. Learners commented that pictures helped them comprehend the stories more easily by clarifying the details such as heroes, setting, episode and so on; therefore, if possible there should be more pictures used for depicting the stories in a more detailed way. Moreover, as learners indicated, pictures enable them to imagine the incidents in the stories or to make predictions about them which enhanced their curiosity towards the stories and created a better comprehension. As Omaggio (1979) found out pictures had a significant impact on reading comprehension. The perceptions of learners about the issue is consistent with the conclusion suggested by Paivio's dual-coding theory (1990). The theory states that when both verbal and visual aids are presented together learners learn better by constructing referential connections between these two forms of mental representations. And meaningful learning is enhanced when a learner has a chance to construct and coordinate visual

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and verbal representations of the same material and words that are coded dually in two modes would be learned better than those coded only by one of them. The two systems are presumed to be interconnected and this characteristic enable the representation in one system can activate that in the other (Wittrock, 1974; 1990, as cited in Plass et al., 1998). As inferred from learners' responses, they were pleased with seeing not only the texts on a web-based instructive material but seeing texts enriched with narrative pictures. For many learners of WEBVOCLE, use of animated or active objects on the pictures was attractive and interesting; therefore, they suggested that their number should be increased. Research has referred to the positive impact of visual-aided annotations on second language vocabulary acquisition and indicated that second language vocabulary acquisition is enhanced if verbal information is accompanied by some pictorial information (Al-Seghayer, 2001; Chun & Plass, 1996; Kost, 1999; Plass et al., 1998). Moreover, visual elements significantly improve long-term retention of words (Nikolova, 2002). The learners of WEBVOCLE indicated that they found animations on the pictures intriguing. As suggested by Özkan (2001), animations make multimedia materials more interesting. When it came to the quality of pictures, only half of the learners (% 48) who were university freshman students found the drawings qualified, interesting, enjoyable and attractive on web-pages; however, there were some learners (% 31) who were not satisfied with the quality of pictures mostly because they found the pictures childish and they preferred more realistic pictures and because they thought that these pictures had to be improved.

Motivational Attractiveness of the Material

According to Krashen (1985, as cited in Chang 2005), learners with high motivation and self-confidence are better equipped for success in second language acquisition. Low motivation and low self-esteem, on the contrary, can combine to raise a learner's affective filter and form a mental block to hinder language acquisition. Similarly, Gardner and Lambert's studies (Gardner & Lambert, 1972; Gardner, 1985 as cited in Chang, 2005) found a relationship between degree of motivation and successful language learning.

As indicated in the findings, less than half of the learners of WEBVOCLE (33 %) were intrinsically motivated to study on the material because it provided learners with extra practice supporting their in-class vocabulary studies, it permitted learning, and it evoked the feelings of accomplishment with the developed self awareness. Chang and Lehman (2002, as cited in Chang, 2005) in their study found that the students who were more highly intrinsically motivated performed better academically at an instructional computer-based language-learning program. Learners of WEBVOCLE were additionally had extrinsic motivation because they had to follow web-based material weekly in order to get high oral marks from their teachers at the end of the semester. That is, WEBVOCLE worked as a required course for the learners.

However, both checklists and the face-to-face interviews revealed that even though learners believed that supplementary vocabulary learning material was beneficial for them, the long and uninteresting texts decreased the motivation of some learners (28 %). It is obvious that, besides the long and uninteresting texts, the technical problems that learners had the environment which they followed the web-based material had a negative effect on learners' motivation level towards the material.

Learners mostly complained how difficult it was to study, to concentrate on or do pronunciation drill and practices at the Internet cafes. They added that, after having problems such as logging in and logging out of the system, some of the learners' reliance on the web-based material decreased because they thought that their studies were not recorded so there was no need to waste time on those activities. This was somehow a sign of the fact that learners' attendance of the web-based material was dependent on whether their performance was observed there or whether their studies would be evaluated by their teachers. In fact, a few learners believed that if such supplementary web-based applications were completely applied in line with in-class activities, the participation of the learners would increase. As some learners indicated, there were many available educational web sites on the Internet but these materials' correspondence with what they studied in class was important for the learners.

Learners who developed self-awareness of their improvement and showed progress in their vocabulary proficiency, on the other hand, declared that such a web-based repetitive vocabulary learning material was beneficial for their vocabulary learning and retention of it for a long time.

Web-based Material as a Supplementary Material to in-class Learning

Although many learners stated that the length and topics of the texts determined their motivation towards the web-based material when it came to the benefits of WEBVOCLE as a supplementary material to in-class learning, they mostly (69 %) believed that it was easy, enjoyable and interesting to learn through it. Moreover, as learners indicated, a repetitive web-based material was more efficient for the retention of words when compared to memorization of words on a paper or when they were studied from a course-book. As learners stated, the material met their expectation of more practice about the vocabulary learnt in-class, and with the material it was implemented in a more enjoyable way. Learners preferred that a web-based vocabulary learning material would comprehensively include all the vocabulary that they studied in class every week. Moreover, they said that they were often on the Internet and this way of learning was more appropriate for their studying and learning of words.

Web-based material at Providing a Fast and Organized Learning Environment

Previous research indicates that the convenience of accessing the learning material with any time and any place flexibility as the mostly satisfied characteristics of web-based instruction (Burnett, 2001; Bolliger & Martindale, 2001; Rangecroft et al., 1999). Completion time for online modules or the time spent for web-based activities are another significant consideration that should be born in mind while designing online learning material and the content of it. Unless learners have the feeling that the amount of time that take to complete modules on an online environment is worth what they gain, they will get demotivated to study on the material (Smart & Cappel, 2006). In the study, web-based material's success at

providing a fast and organized learning environment was found to be successful by half of the learners (% 54) and some learners were suspicious of it (35 %). Surprisingly, time was announced to be an important factor for the learners who were between the ages of 19-25 because they often complained about the length of the texts and stated that some applications took too much time.

As learners declared in their comments, they had the habit of putting off studying on pre-learnt vocabulary at a later date particularly one week prior to their exams and this often ended up with a huge unknown words list that they had to memorize. With WEBVOCLE, being an organized material, as learners stated, they were able study vocabulary in weeks gradually and regularly which eradicated word memorization boredom and tiredness prior to exams. What is more, with this material learners were provided with an organized, handy and easily accessed studying material. As inferred from the learners' comments, the material enabled them to revise or study on target vocabulary in almost half-an hour which would possibly took more with the technique such as scanning the unknown vocabulary in the course book, writing them on a paper, looking up those words' meanings in a dictionary, writing L1 equivalences and memorizing them.

The Benefits of Online Dictionary

Interactive computerized glosses or dictionaries are found to enhance second language vocabulary acquisition (Nagata, 1999). As inferred from the comments, a great majority of the learners of WEBVOCLE (87 %) found online dictionary helpful for checking target words' definitions and listening to their pronunciations of target words which was a click a way in the texts. Lomicka (1998, as cited in Al-Seghayer, 2001) found out that computerized reading particularly with full glossing promoted a deeper level of text comprehension. As learners of WEBVOCLE declared, they were able to access the meanings of those words without an interruption in their reading process. Supporting this, Ma & Kelley (2006) stated that via an electronic gloss, the lexical information about a word can be assessed simply by a click without interrupting the reading process. Regarding this, it is stated by many researchers that

looking up words in a dictionary while reading has a significant effect on the retention of words (Cho & Krashen, 1994, as cited in Laufer & Hulstijn, 2001; Knight, 1994; Luppesku & Day, 1993).

In WEBVOCLE, the decision of looking up the English definitions of target words' meanings while reading the texts was dependent on the learners which relates to the Input Hypothesis of Krashen. According to the theory, learners acquire language subconsciously by focusing on the message but not form and by receiving input that is slightly beyond their current level of competence (Krashen, 1989; Krashen & Terrell, 1983, as cited in Richards & Rodgers, 2003). Moreover, it is assumed that an online dictionary help learners learn better by providing them with the words' part of speech and synonyms. Although, first language translations of words are also suggested to be included in such web-based vocabulary learning materials (Nelson, 1998), based on learners' comments, it was obvious that if English to English dictionary was provided, learners would make use of it and very few learners would need or insist on English to Turkish dictionaries. This differs from what Schmitt (1977, as cited in Ranalli, 2003) found out in his study which revealed that there was a strong preference for bilingual dictionaries, which was the most commonly used strategy and also considered the most helpful. As learners further declared, definitions in the target language prevented them from forgetting of those words since they thought on the words more comprehensively in this way. In fact, in the implementation, online dictionary was another choice for the learners who did not deduce target words' meaning from the contexts. Even if learners had correct guesses, the provided dictionary was supposed to enable learners to check their guesses which would lead to a more confident acquisition. Regarding this many researchers emphasize the importance of use of dictionaries in order to overcome the problem of incorrect learning of words' meaning from contexts while reading, (Chun & Plass, 1996; Lomicka, 1998). Furthermore, using dictionary with contextual deduction may help overcome the usual boredom related to merely dictionary use (Nikolova, 2002). What is important is that the definitions of the words should be clear and simple that facilitates learners' comprehension which learners of WEBVOCLE were satisfied about.

Most of the learners (74 %) in the study were pleased with listening to the pronunciation of target words given besides their definitions, as they stated, the dictionary was very helpful because listening to the pronunciation of words helped them decrease their pronunciation mistakes and improve their spoken English. According to learners, in order to learn a word comprehensively or completely, learners should have the opportunity of listening to those words' pronunciations. As pointed out in the literature, broadening learners' potential with the provision of pictures, audio and video is the advantage of hyperlinked texts and is a popular method in L2 language teaching (Son, 2003 as cited in Johnson & Heffernan, 2006).

Some learners repeated target words times and times by clicking on it which was very beneficial for learning, as well. It was understood that learners' perception towards pronunciation is very much related to whether it was ignored or not in their classes. For some learners, as indicated in the findings, an online dictionary met their need of listening to words' pronunciations; therefore, it was a necessity; however, for some others (6 %), it was not very important because it was already ignored at school and the rest of others (20 %) were rather suspicious of the benefit of listening to words' pronunciation to their vocabulary learning and retention.

Regarding retention of new information, it is generally agreed that the amount and the quality of attention learners pay to various aspects of words is vital. It means that if learners process new lexical information more elaborately or if learners pay careful attention to the words' pronunciation, grammatical category, meaning, orthography and semantic relations to other words in the practice, words' retaining in the memory is more probable than if learners pay attention to only one or two of the words' properties (Laufer & Hulstijn, 2001).

Briefly, online dictionary support is a necessity for effective vocabulary learning and it promotes a deep level of lexical processing which in turn result in successful vocabulary retention (Cobb, 1999 & Nation 2001, as cited in Tokaç, 2005).

- **Perceptions of learners regarding the way of learning new vocabulary with spaced repetitions**

Benefit of Repetitions to Learners Recalling of Target Words

Although multimedia is advantageous for a great many learners, it cannot be taught to be a substitute for pedagogical design and content. WEBVOCLE provided learners with various context-based exercises in spaced repetitions. The pedagogical basis of the content was supported with contextual guesswork, a strategy used for vocabulary teaching; besides, learners' responses of the exercises which were provided within spaced intervals were reinforced sufficiently with immediate feedback they got from the web-based material. Immediate feedback use in instruction originated from Skinner's programmed instruction which is based on behaviorist theory of learning and operant conditioning which aims to shape behavior into predetermined patterns by strengthening stimulus-response bonds (Entwistle, 1994). The learners of WEBVOCLE believed that repetitions were highly significant for retention vocabulary. As the learners stated, they found any repetitive vocabulary learning material beneficial for their vocabulary learning and retention. Moreover, the learners respect vocabulary learning materials which are fast, time-saving and anytime available. Therefore, WEBVOCLE, which provided vocabulary repetition practices at different intervals through Internet, was very practical for the learners. The learners of WEBVOCLE who were between 19-25 were mostly computer illiterate (91 %) and at least twice a week they were connecting to Internet. As learners declared, while studying on words via such a material they felt themselves more organized and more responsible for following the program rigidly; thus, this inclination made them learn those target words in time. Another common comment was that, the learners felt curiosity for what was happening on the web-based material, when they logged in to check the applications they learned the target words unwittingly. Learners stated that they were continuously looking for interesting and different types of practices, which would endear the target language and vocabulary learning to them. The learners were additionally found to have been enjoyed of to be continued style stories increased their curiosity.

Almost all learners (85 %) agreed that repetition of vocabulary in spaced repetitions as in the web-based material was helpful for organized vocabulary learning and facilitated target words' retention. As the learners declared, the repetition of words within various contexts unwittingly results with learners' learning of words. Those words are kept in mind more than the words which were only looked up in a dictionary.

- **Perceptions of learners regarding the way of learning new vocabulary within contexts**

Learning Vocabulary in Contexts

It is claimed that retention of any information depends on the nature of the information processing, that is, how target words are learnt. In the current study, the more effective tasks of reading such as reading together with a series of vocabulary exercises, and reading with looking up words' meanings in a dictionary were applied (Laufer & Hulstijn, 2001). In the implementation of WEBVOCLE, learners were presented target words embedded in texts to read and they were not told in advance that they would be tested afterwards on their recall of those target words, that is, they were exposed to "incidental learning" (Ebbinghaus, 1964; Postman, 1964; McLaughin, 1965 & Eysenck, 1982 as cited in Laufer & Hulstijn, 2001). Previous reseach studies investigating the effect of reading on vocabulary acquisition found out that through reading, learners might incidentally gain knowledge about the meaning and form of the words (Nagy et al., 1985 as cited in Webb, 2007). Without being mentioned about upcoming retention tests, learners studied on the information-processing tasks, namely, words in the texts and in context-based exercises for nine weeks. Additionally, the instructional design of WEBVOCLE incorporated learner-centered learning approaches in online learning environments, which was announced to support learner reasoning and problem solving (Land & Hannafin, 1997). As Gairns & Redman (1988, as cited in Ünal, 2003) suggest use of contexts to deduce meaning is a student-centered learning strategy which makes the learners more responsible for their own learning and allows the learner to have some autonomy.

Ying (2001, as cited in Ünal, 2003) points out that by allowing learners to make intelligent and meaningful guesses, a context-based approach to vocabulary learning makes the learning task more active and demanding and encompasses a problem-solving characteristic.

The main strategy for the teaching of target words was presenting them in various context-based exercises. Learners were expected to create their own meaning through given contexts which was a constructivist way of learning. This approach suggests that learning is promoted when learners are actively involved in the learning process with the instructional activities which lead them to knowledge construction (Driscoll, 2002). As Jonassen (1994) proposes a constructivist learning environment emphasize knowledge construction that is context and content dependent. Given contexts for the target vocabulary in WEBVOCLE aimed to supply learners with the necessary clues for their knowledge construction. It was found out that most learners of WEBVOCLE (74 %) were pleased with learning vocabulary in context and they believed that through this technique, learning of target words was easier; retention of those words was higher, besides, learning words in contexts helped learners to learn those words' form and use. To Groot, (2000) adequate implementation of a word's morphological, phonological, syntactic, semantic, collocational properties will locate the word place in the mental lexicon properly but not superficially and will help the user use that word both receptively and productively. Only contexts fully demonstrate these properties of a word and a better way to maintain elaborate, intensive processing than giving the meaning, which leads to better learning and retention for the learner. In his study, in which vocabulary items were introduced to learners in contexts through a system called CAVOCA, Groot (2000) found that the retention loss as manifested in the decrease in scores on the delayed test was lower for CAVOCA method than the bilingual word list method. Similar to the present study in another study, in which vocabulary was delivered to learners in various contexts at spaced intervals via m-technology, it was found out that there were significant improvements in learners' performance and in their attitudes towards using m-technology in their learning (Song & Fox, 2005).

It is stated in the literature that a single encounter with a word in context is insufficient for learning all properties of a word (Zahar, Cobb & Spada, 2001). However, in WEBVOCLE through applications, learners were exposed to target words' use in various contexts and with various exercises about four times for each module. This kept English language vocabulary retention level of the learners at pre-implementation level after their first in-class exposition or increased learners' vocabulary retention level.

In some EFL/ESL studies, it is claimed that learners are often unable to guess the meaning of an unknown word from a text due to their inadequate grasp of target language skills (Haynes, 1993; Kelly, 1990; Schatz & Baldwin, 1986; Bensoussan & Laufer, 1984 as cited in Yongqi Gu, 2003). However, in the study most of the learners (65 %) commented that they were able to deduce words' meaning from the given contexts. As indicated in the literature this might be related to content's proficiency level which was found appropriate by the learners of WEBVOCLE.

The texts were written specifically for the study because; firstly, it was impossible for the researcher to find ready texts that included all those target words and secondly it was thought that natural texts might contain contexts with unsupportive and misleading clues for incidental vocabulary learning (Zahar, Cobb, & Spada, 2001). Although this created uninteresting texts, particularly stories, for the learners, they mostly did not experience any hindrance in guessing meanings of the target vocabulary in those contexts.

However, very few learners (2 %) believed that learning words in context was not their style of learning vocabulary, therefore, there was no need of trying to benefit from this technique which is considered by them as a waste of time. Besides, there was another group of learners (24 %) who believed that learning words in contexts was a bit demanding but more efficient than any other technique. The diversification in the comments about context use emanate from learner differences. As Ahmed (1989, as cited in Yongqi Gu, 2003) emphasized in his study there were good learners who were found to be more aware of what they could learn about new words

such as collocation and spelling and more conscious of contextual learning or there were underachieving learners ignoring unknown words and they were not using even dictionaries. Regarding contextual effects in foreign language acquisition, retention and transfer, it is suggested that when things are learnt under more demanding processing conditions, they are more easily remembered (Schneider, Healy & Bourne, 2002). This also relates to the involvement load hypothesis of Laufer and Hulstijn (2001) which suggests that higher involvement in a word induced by more involving tasks will result in better retention.

It was discovered that although some learners believed in the effectiveness of vocabulary learning in context, when it came to practice; they ignored using this technique because some learners thought that looking a word up in a dictionary or making lists of words and memorizing them was faster when compared to learning vocabulary within contexts technique.

Another finding was that, the learners declared that when they tried to remember those words learnt in contexts often they recalled them together within the context they have learnt before.

- **Other Issues**

Technical Shortcomings

Learners expect a web-based material to be running fast and easy at use. Problems learners mostly faced to when using multimedia software is that they may get lost in the program or fail to use its features efficiently (Goodfellow & Laurillard, 1994 cited in Tokaç, 2005). Based on the responses of the learners, more than half of the learners of WEBVOCLE (54 %) found it trouble-free and uncomplicated from this point of view. However, there were some users (41 %) who had troubles. These problems were about: logging into and out of the web-site, different screen resolution choice and/or browser incompatibility that caused disappearance of a few navigation buttons on users' screens, slow screen loads because of low connection speed that

caused web-based material stuck or web pages freeze and registration of the web-based material with Turkish letter including passwords or e-mail addresses. These problems frustrated some of the learners. Technical problems are defined as one of the disadvantages of on-line courses in the literature and the delivery with minimum technical problems is ranked high for student satisfaction in research studies since they might impact the grades of online studying students (Johnston, Killion & Oomen, 2005; DeBourgh, 2003; Allen, Bourhis, Burrell & Mabry, 2002; Arbaugh, 2000). The other common technical problem on WEBVOCLE essentially emanated from learners' absentmindness. Some learners forgot their passwords and/or user names that they had entered in the first week and asked the researcher to learn and tell them again. Some others, on the other hand, reregistered and took some new password with user names which created difficulty for the researcher in checking recorded data. The learners suggested that there should be 'forgot my password' and 'change my password' buttons.

The analysis of learners' comments revealed that despite a few troubles they still enjoyed the experience, the design of the web-based material; and that audio-visual characteristics and animated pictures increased motivation and that they developed self-awareness about their own learning.

Studying an Instructive Web-based Material at the Internet cafes

Apart from the learners who had Internet access at home (36 %), the others followed the implementation at the Internet cafes (45 %) or in their residence halls (19 %). However, as learners declared it was not easy or possible to study and concentrate on the texts or listen to the pronunciations of words in the Internet cafes. What learners commonly complained about Internet cafes was that there was intense noise mostly because of the children playing computer games around and loud background music. This finding corresponds with the study carried out by Küçükönder et al. (2007) which was applied on 199 Internet users in a city in Turkey. The results of this study indicated that most of the Internet café users were high schools students or graduates and most people come to the Internet cafes to play games, surf on the Internet or

chat. Moreover, there is not an age limit in the Internet café and these places are used generally for entertainment. This situation stresses the learners' comments on how difficult to study on an instructive web-based material at Internet cafés. Although there was no significant relationship found between the place of access to the Internet and vocabulary retention level of learners, regarding the mean score differences between pre and post-tests of vocabulary retention tests and learners' place of access to Internet, it might be inferred that the learners' vocabulary retention level that was improved through the web-based material was lower for the ones who followed the implementation from the Internet cafés than the ones who studied the material at home or in their residence halls.

The second common problem among the learners who studied at the Internet cafes was that, because it was not possible to customize screen resolution every time, some navigation buttons were missing on some pages. The third trouble was about the low connection speed and slow screen loading. During the implementations, some learners had to look for the Internet cafés with high connection speed.

To recap, all above detailed findings concerning the perceptions of learners were fairly satisfactory and learners had positive perceptions toward WEBVOCLE on the whole. Despite the problems including length and interest level of the texts and a few technical problems came out while implementing weekly applications, learners were generally satisfied with studying multimedia supported and context-based vocabulary on the web-based material. Some learners' motivation towards the material decreased because of these issues mainly. Moreover, these issues, similarly, affected learners' perceptions towards system's effectiveness at providing a fast and organized learning environment. According to the learners, the material not only facilitated vocabulary learning by providing a great many exercises and also assured retention of those words by supplying many repetitions. In fact, learners were mostly extrinsically motivated to study on the material because the participation to the implementation was required by their teachers and some learners had problems in following the implementation at Internet cafes. Additionally, the researcher informally observed

that higher-grade students with proficient language ability in-class had more positive perceptions towards the web-based material.

- **The Attitudes of Learners' towards English Language Vocabulary Learning**

In order to assess learners' attitudes towards English language vocabulary learning before and after the implementation, a paired-samples t-test was used. Results indicated a significant change between the pre and post test groups. The participants had more positive attitudes (4 "agree" or 5 "strongly agree") in the post-test (See Appendix E). The result indicated that the web-based vocabulary learning material improved learners' attitudes towards English language vocabulary learning.

- **The Attitudes of Learners' towards Web-Based English Language Vocabulary before and after the Implementation**

The attitudes of learners towards Web-based learning might affect their success and effectiveness on the web-based learning material. Therefore, it is important to know the attitudes of learners towards web-based learning before any implementation. In this study, learners' attitudes towards the web-based material were investigated both before and after the implementation in order to see whether there occured a change or not. For that a paired- samples t-test was used. Results of the analysis did not indicate a significant difference between the pre and post tests which meant that learners' attitudes towards the web-based English language learning did not change positively or negatively after the implementation (See Appendix E).

Although there are numerous studies revealed positive attitudes towards language learning through web (Yang, 2001; Atkinson, 1998, as cited in Felix 1999) or computers (Al-Juhani, 1992; Neu & Scarcella, 1991; Phinney, 1991 as cited in Öz, 1995; Beauvois & Eledge, 1996), there are interesting contributors to learner satisfaction of the web-based material and learners' attitude changes towards web-based leaning. One is the level of involvement of the learners with web-based

material. The more involved the learner, the greater is the satisfaction (Mayzer, 2003 as cited in Johnston, Killion & Oomen, 2005). The other issues that might affect attitudes of the learners are; the technological problems, increased workload, lack of logistical support (Valenta, Therriault, Dieter & Mrtek, 2001) or the content, users resistance of self-directed learning style on the web, age and gender differences, teacher's attitude, the place of Internet accessibility, hours daily spent on the Internet might be the predictors of attitudinal changes. The findings regarding the perceptions of learners about WEBVOCLE, indicated that learners had negative impressions of the length and interest level of texts and due to the technical problems they had experienced they developed negative perceptions for the motivational attractiveness of the material and for its provision of a fast and organized learning environment. The attitudes of the learners might have not changed positively due to these negative perceptions stated in checklists.

Despite there is no change in the attitudes of learners, this does not appear to affect learners' performances on the vocabulary retention tests and their vocabulary retention levels which is more related to what learners actually do on the vocabulary learning process.

- **The Impact of the Web-Based Material on the Learners' English Language Vocabulary Retention Level**

Ebbinghaus (1885, as cited in Waring, 2004) examined human memory and the rate of forgetting. With his scientific study of memory, he pointed out that especially repetitions that are distributed over time might allow one to remember things for a long time. The effectiveness of spaced revisions relative to massed revisions has been emphasized by numerous subsequent research studies (Dempster, 1987; Dempster, 1991; Russo & Mammarella, 2002; Moshe, 1990; Bahrick, et al., 1993; Braun & Rubin, 1998). Based on Ebbinghaus's (1885) 'Forgetting Curve', Pimsleur (1967, as cited in Waring, 2004) proposed that every time we relearn something, the knowledge gets stronger and is, therefore, more resistant to decay. Pimsleur's 'Graduated Interval Recall' schedule shows that the gap between the second

encounter and the subsequent encounters with the word should progressively widen if there is to be 100% recall. Thus, the forgetting slow downs as relearning continues. Owing to this, the intervals between the revisions of words should increase.

Despite the fact that repetitions increase the strength of memory, the shortcomings of many previous research studies was that they investigated the effectiveness of equally spaced repetition schedules and most of the available studies considered inter-repetition intervals on the order of seconds, minutes and hours; what is more, spacing repetitions in periods longer than one week has been barely studied. However, with this study the effect of spaced repetition on vocabulary retention was investigated regarding weeks. The main objective of this study was to investigate the effectiveness of WEBVOCLE, a context based and multimedia supported repetitive web-based vocabulary learning material for improving the vocabulary retention level of the learners. From the results of the study, it seems that WEBVOCLE has been proved to be effective for keeping and increasing retention level of the learners of the words that were previously taught in the classroom.

Throughout the implementation learners were exposed to three modules that included target words changing in numbers 10 to 12. In order to prevent possible discrepancy (Wozniak, 1995) for repeated items, whole presented vocabulary items through WEBVOCLE were managed and only one meaning for each target word was given. The learners were, firstly, taught of target words in-class by their teachers and the next day they took a vocabulary retention test for each module. After taking the test they started studying concerning module on WEBVOCLE. As suggested by Ebbinghaus (1885, cited in Waring, 2004), most forgetting occurs very soon after the learning; thus, the researcher provided the first application of each module as the first repetition of the pre-learned words within 24 hours. The second repetition was carried out one week later, the third one was 2 weeks after that and the last one came 3 weeks after the 3rd one (Table 3.11). Learners repeated the words within the contexts of two or three exercises in each application. After all applications finished and the implementation ended, learners took the same vocabulary retentions tests they previously took before the implementation.

Learners' vocabulary retention level for each of three modules regarding their participation numbers to WEBVOCLE and post and pre-test score differences were analyzed by computing ANOVA and post-hoc tests. According to the results of the analysis, the number of words that learners remembered increased for both module A and C but for module B there was not a significant difference found. The results additionally indicated that, the number of remembered words was decreased for the learners who did not participated in any applications. The difference in the means of scores was particularly observed with the participation numbers 2 and 4 to applications. That is, the learners' vocabulary retention level increased when they participated in all four applications comparatively than that of their two participations. Besides this, when mean score differences between pre-post tests were checked; it was (M=1.9) for module A, (M=0.3) for Module B and (M=2.6) for Module C. Learners vocabulary retention level at most increased at Module C with approximately 2,5 words and at least at Module B with less than a word on the average. Put differently, according to results, learners were able to keep almost the same number of words that they had learnt prior to implementation for Module B or they had improved their vocabulary retention level with the addition of new words for Module A and C.

In a similar study, Fidan (2003) compared the effect of repetitions provided through the web-based system 'TRAINER' on vocabulary retention level of preparatory school students in different groups of learners and found out that the students studied on 'TRAINER' were able to remember more words than the other group of students who studied words traditionally after 3 weeks. Moreover, these students could remember approximately 93 % of the words in the first week of the implementation. At another study, vocabulary gains for the teacher taught group and computer group which followed the spaced repetition procedure was investigated and the latter group was found better in learning of target words (Tokaç, 2005). Thus, it might be inferred that by repetitions learners might be able to keep their previous vocabulary retention level or they might improve it. The first study to examine the effects of repetition on vocabulary acquisition carried out by Saragi, Nation and Meister (1978 as cited in Webb, 2007) indicated that while vocabulary gains were more consistent at 10 or

more encounters, there was not a minimum number of less encounters. Jenkins, Stein & Wysocki (1984) found that vocabulary gains increased as the number of times learners met words in context increased. Learner who had 10 encounters of the words produced superior scores to those who had only two encounters. Horst, Cobb & Meara (1998) suggested that large learning gains were likely to occur for words which were repeated eight or more times. On the other hand, Waring & Takaki (2003) emphasized that learners should have at least eight encounters to have 50 per cent chance of recognizing the words after three months and that learners should have over 20 encounters to learn new words. Rott (1999) examined the effect of different encounters two, four and six on the incidental gain in knowledge and meaning. She found out that there was little difference between two and four encounters but there was a significant gain between two and six encounters. Webb's study (2007), supported the earlier findings and resulted with the finding that repetition was found to have a significant effect on vocabulary acquisition. Dobinson (2006) in his study which investigated the reasons of learners' recall of some words more than others found out that, words recalled by 50-74 % of learners having a mean of 4 repetitions and words recalled least often having a mean of 1 repetition. As Johnson & Heffernan (2006) state, results of studies examining the effect of acquisition of a word after a single exposure in a reading context pointed out a very low rate of retention. On the other hand, Lado, Baldwin & Lobo (1967, as cited in Yongqi Gu, 2003) found that one exposure to a list of 100 words sufficed for an average of 95% recognition and 65% recall.

On the whole, it is obvious that repetition affects vocabulary learning and retention positively. Moreover, establishing similarities and contrasts between the old and new information and higher involvement in a word increases the chance of retention (Laufer & Hustijn, 2001). However, the studies concerned with the number of encounters for effective vocabulary learning and retention are not consistent in the literature and the exact number which would provide perfect retention is still indefinite. Nation & Wang state that (1999) there is no obvious set of numbers that would ensure learning. This inconsistency in the results of the studies are correlated with a number of issues such as; the size of vocabulary, the types of target words

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(noun, verb etc.), how vocabulary is presented to learners (shown together with pictures etc.), the strategy preferred in the presentation of vocabulary and meaningfulness of the context (Webb, 2007). If remembering word pairs is the aim, a relatively short time is enough for surprising results and not so many repetitions are needed (Thorndike, 1908; Webb, 1962 as cited in Yongqi Gu, 2003). Besides, the size and the simplicity of intervals might affect results, as well.

Therefore, the size of target vocabulary, the strategy applied, the types of target words, the length of intervals, use of multimedia, use of online dictionary, meaningfulness of contexts and accepted increase at learners' English language proficiency level, learners' independent studying of target words except for WEBVOCLE which possibly affected learners' performance positively on post vocabulary retention tests, the quality and the quantity of repetitions, learners' gravity and sincerity of studying on the material and completing the exercises, and their extrinsic motivation due to the fear of getting low oral marks from in-class teacher who continuously observe learners' participation on WEBVOCLE, might have affected the results at vocabulary retention tests. Moreover, the research might have a different result with a different sample other than preparatory school students who are attending an intense and obligatory English language program to be able to attend their faculties. These students are thought to be highly extrinsically motivated to improve their English language proficiency for the final proficiency exam.

Table 5.1. *A summary of the findings*

	1	*2*	*3*	*4*
Research Questions	What are the effects of demographic characteristics of learners on English language vocabulary retention level gained through the web based material?	What are the perceptions of learners about the benefits and difficulties with the use of Web-based material in the learning of English Vocabulary during and after using the material?	Is there a significant difference in the attitudes of learners' towards web-based vocabulary learning before and after the implementation? Is there a significant difference in the attitudes of learners' towards English language vocabulary before and after the implementation?	Does WEBVOCLE have an impact on the learners' English language vocabulary retention?

Table 5.1. *Continued*

	1	*2*	*3*	*4*
Instrument	Demographic survey	Checklists, Face-to-face Interviews, Focus Group Interviews	Pre-post Questionnaires	Pre-post Vocabulary Retention Tests
Sample size	69	54 Checklists, 8 Interviewees 3 Focus Groups (4 participants each)	69	69
Data Analysis	Gender effect: Independent-Sample t-test The place of Internet access affect: One-way ANOVA	Data segmented, coded to be ready for enumeration, color coded, grouped, frequencies determined	Paired samples t-test	One-way ANOVA with post-hoc tests
Findings	Gender effect: No relationship was found between gender and vocabulary retention level of learners. The place of Internet access affect: No relationship was found between the place of Internet access and vocabulary retention level of learners.	Content design: Shorter and interesting texts are preferred. Visual Design: Interface must not disturb learners, distract their concentration. Pictures help comprehension; however, they should be real. Informative pages and instructions are vital on a web-based learning environment. Overall Design: A supplementray material with lots of exercises is always appreciated. Web-based material is fast and organized. A repetitive material is very effective for the retention of words. Internet cafes are not suitable places to study on an instructive web-based material.	There was a significant increase in learners' attitudes towards English language vocabulary learning after the implementation. There was not a significant increase in learners' attitudes towards web-based English language vocabulary learning after the implementation.	Application A: There was a slight significant difference between the post- and pretest scores regarding the participation numbers 2 and 4. Application B: There was not a significant difference between the post-and pretest scores regarding the participation number. Application C: There was a significant difference between the post- and pretest scores regarding the participation numbers 1,3 and 4.

5.3. Implications for the Developmental Researchers

This developmental research study, revealed every phase of the construction of WEBVOCLE in detail and its further improvement phases which is thought be valuable for other researchers who intended to develop and implement such a web-based learning environment.

5.4. Implications for Practitioners

The findings and discussion have pedagogical, theoretical and some practical implications for foreign language vocabulary learning, retention and learning with multimedia in general. Moreover, the findings direct our attention to some important design principles that need to be taken into consideration when developing instructional materials.

As far as pedagogical implications are concerned, when learners are exposed to target words in communicative strategies such as contextual deduction of the new words, incidental acquisition can take place just like in L1 acquisition process. In fact, in many cases incidental vocabulary acquisition occurs while reading and due to the learners' guesses (Krashen, 1989). Moreover, according to Lewis (2000) "encountering new vocabulary on several occasions seems to be a necessity and even a sufficient condition for learning to occur" (p. 184). The number of the occasions changes in the literature; however, Nation (1990, 2001) announced that to fully acquire words, learners need to be exposed to words 5-16 times and that frequent reencountering of the word is crucial for learners' vocabulary acquisition. Besides, exposing learners to multiple modalities of presentation, as verbal and visual in the study, produces a learning environment which can have a real impact on learning of vocabulary (Al-Seghayer, 2001). It is indicated in the findings that language learners find studying on a multimedia annotated web-based material effective, pleasurable and time-saving. Use of multimedia for more effective vocabulary retention particularly enhanced learners' motivation.

Theoretical implications of the study support spaced repetition supported by dual store theory (Atkinson & Shiffrin, 1968), a constructive approach with the context-based vocabulary teaching and generative theory of multimedia learning. That is, this study provided evidence that the application of the instruction included repetitions that were distributed over time might allow one to remember things for a long time (Ebbinghaus, 1885 as cited in Waring, 2004) and that applying context-based vocabulary teaching enabled knowledge construction that is context- and content-dependent (Jonassen, 1994); student-centered learning (Gairns & Redman, 1988 as cited in Ünal, 2003); problem solving (Ying, 2001 as cited in Ünal, 2003); meaningful interaction, critical thinking and genuine language production. In addition, the design of multimedia embedded instruction affected the degree to which learners engaged in the cognitive processes required for meaningful learning within the both visual and verbal information processing system (Mayer, 2001). Moreover, use of context-based presentation, visual aids and an online dictionary which is providing synonym, pronunciation, meaning constituted elaborative processing that is closely related to encoding variability (DeWinstanley & Bjork, 2002).

Learners emphasized that spaced repetitions were very beneficial for long-term retention of words and this was supported with the results of vocabulary retention tests in the study. Therefore, embedding such web-based vocabulary learning materials in language programs as a supplementary material is worthwhile as these materials provide learners with extra practice and revisions of previously learnt vocabulary in an organized and systematic agenda. Besides, learners have a chance to learn the words deeply within various contexts. Although Paribakht & Wesche (1997 as cited in Laufer & Hulstijn, 2001) claimed that when words were practiced in a series of exercises the retention is higher than when words were inferred from contexts, there had to be a presentation way of target words on WEBVOCLE and the researcher believed that it should be the contextual presentation which was found to be more effective for language learning and retention (Nation, 1990; Nikolova, 2002; Groot, 2000). As previously stated, a single encounter with a word in context is still insufficient for learning all properties of a word (Zahar, Cobb & Spada, 2001); therefore, varieties of context-based exercises were provided through the material.

Besides all, with provided additional online dictionary, there was a more elaborative lexical information processing with the given words' meaning, synonym, orthography, pronunciation and use which is stated to be leading to better retention of word (Laufer & Hulstijn, 2001).

The outcomes of this study provide implications relevant for the design of multimedia instruction and foreign language instruction that might be made use of by other practitioners and educators. Particularly, it is suggested that language teachers who integrate e-learning into traditional courses should have to take into consideration the issues here. This section summarizes the suggestions of the researcher herself with the learners' perceptions towards WEBVOCLE and recites some other suggestions offered by the learners throughout the study for prospective practitioners.

Content Design

- The results suggest that online material at least in the beginning should include short texts that take a few hours of the learners incase there might be learners who have got limited or no experience with web-based learning.
- Diversity of exercises prevents boredom of learners; moreover, it meets the expectations of learners whom are endeavoring to find exercises to study.
- Mistakes of the learners should be definitely shown to them, since otherwise they cannot be aware of their mistakes. Language learners would like to see their mistakes shown to them particularly the spelling mistakes. Because seeing the right answers are not satisfying for them.
- Learners should be provided with varieties of texts on varieties of interesting topics if probable from which they can choose.
- There might be dialogues in the texts supported with pictures which are supposed to improve spoken English of learners.
- True/false exercises are more respected by the learners than wh- questions.
- There should be more alternatives than two in combo boxes exercises.

- In exercises such as matching or fill in the blanks more alternatives should be given than the questions.

- An extra attention should be paid to the distractors for the multiple choice exercises incase learners might develop test wiseness.

- The differences among the distractors in the multiple choice exercises could be explained and exemplified to learners by activating the answers buttons.

- Learners are pleased with seeing parts of speech of the target words.

- There might be more speech bubbles added into the pictures which make reading the text more interesting.

Visual Design

- Neither too small nor too big font size is appreciated by the learners. Learners look for web-pages which are in the same readability level of a paper-based page. Big letters do not always bring pleasure for the learners since big letters may cause the text get longer which learners will definitely dislike.

- It is obvious that multimedia use enhance vocabulary learning. Use of visuals and particularly use of animations are appreciated by many learners and use of them increases the motivation and curiosity of learners towards the learning material.

- Colorful pages are attractive; however, more color particularly the glaring ones might make learners uncomfortable and their eyes might get tired. Soft colors are always better but they should be used in a harmony.

- The target words also should be animated on the pictures.

- Video might be used about the topic of the texts.

Overall Design

- Most of the learners would like to have the flexibility of passing some exercises and turning them back later; therefore, individualization of

exercises could be improved and such a navigation button could be added to the web-based material. Thus, each student will be able to begin with the last exercises he has last delayed. The exercises should be passed without completion of all the questions and later be returned. Every movement of the learners on the material should be recorded step by step so that they could have the flexibility of turning back and continuing with the chosen exercise.

- There are learners, who deliberately prefer studying on English to Turkish dictionary. For these learners, Turkish equivalences of target words could additionally be given.

- The scope of the web-based vocabulary material should be extended so that it could cover all vocabulary from learners' course book, syllabus or program. Thus, learners might be able to access exercises about pre-learnt vocabulary.

- Web-based vocabulary learning material should completely proceed in line with learners' course book, syllabus or program which could get more interest of students.

- There should be back/next buttons which enable learners to go back and check their answers in the true/false exercises.

- A 'forgot my password' and 'change my password' buttons should be embedded into the registration pages particularly for the forgetful learners.

- Prior to every application there should be informative pages that are informing and guiding learners.

- It is vital to know that the software developed for a web-based learning material might turn out to be slightly different from what had been previously designed. In the software development process there might be unpredictable problems.

The Issues about Media and Method Debate

In the current study, the method espoused to improve vocabulary retention level of learners was context-based vocabulary teaching in a spaced repetition schedule. The content was presented in multiple contexts and with visual aids. The spaced

repetition and the context-based vocabulary presentation were found to have had the foremost effect on the vocabulary retention level of the learners after the implementation which was supported with the findings regarding positive attitudinal changes towards English language vocabulary learning. However, there was not an attitudinal change found towards web-based English vocabulary learning. As identified with the findings, the media used which was a web-based vocabulary learning material had a second prominence on learners' learning. Learners mostly affected from the existence of various context-based exercises on the material and from being exposed to those words in a spaced repetition schedule. Media had a minor affect in the process but some elements of media such as animated motion and used of narrative pictures facilitated learning. This result corresponds with what Clark (1983, 1994) suggested about media and method distinction. As what Clark stated, in the study, media provided time saving for the learners and applied media attributes cognitively supported and facilitated learning. Moreover, with its place-flexible characteristic, the web-based implementation provided easiness in the access to instruction for learners. However, these were the surface features of the learning system but the method of the instruction was the structural feature affecting the outcomes.

On the other hand, Kozma (1994) suggested learning is a social, cognitive and affective phenomenon and the studies should be done from this standpoint. In the study learners' perceptions towards the learning material was gathered through the checklists and interviews. As indicated in the findings what affected learners in the implementation process was the method applied more than the media. Applied method, the spaced repetitive instruction and the content had the primary considerations as understood from the learners' replies. The media was only an element enriching the instruction; what is more, for some learners use of media was even unnecessary. To recap, with Clark's words the media in the study worked as a "mere vehicle" that delivered instruction but it did not influence learners' achievement "any more than the truck that delivers our groceries causes changes" in food's nutrition (p. 446).

5.5. Recommendations for further Research Studies

The study, firstly, supports the positive effect of spaced repetitions on the rate of forgetting (Ebbinghaus 1885, as cited in Waring, 2004). Both behaviorism (Skinner, 1950) and dual store theory (Atkinson & Shiffrin, 1968) lead up the spacing effect on human learning. Behaviorism maintains that reinforcement or repetitions (stimulus-response) is a key to learning (Bigge & Shermis, 1999). Dual store theory, on the other hand, supports that maintained rehearsals increase the length of stay in short term store and short-term memory can be encoded into long-term memory. Secondly, the study supports the effectiveness of contextual presentation of words for a constructive way of learning vocabulary and finally the study emphasizes the effect of Paivio's (1990) dual-coding theory, which advances the concept that information coded both verbally (textually) and visually (pictorially) is more effective for learning than information coded singularly. With all above characteristics WEBVOCLE provided elaborative processing and encoding variability. Encoding variability requires that "information be thought of in a number of different ways" (DeWinstanley & Bjork, 2002, p. 22). It is suggested that concepts should be presented from more than one standpoint by presenting them with visual images, in multiple contexts because it encourages encoding variability which in turn can enhance long-term retention (DeWinstanley & Bjork, 2002).

Learners' perceptions showed that the textual cues when supported with the pictorial cues, affected learners' retention level of words. According to the study of Yoshii & Flaitz (2002), which compared two types of annotations singularly showed that both the textual clues and the pictorial cues had relatively equal effects on retention, with the picture-only group occasionally outperforming the text-only group. However, the results showed that, over time, the dually-coded group did not retain vocabulary better than text-only group. Therefore, the retention rate of vocabulary in the long-term between the groups of visual only and visual together with text for context-based vocabulary learning would be investigated.

Although this study was conducted with a foreign language class with the learners of a university preparatory school, it could be repeated in a variety of disciplines such as social sciences, science etc. to enhance language proficiency and vocabulary of learners. It appears that the research on the perceptions of the learners on the instructional design, interface design and usability for specific language learning environments will be conducive to broadening and refining language literacy.

On WEBVOCLE, learners' work and progress was recorded regarding only their participation numbers, their scores of those activities and the time spent on those exercises. However, the researcher came to know that there was vagueness about how learners filled in and completed the exercises on WEBVOCLE regarding the time they spent on the activities and the texts. It is suggested that learners' every movement on the web-based material should be followed step by step and carefully in order to control alert learners who might not be studying on the texts and not be completing the exercises truthfully after logging in. Such an examination would provide much better qualitative information about the cognitive process underlying participants' learning and retention level and quantitave data that would explain the reasons behind the performance differences regarding vocabulary retention tests.

The effect of participation number on learners' retention level might be comparatively investigated. The amount of participation and spent time on each activity on the web-based material by each learner should be controlled in a detailed way.

The study time was limited with the end of semester; therefore, the researcher did not have time to apply a delayed post-test which would provide more data on the retention of learners. As suggested by Bahrick et al. (1993) spaced repetition procedure application in foreign language vocabulary provide large retention benefits over a 5-year period following the termination of practice particularly when the retrieval sessions are 2 months, or longer. Therefore, this study might be repeated or similar studies might be carried out in a greater span in order to investigate effects of web-based material for long term retention.

As suggested by Hulstijn (2001, as cited in Ranalli, 2003) self-testing of items could be used to determine the length of time between repetitions. The target items' easiness and right interval choice regarding repetitions could be investigated. Moreover, intralexical factors affecting the learning or retention of words could be investigated.

The environments in which learners follow the web-based material significantly effect efficient studying on the material. Internet cafes found to be inappropriate places to study on such instructive web-based materials. Learners who are attending the implementation from an Internet café might seriously affect their participation on the web-based material and their achievement because of the inconvenient environment. There might be a comparative study investigating the achievement on the web-based vocabulary learning material regarding the place they attend the study. Researchers should apply demographic study at the beginning of the study and take care of the number of learners that will follow the study at internet cafés.

An online dictionary was embedded into the web-based material in order to enhance the retention of target words and to facilitate text comprehension of the learners without interrupting them while they were studying. In a further study, only the effect of online dictionary on the retention of words might be investigated comparatively.

As suggested by Laufer & Hulstijn (2001), further research could compare vocabulary retention according to varying task involvement load and varying the number of exposures to the investigated words. The exact number of encounters which leads to perfect retention might be investigated in further studies by controlling the variables such as the size of target vocabulary, the preferred strategy, the types of target words, use of multimedia, learners independent studying of target words, the quality and the quantity of repetitions.

All learners do not put to the same use or have the same effect from a specific media. As the weeks proceed, some learners have developed self-awareness of their

vocabulary improvement. Change in learners' perceptions regarding their progress might be investigated. Moreover, learners' achievement or retention level differences on foreign language vocabulary might be investigated regarding their interest level towards the web-based vocabulary learning material.

More research needs to be implemented to investigate learners' perceptions in a language learning environment and in other fields of study toward the new technology. Thus, specific guidelines leading to effective, theory-based and methodology-supported implementations could be provided. Moreover, a similar study might be implemented as a cross-check of the current study by using a different media and by controlling the content and method.

5.6. Recommendations for further Applications (practitioners)

It is obvious that web based technologies are becoming inevitable components of effective learning environments and most educators are convinced that they ameliorate the learning process. Additionally, the new pedagogy of learning requires educators to provide their learners with opportunities to explore their learning environments rationally propose solutions to problems and construct their own knowledge as well as share it with other learners. Thus, web technologies have been a catalyst of the new pedagogy of learning.

In a near future, web technologies will not demolish the classroom instruction or face to face interaction among learners and the instructor, but those technologies will foster the quality of instruction in several aspects. Since the 21st century requires individuals to become proactive members of the knowledge economy, every individual should be able to compete and survive in the international market. As a result, more individuals will be demanding foreign language training that they need all around the world and the quality of training they receive will become a fundamental issue. Consequently, educational institutions and international organizations will be investing more on web technologies to provide such learning environments. Such attempts will also lead us to better understand the pedagogy of this new learning paradigm and it's implications in foreign language education.

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Future designs of computer-mediated language projects should assign language teaching and learning strategies, methodologies and principles with the necessary inquiry and precedence over simple technological learning.

Learners might be uninterested or even resistant to learning strategy or technology-based learning because of their previous learning experience, educational or cultural background, learning style or some other factors. They should have the opportunity of reflecting and discussing their feelings about such an instruction and they should know the goals of instruction.

Making learners aware that learning English through multimedia require their own engagement, effort and interest in the learning process. Therefore, informing learners on how to use the web material in detail is very significant. Without a detailed and well-thought informative session, learners might have technical problems or they might misuse the material which in turn decreases their motivation. Therefore, the practitioners should previously take notes step by step the information that should be provided to user of the web-based material.

5.7. Conclusion

Current developments in information technologies with computers and Internet have correspondingly resulted in rapid advances in the application of technology in the area of education. However, most of the research studies have not followed this rapid change with the necessary base on the psychological principles of human learning and have been constrained with the ones seeking to find differences on the achievement of learners between Web-based and conventional training so far. Like other fields, the focus of this paper, English Language Teaching and the issues vocabulary teaching, context-based vocabulary learning, and web-based teaching/learning look for more research studies with respect to the use of ICT, multimedia for effective teaching and learning.

Briefly, although the integration of computers and the Internet to educational programs is the trend nowadays, educational settings should not adapt it immediately. Rather they should reinforce and update their curriculum designs and instructional environments with respect to this technology if they would like to benefit from it effectively. Prior to designing any web material, a designer should keep in mind the fact that web-based education cannot be a duplicated version of face-to-face learning/teaching since there are many facilities of Internet to be used in training. This study is based on concerning theories and psychological facts specific to web-based vocabulary learning.

The findings regarding positive perceptions of the learners correspond to the learners' performance on the vocabulary retention tests which indicated that the applied instructional method helped learners' vocabulary retention level increase more than the media used. In the study, media was just a medium for instruction to be delivered and it had minor affect on vocabulary improvement of the learners; whereas the method and the pedagogical principles highly affected the results. This result could be explained with the positive attitudinal changes towards English language vocabulary learning which arose in the study. However, learners' attitudes towards web-based English vocabulary learning did not change. Moreover, learners' positive perceptions towards web-based vocabulary learning in a context model and in spaced repetitions did not seem to affect learners' attitudes towards web-based English language vocabulary learning. Thus, media did not have a significant effect but the methodology applied had a significant effect on the results of the study. Media used facilitated the access to the information in a time and place flexible format which made the current application priviled regards to a conventional one.

Consequently, it is hoped that this study will contribute to the literature by supplying clarification for the limitations declared in previous studies or support new studies with the previous findings. The results of this study can assist the designers of new web or computer-based vocabulary teaching or learning systems to consider along with their instructional design, what functions should be incorporated to the system both technically and pedagogically. For systems already being used, the results can

be used as a checklist for their evaluations. It is suggested that the designers should not ignore the learners' perceptions about one material. Furthermore, there is not so much research study in the literature available on learners' perceptions about language learning and retention through web-based learning, this study might provide insights to educational institutions currently implementing or contemplating the implementation of technology enhanced instruction.

ABOUT THE RESEARCHER

Meltem Huri Baturay had bachelors and master's degrees in the field of English Language Teaching and has been working as an Instructor of English since 1998 at the Research and Application Center for Instruction of Foreign Languages at Gazi University. After beginning her Ph.D. study in the field of Instructional Technology, she was particularly interested in the use of technology in foreign language teaching. This interest of her led her to study on foreign language vocabulary learning via a web-based material in the current research study.

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APPENDIX A.
SUPPLEMENTARY MATERIAL CHECKLIST FOR LANGUAGE EXPERTS

I am a PhD student at the Department of Computer Education and Instructional Technology. I am writing my dissertation on the effects of Web-based material on L2 English language vocabulary retention of English language preparatory school students. The specific objectives of this study are, to see the effects of a web-based supplementary material providing students with the pre-learned intermediate level English vocabulary with spaced repetitions and to observe how students perceive a web-supported multimedia environment on English vocabulary.

You will see a checklist enclosed on the content of the web supportive material. This checklist has been prepared to get your ideas on the content of the system. This system aims to support the comprehension and retention of students' intermediate level vocabulary with spaced repetitions that have been offered to them previously in class from the book 'Focus on Grammar', therefore, vocabulary items that will be presented by the web-supported material will be the ones that you have taught your students in class from their course books. Through this system, the vocabulary is reintroduced to students in different contexts in modules (A,B,C) and pre-learned vocabulary will be further reminded by the exercises such as matching and multiple choice tests.

This research study will be piloted at the beginning of 2006-2007 fall semester in September and the research study will be carried out at the beginning of the 2006-2007 spring semester at the School of Foreign Languages, Certificate Programme in METU. All responses are voluntary and will be kept confidential. Thank you for assisting in this research.

Meltem Baturay
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phone number: 0 533 000 00 00

Please answer the following items by adding your comments on them.

Table A.1. *Checklist*

Features	Yes/No/Unsure	Comments
PRESENTATION OF VOCABULARY ITEMS		
Unit 1		
1. Is the text appropriate to the learners' level?		
2. Do students know the other words in text apart from the ones they are studying? Do the students know the words other than the target vocabulary items?		
3. Can the vocabulary items be predicted in contexts? Is the text well structured? (giving enough clues about the asked vocabulary items?) Does the text provide sufficient clues about the target vocabulary items?		
4. Are the texts at appropriate length?		
5. Will the topics help expand students' awareness and enrich their experience?		
6. Is there enough variety and range of text for the vocabulary items? Not clear		
7. Is it appropriate to present this many vocabulary items in one text? Do they sound well?		
Unit 2		
1. Is the text appropriate to the learners' level?		
2. Do students know the other words in text apart from the ones they are studying? Do the students know the words other than the target vocabulary items?		
3. Can the vocabulary items be predicted in contexts? Is the text well structured? (giving enough clues about the asked vocabulary items?) Does the text provide sufficient clues about the target vocabulary items?		
4. Are the texts at appropriate length?		
5. Will the topics help expand students' awareness and enrich their experience?		
6. Is there enough variety and range of text for the vocabulary items?		
7. Is it appropriate to use this much number of words in one text? Do they sound well in one text?		

Table A.1. *Continued*

Features	Yes/No/Unsure	Comments
EXERCISES		
Unit 1		
1. Are the exercises appropriate to the learners' level? Are the exercises'' grammatical structures appropriate for students' level?		
2. Do students know the other words in questions apart from the ones they are studying? Do the students know the words other than the target vocabulary items?		
3. Can the vocabulary items be predicted in contexts? Are the questions well structured? (giving clues about the asked voc. Items?) Do the questions provide sufficient clues about the target vocabulary items?		
4.Are distracters in multiple choice test well-written?		
5. Is the number of exercises enough for the students to make the meaning of the target vocabulary items clear?		
Unit 2		
1. Are the exercises appropriate to the learners' level? Are the exercises' grammatical structures appropriate for students' level?		
2. Do students know the other words in questions apart from the ones they are studying? Do the students know the words other than the target vocabulary items?		
3. Can the vocabulary items be predicted in contexts? Are the questions well structured? (giving clues about the asked voc. Items?) Do the questions provide sufficient clues about the target vocabulary items?		
4. Are distracters in multiple-choice test well written?		
5. Is the number of exercises enough for the students to make the meaning of the vocabulary items clear?		
VOCABULARY RETENTION TEST		
Unit 1/Unit 2		
1. Is the test appropriate to the learners' level? Are the questions 'grammatical structures appropriate for students' level?		
2. Can the vocabulary items be predicted in contexts? Are the questions well structured?(giving clues about the asked vocabulary items?)		
3. Are distracters in test well written?		
4. Is the number of questions sufficient for a vocabulary retention test?		

Table A.1. *Continued*

Features	Yes/No/Unsure	Comments
OVERVIEW OF THE MATERIAL		
1. Is this supplementary material suitable for web-based self-access use?		
2. Is this supplementary material suitable with the course's learning objectives?		
3. Are the instructions clear?		
4. Does this supplementary material motivate students?		
5. Does the content have appropriate register*?		
6. Is the content an appropriate supplement to in-class instruction?		
7. Are students able to infer the meaning of vocabulary words in contexts?		
8. Do you think the students would find this material interesting?		
9. Is the technique used for presenting vocabulary items suitable for your learners?		
10. Does the material match your students' learning styles and expectations?		

Register: It is a subset of a language used for a particular purpose or in a particular social setting. For example, an Englishspeaker may adhere more closely to prescribed grammar, pronounce words ending in -ing with a velar nasal (e.g. "walking", not "walkin'") and refrain from using the word "ain't" when speaking in a formal setting, but the same person could violate all of these prescriptions in an informal setting. The term was first used by the linguist Thomas Bertram Reid in 1956, and brought into general currency in the 1960s by a group of linguists who wanted to distinguish between variations in language according to the user (defined by variables such as social background, geography, sex and age), and variations according to use, "in the sense that each speaker has a range of varieties and chooses between them at different times" (Halliday et al, 1964).

From Wikipedia, the free encyclopedia
http://en.wikipedia.org/wiki/Register_(linguistics)

APPENDIX B.
CHECKLIST FOR USERS

Web-tabanlı İngilizce Sözcük Öğretim Sistemi Kullanıcı Değerlendirme Formu

Merhaba,

Bu çalışmanın amacı sizlerin kullandığınız Web-tabanlı İngilizce sözcük öğretim sistemi ile ilgili düşüncelerinizi öğrenmektedir.

Değerlendirme formuna verdiğiniz cevaplar kesinlikle gizli tutulacaktır. Lütfen tüm sorulara cevap vermeye çalışınız. Cevabınız 'evet', 'hayır' ya da 'emin değilim' ise, lütfen bu cevabınıza ilişkin yorumunuzu da yorumlar kısmına yazınız.

Table B.1. *Checklist For Users*

Özellikler	Evet (E) Hayır (H) Emin Değilim (ED)	Yorumlar
İÇERİĞİN TASARIMI		
1. Web tabanlı ortamda sunulan metin ya da alıştırmalar seviyenize uygun mu?		
2. Hedef sözcüklerin anlamlarını bağlamdan çıkarılabildiniz mi?[1] Verilen metin ve alıştırmalar bu açıdan uygun mu?		
3. Verilen metnin uzunluğu uygun mu?		
4. Metin ilgi çekici mi?		
5. Bu metinde sunulan hedef sözcük sayısı uygun mu?		
6. Metinden sonra gelen doğru/yanlış alıştırması metni daha iyi kavramanıza yardımcı oldu mu?		
7. Doğru/yanlış alıştırmasındaki soru sayısı yeterli mi?		
8. Metni anlatan resimlerin kullanılması sözcüklerin anlaşılmasını kolaylaştırdı mı?		

Table B.1. *Continued*

Özellikler	Evet (E) Hayır (H) Emin Değilim (ED)	Yorumlar
GÖRSEL TASARIM [2]		
Tüm Tasarım		
1.Resim, metin ve alıştırmaların sayfalardaki yerleştirilme düzeni sizce uygun mu?		
2. Kullanılan resimler ilgi çekici mi?		
3. Kullanılan resimler hikayeleri anlatmada başarılı mı?		
4. Sayfalarda kullanılan diğer renklerin seçimi uygun mu?		
5. Sayfalarda hareket etmenizi sağlayan ve tıklanan butonların kullanımı kolay mı?		
Düzen		
1. Yazı ve şekillerin arka fonla olan uyumu iyi mi?		
Sözel Elementler		
1. Kullanılan harf stili çalışma yapmanızı kolaylaştırdı mı?		
2. Kullanılan harflerin büyüklüğü çalışma yapmanızı kolaylaştırdı mı?		
3. Satır aralarında bırakılan boşluklar sayfadakilerin kolayca okunabilmesi için yeterli midir?		

Table B.1. *Continued*

Özellikler	Evet (E) Hayır (H) Emin Değilim (ED)	Yorumlar
MATERYALE GENEL BAKIŞ		
1. Bu web tabanlı sistemde kullanılan yönergeler anlaşılabilir mi?		
2. Bu materyal sizi sonraki haftalarda bu sistemde çalışmanız açısından motive etti mi?		
3. Sizce bu web-tabanlı program, sınıfta öğrenilen sözcüklerin pekiştirilmesinde kullanılmak için uygun bir destek materyali mi?		
4. Öğretim tekniği olarak sözcüklerin bağlam içerisinde sunulması sizin öğrenme biçiminize uygun mu?		
5. Metinde geçen ve sınıfta daha önce öğrendiğiniz sözcükleri bu şekilde tekrar etmeniz, o sözcüklerin anlamlarını hatırlamanızda yararlı oldu mu?		
6. Hedef sözcüklerin İngilizce tanımlarının görülebilmesi yararlı oldu mu?		
7. Hedef sözcüklerinin telaffuzlarının dinlenebilmesi yararlı oldu mu?		
8. Öğrendiğiniz sözcükleri bu sistemle tekrarlamak size alternatif destek materyallerine göre daha düzenli ve seri bir çalışma imkanı sağladı mı?		
9. Web-tabanlı bu sistemin kullanımı sırasında teknik açıdan zorluk yaşadınız mı?		

1 Sözcükleri bağlamdan çıkarmakla kastedilen başka hiçbir kaynaktan yararlanmadan, verilen cümle ya da metinden yararlanarak İngilizce sözcüğün anlamı hakkında tahminde bulunmaktır. Tahminde bulunurken, sözcüğün bulunduğu bağlamda varolan örneklerden, diğer kelimelerden, açıklamalardan, dilbilgisi yapılarından ya da bağlam içindeki mantıksal gelişmeden (neden ve sonuç ilişkisi gibi) faydalanılabilir.

2 "Visual Design Checklist", Heinich, Molenda, Russell and Smaldino, Instructional Media and Technologies for Learning (2002) dan uyarlanmıştır.

APPENDIX C.
ATTITUDE QUESTIONNAIRES

WEB TABANLI İNGİLİZCE SÖZCÜK ÖĞRENMEYE YÖNELİK TUTUM

ANKETİ

Merhaba,

Bu çalışmanın amacı sizlerin Web-tabanlı sözcük öğrenme konularındaki düşüncelerinizi öğrenmektedir. Bu çalışmada Web-tabanlı eğitim ile kastedilen Internetin avantajlarından faydalanılarak hazırlanmış bir öğretim sistemidir. Internet, öğretim sürecinde kullanılacak sistemin altyapını oluşturur ve öğrencinin sınıftan uzak iken Internet vasıtasıyla gerekli materyaller ile içeriğe ulaşımını sağlar.

Ankete verdiğiniz cevaplar kesinlikle gizli tutulacaktır. Lütfen tüm sorulara cevap vermeye çalışınız. Yardımlarınız için teşekkürler.

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Demografik Bilgi

1. Lütfen en son mezun olduğunuz eğitim kurumunun ismini yazınız.
……………………………………………………………………

2. Cinsiyetiniz?   a. Kadın   b. Erkek

3. Yaşınız?...............

Bilgisayar Kullanımına İlişkin Bilgiler

4. Çevrenizde çalışma yapabileceğiniz bir bilgisayar var mı?

a. Evet   b.Hayır

Eğer cevabınız 'hayır' ise lütfen 5. soruyu cevaplamayınız.

5. ………… …bir bilgisayar var. (Birden fazla seçenek işaretleyebilirsiniz.)

a. evde   b. iş yerinde   c. okulda

d. başka bir yerde (lütfen belirtiniz)…………...

6. Daha önce bilgisayar kullanma deneyiminiz oldu mu?

a. Evet   b. Hayır

Eğer cevabınız 'evet' ise lütfen bu deneyiminizi nerede? nasıl? ve ne kadar süre? yaşadığınızı açıklayınız.

………………………………………………………………………………………………

………………………………………………………………………………………………

……………………………………………………………………….......................................

7. İnternet ulaşımınız var mı?

a. Evet   b. Hayır

Eğer cevabınız hayır ise, 8.,9.,10. soruları lütfen boş bırakınız.

8. İnternete ………. bağlanmaktayım. (Birden fazla seçenek işaretleyebilirsiniz.)

a.. evden   b. iş yerinden   c. okuldan

d. Başka bir yerden (lütfen belirtiniz)……………...........................……….

9. Internete hangi sıklıkta bağlanmaktasınız?Lütfen belirtiniz (örn. tüm gün, günde birkaç saat)

....

10.   Internete en çok günün hangi saatlerinde bağlanmaktasınız?(örn. sabah, öğle arası, akşam)

....

11. Bilgisayarlardan daha önce hiç eğitim amaçlı olarak faydalandınız mı?

a. Evet   b. Hayır

Eğer cevabınız evet ise lütfen açıklayınız.

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

12. Bilgisayarları daha önce hiç İngilizce sözcük öğrenme amaçlı olarak kullandınız mı?

a. Evet   b. Hayır

Eğer cevabınız evet ise lütfen açıklayınız.

………………………………………………………………………………………………

………………………………………………………………………………………………

13. Web-tabanlı öğretim ile tecrübeniz hangi düzeydedir?*

___ Daha önce bir ya da birden fazla web-tabanlı öğretim aldım. (%100 online: Sınıfıçi ders hiç almadan dersin tamamını web'den aldım.)

___ Daha önce bir ya da birden fazla yarı web-tabanlı öğretim aldım. (en az %50'si online: Kimi zamanlar dersi web'den takip ettik, kimi zaman sınıfta ders işledik.)

___ Daha önce bir ya da birden fazla web-destekli öğretim aldım. (Sınıfta öğrenilen dersle alakalı web sayfalarını ziyaret etmek, e-ileti, sohbet odası, listserver iletişimi şeklinde)

___ Daha önce hiç web-tabanlı öğretim almadım.

*Kullanım düzeyleri Boettcher ve Conrad (1999, as cited in Borrows, 2001)' den uyarlanmıştır.

Aşağıdaki ifadelerden her birine, hangi düzeyde katıldığınızı, katılma düzeyinizi ifade eden seçeneğe ait kutucuğu seçerek, işaretle belirtiniz.

    1 Kesinlikle katılmıyorum
    2 Katılmıyorum
    3 Kararsızım
    4 Katılıyorum
    5 Kesinlikle katılıyorum

İNGİLİZCE SÖZCÜK ÖĞRENMEYE YÖNELİK TUTUM ÖLÇEĞİ

Table C.1. *Attitude Questionnaire*

		1	2	3	4	5
1	Öğrenilen sözcüklerin kalıcılığı açısından yapılan tekrarların önemli olduğunu düşünüyorum.					
2	İngilizce sözcükleri en iyi sınıfta öğreniyorum.					
3	Genellikle İngilizce sözcükleri sınıf dışında iken öğrenirim.					
4	Sınıfta öğrendiğim İngilizce sözcükleri sınıf dışında tekrar etmeme gerek yoktur.					
5	Benim için, İngilizce bir sözcüğü bilmek demek o sözcüğü yazarken kullanabilmektir.					
6	Benim için, İngilizce bir sözcüğü bilmek demek o sözcüğü konuşurken kullanabilmektir.					
7	Benim için, İngilizce bir sözcüğü bilmek demek o sözcüğü okuduğunda anlamaktır.					
8	Benim için, İngilizce bir sözcüğü bilmek demek o sözcüğü duyduğunda anlamını hatırlamaktır.					
9	Yeni sözcükleri öğrenmek için üzerinde alıştırma yapılmalıdır.					
10	İngilizce sözcükler en iyi bağlam* içerisinde öğrenilir.					
11	İngilizce sözcükler en iyi listeler halinde ezberlenerek öğrenilir.					
12	İngilizce sözcükler en iyi anlamlarına sözlükten bakılarak öğrenilir.					

Table C.1. *Continued*

		1	2	3	4	5
13	Öğrenilecek İngilizce bir sözcüğün resimle sunulması o sözcüğün anlaşılmasına yardımcı olur.					
14	İngilizce sözcük öğrenirken farklı kaynaklardan faydalanırım.					
15	İngilizce bir sözcüğü öğrenirken telaffuzunu da öğrenmek önemlidir.					
16	Öğrendiğim İngilizce sözcükleri günlük hayatta kullanmak hoşuma gider.					
17	Ne kadar çok sözcük öğrenirsem kendimi İngilizceye o kadar hakim hissederim.					
18	Dil öğrenirken benim için sözcük öğrenmek dilbilgisi öğrenmekten daha önemlidir.					

* Sözcükleri bağlam içerisinde öğrenmekle kastedilen başka hiçbir kaynaktan yararlanmadan, verilen cümle ya da metinden yararlanarak İngilizce sözcüğün anlamı hakkında tahminde bulunarak öğrenmektir. Tahminde bulunurken, sözcüğün bulunduğu bağlamda varolan örneklerden, diğer kelimelerden, açıklamalardan, dilbilgisi yapılarından ya da bağlam içindeki mantıksal gelişmeden (neden ve sonuç ilişkisi gibi) faydalanılabilir.

WEB-TABANLI ORTAMDA İNGİLİZCE SÖZCÜK ÖĞRENMEYE YÖNELİK TUTUM ANKETİ

Table C.2. *Attitude Questionnaire*

		1	2	3	4	5
1	Web-tabanlı öğretim araçları İngilizce sözcük çalışması için elverişli bir ortam sunmazlar.					
2	Bilgisayarlar öğretmenin yerini tutamazlar.					
3	Öğrenciler İngilizce sözcükleri web-tabanlı bir araçtan çok öğretmenden öğrenirler.					
4	İngilizce sözcükleri tek başıma çalışmayı daha çok severim.					
5	İngilizce sözcükleri bilgisayarda çalışmayı daha çok severim.					
6	Web-tabanlı bir ortamda İngilizce sözcük programı kullanmak zaman kaybıdır.					
7	Web-tabanlı bir araçla sözcükleri daha hızlı öğrenirim.					
8	Web-tabanlı sözcük öğretim aracı İngilizce sözcük öğrenmek açısından zengin bir ortam sunar.					
9	Web-tabanlı bir ortamda İngilizce sözcük öğrenmek zevklidir.					

APPENDIX D.
ENGLISH LANGUAGE VOCABULARY RETENTION TESTS

Pre-post test A

Fill in the blanks with the appropriate word given in the box below. Be careful there are more words given than you need.

confidence	treat	assertive	range
item	fit	afford	research
participate	divorce	well-paid	reluctant

1. Now, she is longing for a luxurious car and a big house with housekeepers. I am worried about how her husband will ……………to buy the things she desires.

2. If she wants to get the certificate, she has to submit her final …………… paper on time. All students have done this to graduate since the teachers would like to see students studying seriously and in a detailed way of a subject.

3. All directors in the company are very friendly and easy-going. Moreover, they …………….all the workers in the department equally.

4. If you want the manager to give you a pay rise, you should be more …................. when you are talking to him about this. You should not give up easily and insist that you deserve the pay rise.

5. The prices of the houses have gone up recently. The price ……………. For a decent house is from 350.000$ to 600.000$.

6. I have heard that there will be a meeting on "nursing a baby" a week later. I want to take place in this but we are about to leave for summer vacation for three weeks. Maybe I can **……………** in the next round.

7. My daughter is 11 months old now, that is, she is old enough to fall asleep by herself. However, she usually cries loud to make me put her to sleep and she is **……………**to fall asleep by herself.

8. A: What. ……………. Do you use to put your son to sleep? A Pacifier? A Bottle of milk?

   B: Nothing at all. My son likes to rub his finger when he's falling asleep!

9. In order to make a public speech you have to be well prepared and have ……………… in yourself.

Pre-post test B

Fill in the blanks with the appropriate word given below. Be careful there are more words given than you need.

energetic	completed	admire	consider
apparently	commitment	incredible	interview
advertisement	devised	selection	survey

1. Without their help, I couldn't have completed my research. Their feedbacks are invaluable. A big thanks to everyone who has completed the ……..…….

2. A: I would like to buy a pair of shoes for myself. Where can I look for the shoes on sale?

   B: Go to the store 'Trivia' in AnkaMall. They have very lovely shoes at ……..…….. prices. Don't miss it.

3. I ……..…….. the mothers who have more than one child. I think they are all talented because looking after two or more children at the same time is very challenging!

4. My husband has to ……..………… one of the candidates who has lost the last election. His boss promised to publish it on the first page of the newspaper and offered him a good payment.

5. A: What food do you 'always' order if you're out to eat (if it's on the menu) and what would you 'never' …………….. trying?

   B: Always kebabs but I would never try crab and lobster.

6. You can test-drive this car whenever you like. Doing a test-drive requires no ……………… to buy.

7. If you want to buy a house in this suburb, please look at the property's ……………in the local newspaper.

8. The coach made his ……………… And chose who she wanted for the team.

9. ……………., 90% of all babies are sleeping through the night by 3-4 months, so at 9 months there's no reason why my baby should be getting up to be fed.

10. The teacher explains things too fast for me to take notes. For this reason, I have …..................... a different method for keeping class notes. I am now recording the entire lecture. Of course, I asked her permission first.

Pre-post test C

Fill in the blanks with the appropriate word given in the box below. Be careful there are more words given than you need.

donate	documentary	rectify	appropriate	puzzled
wrap	indication	conventional	puzzle	continue
praise	offend	prevent	qualification	

1. I have been sneezing all morning. I think my body is giving a(n) …..................that I've caught cold.

2. If you want your friend to be really surprised when she gets your gift, it would be a better idea to …....................your gift with a nice colorful paper.

3. In our country, it is not …..................... to call your teachers by their first name. As a sign of respect and formality, we use the title "teacher" when we need to call them.

4. Little children get …..................... when you say a kilo of cotton and a kilo of iron weigh the same. They just cannot understand it.

5. Children learn more easily when parents …..................... them for their success and good work. In this way, children know they have done something right.

6. Magicians do tricks that …................... people. It is not easy to understand how some impossible things can be done so easily.

7. Because of a mistake of the ministry, some people had to pay high amounts of income tax last year. Now, the ministry will have to do something to …...................people's loss of money.

8. Gestures mean different things to different cultures. For example, putting out your hand to shake another person's hand means a sign of friendship and peace in many cultures. However, in some countries, putting out your had may …................... another person because it might mean a show of anger.

9. Seat belts must always be used by car passengers to …................... them from getting injured in case of a car accident.

10. On certain days, local people of this village put on their .... dresses and dance to mark an important event.

11. It is necessary for people to support the schools in poor areas and .... school material. Otherwise, these schools will not be able to continue providing education to those children.

Table E.1. *Pre & Post Attitude Questionnaire Results*

			Pre-test							Post-test						
			1	2	3	4	5	miss ing	N	1	2	3	4	5	miss ing	N
1	Öğrenilen sözcüklerin kalıcılığı açısından yapılan tekrarların önemli olduğunu düşünüyorum.	frequency	-	-	2	23	42	2	67	2	-	4	23	40	-	69
		percent	-	-	2,9	33,3	60,9	2,9	97,1	2,9	-	5,8	33,3	58	-	69
2	İngilizce sözcükleri en iyi sınıfta öğreniyorum.	frequency	2	14	23	26	4	-	69	3	21	22	20	3	-	69
		percent	2,9	20,3	33,3	37,7	5,8	-	100	4,3	30,4	31,9	29	4,3	-	100
3	Genellikle İngilizce sözcükleri sınıf dışında iken öğrenirim.	frequency	2	18	14	26	9	-	69	3	10	28	19	9	-	69
		percent	2,9	26,1	20,3	37,7	13	-	100	4,3	14,5	40,6	27,5	13	-	100
4	Sınıfta öğrendiğim İngilizce sözcükleri sınıf dışında tekrar etmeme gerek yoktur.	frequency	27	29	4	4	4	1	68	30	28	9	-	1	1	68
		percent	39,1	42	5,8	5,8	5,8	1,4	98,6	43,5	40,6	13	-	1,4	1,4	98,6
5	Benim için, İngilizce bir sözcüğü bilmek demek o sözcüğü yazarken kullanabilmektir.	frequency	2	12	6	25	23	1	68	2	6	8	33	20	-	69
		percent	2,9	17,4	8,7	36,2	33,3	1,4	98,6	2,9	8,7	11,6	47,8	29	-	100
6	Benim için, İngilizce bir sözcüğü bilmek demek o sözcüğü konuşurken kullanabilmektir.	frequency	2	2	1	25	36	3	66	1	-	4	27	36	1	68
		percent	2,9	2,9	1,4	36,2	52,2	4,3	95,7	1,4	-	5,8	39,1	52,2	1,4	98,6
7	Benim için, İngilizce bir sözcüğü bilmek demek o sözcüğü okuduğunda anlamaktır.	frequency	1	4	4	25	34	1	68	2	3	6	30	28	-	69
		percent	1,4	5,8	5,8	36,2	49,3	1,4	98,6	2,9	4,3	8,7	43,5	40,6	-	100
8	Benim için, İngilizce bir sözcüğü bilmek demek o sözcüğü duyduğunda anlamını hatırlamaktır.	frequency	-	3	5	30	29	2	67	1	4	8	28	28	-	69
		percent	-	4,3	7,2	43,5	42	2,9	97,1	1,4	5,8	11,6	40,6	40,6	-	100

Table E.1. *Continued*

			Pre-test							Post-test						
			1	2	3	4	5	miss ing	N	1	2	3	4	5	miss ing	N
9	Yeni sözcükleri öğrenmek için üzerinde alıştırma yapılmalıdır.	frequency	-	2	10	25	30	2	67	2	5	9	27	25	1	68
		percent	-	2,9	14,5	36,2	43,5	2,9	97,1	2,9	7,2	13	39,1	36,2	1,4	98,6
10	İngilizce sözcükler en iyi bağlam* içerisinde öğrenilir.	frequency	-	6	26	30	6	1	68	1	3	25	24	15	1	68
		percent	-	8,7	37,7	43,5	8,7	1,4	98,6	1,4	4,3	36,2	34,8	21,7	1,4	98,6
11	İngilizce sözcükler en iyi listeler halinde ezberlenerek öğrenilir.	frequency	13	33	13	8	1	1	68	10	25	19	10	4	1	68
		percent	18,8	47,8	18,8	11,6	1,4	1,4	98,6	14,5	36,2	27,5	14,5	5,8	1,4	98,6
12	İngilizce sözcükler en iyi anlamlarına sözlükten bakılarak öğrenilir.	frequency	2	12	26	23	5	1	68	2	19	26	19	3	-	69
		percent	2,9	17,4	37,7	33,3	7,2	1,4	98,6	2,9	27,5	37,7	27,5	4,3	-	100
13	Öğrenilecek İngilizce bir sözcüğün resimle sunulması o sözcüğün anlaşılmasına yardımcı olur.	frequency	-	4	5	44	16	-	69	1	2	8	28	30	-	69
		percent	-	5,8	7,2	63,8	23,2	-	100	1,4	2,9	11,6	40,6	43,5	-	100
14	İngilizce sözcük öğrenirken farklı kaynaklardan faydalanırım.	frequency	2	9	17	34	7	-	69	3	9	19	23	12	3	66
		percent	2,9	13	24,6	49,3	10,1	-	100	4,3	13	27,5	33,3	17,4	4,3	95,7
15	İngilizce bir sözcüğü öğrenirken telaffuzunu da öğrenmek önemlidir.	frequency	1	2	2	28	33	3	66	1	3	2	35	28	-	69
		percent	1,4	2,9	2,9	40,6	47,8	4,3	95,7	1,4	4,3	2,9	50,7	40,6	-	100
16	Öğrendiğim İngilizce sözcükleri günlük hayatta kullanmak hoşuma gider.	frequency	2	3	10	19	34	1	68	2	6	6	20	33	2	67
		percent	2,9	4,3	14,5	27,5	49,3	1,4	98,6	2,9	8,7	8,7	29	47,8	2,9	97,1

Table E.1. *Continued*

			Pre-test							Post-test						
			1	2	3	4	5	miss ing	N	1	2	3	4	5	miss ing	N
17	Ne kadar çok sözcük öğrenirsem kendimi İngilizceye o kadar hakim hissederim.	frequency	-	1	3	25	38	2	67	1	4	4	22	38	-	69
		percent	-	1,4	4,3	36,2	55,1	2,9	97,1	1,4	5,8	5,8	31,9	55,1	-	100
18	Dil öğrenirken benim için sözcük öğrenmek dilbilgisi öğrenmekten daha önemlidir.	frequency	3	8	18	22	17	1	68	2	13	19	15	20	-	69
		percent	4,3	11,6	26,1	31,9	24,6	1,4	98,6	2,9	18,8	27,5	21,7	29	-	100

Table E.2. *Pre & Post Attitude Questionnaire Results*

			Pre-test							Post-test						
			1	2	3	4	5	missing	N	1	2	3	4	5	missing	N
1	Web-tabanlı öğretim araçları İngilizce sözcük çalışması için elverişli bir ortam sunmazlar.	frequency	-	3	25	33	6	2	67	2	8	12	34	13	-	69
		percent	-	4,3	36,2	47,8	8,7	2,9	97,1	2,9	11,6	17,4	49,3	18,8	-	100
2	Bilgisayarlar öğretmenin yerini tutamazlar.	frequency	18	22	24	2	3	-	69	20	24	16	7	-	2	67
		percent	26,1	31,9	34,8	2,9	4,3	-	100	29	34,8	23,2	10,1	-	2,9	97,1
3	Öğrenciler İngilizce sözcükleri web-tabanlı bir araçtan çok öğretmenden öğrenirler.	frequency	13	32	18	5	-	1	68	12	35	15	6	-	1	68
		percent	18,8	46,4	26,1	7,2	-	1,4	98,6	17,4	50,7	21,7	8,7	-	1,4	98,6
4	İngilizce sözcükleri tek başıma çalışmayı daha çok severim.	frequency	4	14	17	22	12	-	69	2	13	7	24	22	1	68
		percent	5,8	20,3	24,6	31,9	17,4	-	100	2,9	18,8	10,1	34,8	31,9	1,4	98,6
5	İngilizce sözcükleri bilgisayarda çalışmayı daha çok severim.	frequency	5	15	32	14	3	-	69	4	18	31	11	4	1	68
		percent	7,2	21,7	46,4	20,3	4,3	-	100	5,8	26,1	44,9	15,9	5,8	1,4	98,6
6	Web-tabanlı bir ortamda İngilizce sözcük programı kullanmak zaman kaybıdır.	frequency	2	5	18	31	12	1	68	3	6	14	27	18	1	68
		percent	2,9	7,2	26,1	44,9	17,4	1,4	98,6	4,3	8,7	20,3	39,1	26,1	1,4	98,6
7	Web-tabanlı bir araçla sözcükleri daha hızlı öğrenirim.	frequency	1	6	43	17	1	1	68	1	8	30	23	6	1	68
		percent	1,4	8,7	62,3	24,6	1,4	1,4	96,6	1,4	11,6	43,5	33,3	8,7	1,4	98,6
8	Web-tabanlı sözcük öğretim aracı İngilizce sözcük öğrenmek açısından zengin bir ortam sunar.	frequency	1	3	25	33	6	1	68	1	7	13	38	9	1	68
		percent	1,4	4,3	36,2	47,8	8,7	1,4	98,6	1,4	10,1	18,8	55,1	13	1,4	98,6
9	Web-tabanlı bir ortamda İngilizce sözcük öğrenmek zevklidir.	frequency	2	4	32	21	8	2	67	3	6	18	32	9	1	68
		percent	2,9	5,8	46,4	30,4	11,6	2,9	97,1	4,3	8,7	26,1	46,4	13	1,4	98,6

APPENDIX F.
QUOTATIONS FROM THE PARTICIPANTS' INTERVIEWS

[1] Egzersiz sayfaları daha renkli olsaydı ve şu andaki gibi beyaz bir zemin üzerinde olmasaydı. Çünkü bunun görüntüsü sayfa üzerinde sanki beyaz bir kâğıt varmış gibi.

[2] Bu gerçekten önceden öğrenilen kelimeleri tekrar etmek için iyi bir alternatif yöntem.

[3]Haberleri okumak için bilgisayar başına oturup da bir gazetenin web sayfasını açtığımda uzun haberleri okumayıp geçiyorum ama bunu gazetenin kendisini okurken yapmıyorum; ne kadar uzun olursa olsun okuyorum. Yani demek istediğim yazıları bir web sayfasından okuyunca işler değişiyor, bu yüzden, bilgisayar ekranında parça ne kadar kısa olursa o kadar okunabilir.

[4] Parçalar uzun değildi. Zaten İngilizceyi öğrenmeye yeni başladık böyle olması bizim için iyiydi. Ama daha uzun yazılar bizi sıkabilirdi.

[5] İlgiyi, alakayı artırmak için ve hatta bizim daha sonraki haftalarda katılımımızı artırmak için hikayelere böyle esrarengiz bir şeyler eklenebilir, çünkü biliyorsunuz öğrenciler okuma parçaları okurken kolaylıkla sıkılırlar.

[6] Her zaman sayfayı açıp da okuma parçalarının yanında resimleri gördüğümde ilk olarak okumadan önce onları bir inceledim ve hikaye hakkında yorumda bulundum. Sonra parçaları okudum ve baktım benim tahminlerim doğru mu diye. Verilen parçayla ilgili detayları anlamamıza yardım etmesine rağmen ben resimleri sayfada biraz büyük buldum. Sayfada çok yer kaplıyorlardı ve hikayeyi bölerek benim takip etmemi zorlaştırdı. Okurken sürekli yukarı ve aşağı hareket etmek zorunda kalıyorduk bu da beni sıktı.

[7] Harflerin stili ve ölçüsünü beğenmedim. Sayfalar eski tarz resmi evraklara benziyordu. Kendimi sanki noter kâğıdı okuyormuş gibi hissettim bir tek soğuk damgası eksikti…

[8] …Keşke parçalar ve alıştırmalar biraz daha renkli ve biraz daha büyük harflerle yazılsaydı ve de başka bir zemin üzerinde olsaydı. Beyaz zemin özellikle alıştırmaları yaparken gözlerimi rahatsız etti çünkü beyaz renk bilgisayar ekranında böyle parlaklık veriyor ya da daha parlak yapıyor.

[9] Eğer bu materyali faydalı bulmasaydım kullanmazdım. Bana böyle sistemli çalışma ve sınıfta öğrendiklerimizi tekrar etme imkanı

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sundu…Bir kelime tekrar edilmeyince zaman içersinde unutuluyor. <u>Bir kelime bir çok cümlede çalışılınca unutma oranı düşüyor.</u>

[10] Kelimelerin tanımlarını görmek ve tıklayınca telaffuzlarını duymak çok etkili ama başka bir web sayfasına bağlanılmasaydı daha iyi, daha pratik olurdu. <u>Başka sayfaya bağlanmasını beklemeden görmeyi ve duymayı tercih ederim.</u> Ayrıca <u>kelimelerin eş anlamlıları</u> da verilseydi daha faydalı olurdu.

[11] Bence uygun. Fazla bilmediğimiz kelime yok. Genelde bilmediğimiz kelimelerin açıklamaları verilmiş. Bu yüzden <u>seviyemizi fazla zorlamıyor.</u>

[12] Verilen hikayeleri kolaylıkla anlayabiliyoruz. <u>Çalışmamız gereken kelimeler dışında bilmediğimiz veya unuttuğumuz kelimelerin çıkması da kelime dağarcığımız geliştiriyor.</u>

[13] <u>Verilen parça seviyemize uygun olduğu için rahat anlayabildim hikayeyi,</u> anladığım için de sözcüklerin anlamını bağlamdan çıkarabildim. Hepsini olmasa da çoğunu.

[14] [Parçalar] daha kısa olabilirdi. Çok uzun ve <u>uzun olduğu için sıkıcı olabiliyor</u>...çünkü bilgisayarda o kadar uzun hikaye okumak mümkün olamayabiliyor. <u>Bir süre sonra dikkat dağılıyor ve konu iyi anlaşılamıyor.</u>

[15]…İnternet kafede giriyorum ve illaki ses oluyor. <u>Bir de [parça] uzun olunca konsantrasyon zor oluyor.</u>

[16] Bence böyle bir uygulama yapılırken <u>kişilerin kendi alanlarına göre ayrı metinler uygulanmalıdır.</u> Seçilen seçenek üzerinden gelen metinler daha yararlı olabilir. Nasıl olsa aynı kelimeler o metinler içerisine eklenebilir.

[17] Açıkçası daha <u>genel kültürü geliştirebilecek metinler</u> hazırlansa uzun dahi olsa okumaktan sıkılmayabilirim. Ama hikayeyi biraz sıkıcı buldum.

[18] Aslında <u>biraz daha hedef sözcük verilebilirdi.</u> Çünkü orada öğrendiğim kelimelerin diğerlerinden <u>daha kalıcı</u> olduğunu fark ettim çünkü sürekli tekrar yaptık. Belki ilk başlarda zor gelirdi ama ne kadar faydalı olduğunu sonunda anlarız.

[19] <u>Alıştırmaların sonuçlarını okurken yanlış anladığım birkaç noktayı fark ettim.</u> Sınavlarda doğru/yanlış alıştırmaları sıkça sorulduğu için ve ben bu bölümde gereğinden fazla puan kaybettiğimden soru sayısının fazla olmasını tercih ederim.

[20] Bence metin anlaşılmışsa sorun kalmamıştır. <u>Doğru/yanlış çalışması olması sadece metni soranı sorulan kişilerin okuyup okumadığı konunda bilgilendirir.</u> Aksi takdirde bir yararı olduğunu sanmıyorum.

[21] Okuma parçasındaki kelimelerin bazıları ağır geliyordu ama diğer alıştırmalar uygundu. <u>Hikayeleri anlamakta zorlanmadım, çünkü bağlantı kurabiliyordum kelimeler arasında.</u>

[22] Uygundu. Bazı cümlelerde zorlandım ama hocam, hiç de bilmediğim kelimeler de vardı. Genel okudum hızlı bir şekilde anladım ana fikrini.

[23] Benim açımdan fazla uygun değildi. Çünkü orada sözlüğe bakmadan kelimelerin anlamlarını bulmaya çalışacaktık başta.

[24] <u>Bilmediğim kelime olsa bile cümle içinden çıkartabiliyordum.</u> Hedef sözcükleri de yine oradaki cümlelerden çıkardım.

[25] Bazen çıkaramadım, sözlükten baktım Onları da diğer bilmediğim kelimeler gibi bazen çıkarıyorum, bazen anlayamıyordum. Ama <u>elimin altında sözlük vardı, İnternet vardı oradan bakabiliyordum.</u>

[26] Hikayelerin uzunluğu aslında normaldi, ama evimizde bilgisayar olmadığı için dışarıda yaptığımızdan dolayı, bir uyum problemi oldu. Daha kısa olabilirdi. <u>İnternet kafede giriyorum, tam konsantre olamıyorum, yanımda gürültü oluyor. Bu yüzden kısa olsa dışarıda olanlar için daha iyi olurdu.</u>

[27] İlk hikâye mesela uzundu biraz… sonra işte bu yavaş yavaş dengelendi, insanlar da alıştı. İlk başta biraz daha kısa konulabilirdi insanları oraya girdirmeye yönelik, daha sonra uzun olanlar konabilirdi. [Hikâyeler] yavaş yavaş uzatılabilirdi…

[28] İstediğiniz kelimeleri, mesela reluctant, assertive vardı ilk başlarda, istediğiniz parçaya sokabilirsiniz. O kelimeler nasıl olsa bir yerden çıkar. Sonuçta herkes aynı kelimeleri öğrenir ama <u>ilgi alanlarına göre farklı parçalar içerisinde</u>…

[29] O doğru/yanlış alıştırmalarında çok böyle kilit sorular vardı. Bir daha hikâyeye dönüp bakmam gerekiyordu… tabii bunun hikayeyi daha iyi anlamamda etkisi oldu…. <u>Hızlı geçtiğim yerleri bu sefer daha detaylı okudum</u>…

[30] Dizayn açısından gayet başarılı bir çalışma. Başarılı olduğu için <u>alıştırmaları takipte olsun hiç zorlanmadım.</u> Sanki daha önceden kullanmış gibiydim.

[31] [Resimler] olayı zihnimizde canlandırmamızı dolayısıyla konuyu anlamamızı kolaylaştırdı. Konuyu iyi anlayınca da [hedef] kelimeleri [bağlamdan] daha iyi çıkardık ve de daha iyi öğrendik.

[32] Resimler anlatılan olaydan bir kesiti gösteriyordu, o resimlere bakarak metni daha iyi anladım.

[33]…özellikle ilk alıştırmadaki gibi resimdeki nesnelerin aktif olup üzerine gelince adının çıkması öğrenme açısından güzeldi.

[34] Uygundu, çünkü 4 saat çalışmama rağmen gözümü alacak, rahatsız edecek herhangi bir sayfayla karşılaşmadım.

[35] …Bilgisayarla çalışırken ekrandaki renk veya renklerin göz yorgunluğu ve bilgisayar başında kalma süresi üzerinde önemli olduğunu düşünüyorum. Bu açıdan bu çalışma başarılıydı.

[36] [Harfler] gözün fazla yorulmamasını sağlıyor. Yazıları takip etme konusunda sıkıntı yaratmadı.

[37] Yazı şekli rahat okunabiliyordu. Ayrıca, [sayfaları] büyütme şansımız olduğu için boşlukların çok ciddi bir etkisi olmuyordu.

[38] Okuma yönünden sıkıntı çekmedim. Bence yeterliydi. Benim gözlerim çok hassas normalde bilgisayarda 2-3 sayfa yazı okusam hemen sulanırdı fakat bu alıştırmalar sırasında hiç sorun yaşamadım.

[39] Bence [uygun] değil. Özellikle şu dört şıktan birini seçtiğimiz alıştırmada boşluklar az ve bu da soruları takip etmemi zorlaştırıyor…Bence bu alıştırmanın yarısı başka sayfaya aktarılmalı.

[40] Çok ilgi çekici değildi. Daha çok ilkokul çocukları için gibiydi. Çocukçaydı ama eğlenceliydi sonuçta… Seviyemize göre düşünüyorum da hocam. Çizimler aslında gayet güzeldi.

[41] Faydalı oldu. Zaten önce resimlere bakıyordum, bir kendim hayal ediyordum böyle olur diye, onu hikayeden okuduğum zaman zaten anlıyordum.

[42]…Resimler olmasa bu sefer daha dikkatli okumak gerekirdi…Resimler yardımcı oluyor, işte olayı gösteriyor, nerede geçiyor kim var, o sırada kim var orada.

[43] Sıkıntı yaşadım. <u>Satırları takip derken farenin okuyla zaten takip ediyordum, karışabiliyordu. Hikayede oldu bu biraz daha aralıklı olabilirdi.</u>

[44] <u>Böyle bir uygulama aktif olarak sürekli kullanılırsa beklenmedik gelişmeler alınabilir.</u> Gerçekten kelime öğrenmek için iyi bir yöntem olduğunu söyleyebilirim.

[45] …<u>sözlükten bakınca hemen unutulan kelimeler böylelikle akılda çok kolay kalıyor, çünkü her hafta tekrar veriliyor.</u> İlk başlarda çabuk unutuyordum ve sözlüğe bakıyordum ama artık buna gerek duymuyorum.

[46] Bana bu uygulamada hoş gelen şuydu: <u>her hafta devam niteliğinde yeni hikayelerin gelmesi ve programın okulla bağlantılı gitmesi</u> çünkü buna benzer daha önce elime geçen bazı uygulamalar oldu. Bunlar kısa sürede insanın canını sıkabiliyor…

[47] Kelimelerin telaffuzlarını dinlemenin çok faydalı olduğunu düşünmüyorum çünkü bizim böyle bir dersimiz yok ve okulda o kadar da önem verilmiyor.

[48] <u>Gerçekten söylemek gerekirse bir sonraki haftaya ne yapacağımızı merak ediyoruz, uygulamaya katılmaya istekli hale geldik.</u> Başta uzun olunca sıkılıyorduk ama [parçalar] böyle kısa olduğu sürece problem yok.

[49] Konu ilgi çekici değildi, ilgi çekici olsa girerdim. Çünkü elinin altında bilgisayarı olan birisi bugün yeni bir şey var mı diye girer… <u>Konular böyle çok ilgi çekici olacak ki insanlar girmek isteyecek…</u> Yani giren insan bu işten zevk almalı.

[50] Uygun tabii yani <u>sonuçta [kelimeleri] ne kadar tekrarlarsak o kadar aklımızda kalır. Bir de biz İnternet'in başından kalkmadığımız için web tabanlı [materyal] daha uygun oluyor öğrenmemizde.</u>

[51] <u>Önceden kelimeleri yazıyordum ve Türkçe karşılığını ezberliyordum, cümle yazmıyordum yanına ama şimdi anladım ki cümle yazmak daha anlaşılır oluyor, daha kalıcı oluyor.</u> Mesela 'indicate' denince şu anda aklıma bir cümle geliyor, işte şu şuydu diyorum hemen aklıma geliyor.

[52] Ben sözcükleri yazarak çalışırım, cümle içinden çıkarmasını pek şey yapamıyorum ben, <u>o konuda başarılı değilim.</u> [Sözcüklerin] Türkçelerini yazarak ezberliyorum

[53] Tabii ki, bir [kelime] birkaç defa tekrar ettiğim zaman zaten kalıcı oluyor. Bir de resim ve hikayeli olduğu zaman tabi hemen akla gelebiliyor o kelime. Daha kalıcı oluyor yani.

[54] …bir insan televizyonda izlediğini daha kolay öğreniyor çünkü hem işitiyor hem görüyor, hem de aynı anda işte tüm alıcılarını oraya yöneltiyor. Bu uygulamada da aynısı var, dahası kelimeler defalarca tekrar ettiriliyor bence bu [uygulama] daha büyük kitlelere için geliştirilebilir.

[55] Her zaman İngilizce tanımlarını tam da çıkaramıyordum. İllaki Türkçe karşılığını görmem gerekiyor. Tanımları görmek faydalı olmadı, sonuçta hep unutuyoruz İngilizce tanımlarını da.

[56]…bir kelimeyi öğrenirken anlamını ve yazılışını öğrenmek kadar okunuşunu da öğrenmek çok önemli. O kelimeleri de tekrarladım gerçekten iyi oldu.

[57] Normalde zaten genelde sınav öncesine kalıyor her şey ve sınavın bir hafta öncesinden çalışmaya başlıyorsun. O zaman da yığılıyor. Bu program sayesinde işte haftalara yayıldığı için, sınav öncesinde yükümüz azalıyor. Rahat rahat çalışıyoruz ve direkt kelimeyi ezberlemeye çalışmıyorsun.

[58] Öğrenim sınıfta çoğunluğu [kelimeleri] kitaptan çıkarmasını bekleyerek gerçekleşmez. Çoğunluk yapmaz benim tahminim. Böyle daha iyi olur, kolaylaşır.

[59] Alıştırmaları burada 5 ya da 10 dakikada hallediyordun, yani en fazla yarım saat sürüyordu. Ama evde çalışsan daha farklı olur. Evde hani kendin çalışsan en az bir ya da bir buçuk saatini harcamak zorundaydın. Burada gayet kısa bir sürede…2 ya da 3 tanesini bile yapsam yarım saatimi alıyordu. Rahatlıkla öğrenebiliyordum. Daha düzenli.

[60] Sonuçta bir yerde hatamız olacak, zorlaşacak ki bizim de onları görüp hatamızı düzeltmemiz gerekecek, bu da bizi geliştirir.

[61] Bence, İngilizceye daha tam hâkim olmadığımız için, önümüze gelen hikâyeler hep biraz garip ve sıkıcı geliyor, yani başka bir konuda bir şey de konulsa buna yakın olacak yani, yine aynı sıkıcılıkta olacak okuduğumuz şey.

[62] Çok uzun sürüyor benim onları okumam. Yani seviyemin üstünde olduğu için uzun sürüyor. Yani bilmediğim bir sürü kelime olduğu için, çevirmesi falan. Kısa olsaydı daha güzel olabilirdi.

[63] Okulda çoğunlukla telaffuza önem verilmiyor ve geçiliyor, bu yüzden iyi oldu. Zaten konuşmamıza da faydalı oluyor kelimelerin telaffuzlarını dinlemek. Çünkü kelimeleri yanlış okuruz diye bazen konuşmaktan çekiniyoruz.

[64] Bu ilk uygulamada ben kelimelerin anlamlarına üzerlerine tıklayarak baktım, çünkü bazen kelime bulunduğu bağlamdan manası çıkmıyor, dolayısıyla ben kullandım.

[65] Aklımızda kalması açısından da bu şekilde olması daha iyi çünkü Türkçe karşılığı verilse şahsen benim aklımdan uçup gidebilirdi. Böyle daha kapsamlı düşünüyoruz ve daha kalıcı olduğunu düşünüyorum.

[66] Ben başta wh- question soracaksınız da biz cevaplayacağız diye çok korktum. Doğru/yanlış alıştırması olması çok daha mantıklı oldu bizim için. Çünkü okuma parçalarından sonra genelde uzun cevaplı sorular geliyor ve bunlar sıkıcı oluyor bundan korktum. Eğer doğru/yanlış yerine öteki türlü olsaydı yine de yapardım ama bu daha zevkli zaten orada hikayede var cevabı. Her iki tip alıştırma da sonuçta anlayıp anlamadığına bakıyor ama bu daha zevkli.

[67] …orada yazdım şimdi burada tekrar niye yazayım diyorsun. Daha pratik. Çek al şuraya bırak tamam işte.

[68] [Kelimenin] isim ya da fiil olması çok önemli benim için. Mesela çok acelem olsa, bir sınavda olsam ve çok hızlı yapmam gerekse, orada verb yazması ve açıklamadaki 'to' bana çok yardımcıdır. Yani bir iki göz gezdirerek çok daha kısa sürede yapabilirim.

[69] …ilk insanın aklına gelmiyor ama seçenekleri görünce cevap bu olabilir şu olabilir diye üzerinde düşünüyorsun. Ama seçenekler olmadığında sinir oluyorsun aklına gelmesini bekliyorsun. Daha kolay bir şey sonuçta aralarından doğrusu [kelimeyi] seçmek.

[70] Aslında, cevapları verdiği zaman o kelimelerin üzerine tıklansa ve [o kelimelerin arasındaki] farklar yazsa daha iyi olabilir. Hikâye vardı ya, orada kelimelerin üstüne tıkladığımızda anlamları çıkıyordu, aynı onun gibi.

[71] Belki [boşluklar için] bulduğumuz kelime doğru ama yanlış yazıyoruz. Bu sayede [kelimeyi] doğru yazmayı da öğreniyoruz.

[72] Genelde kelimelerle ilgili örnekler falan bulamazdık bu şekilde çalışmamız iyi oldu.

[73] En azından ilk açınca parçayı evet burada bunu diyecek diyebiliyoruz resimlere bakarak ve bir de merak uyandırıyor. Ayrıca

dikkat çekici orada resimlerin olması mesela orada iskelet figürü dikkat çekici. Ne amaçla o kemik titriyor orada diyorsunuz.

[74] İlk düşüncem şöyleydi, sayfayı açtığımda en azından sırf yazı görmediğim için mutlu oldum. Daha ilgi çekici böyle olması. Sırf yazı benim için her zaman için iticidir.

[75] Yanlışlarımızı görmemiz faydalı oldu. Bildiklerimizi biz doğru sanıyoruz, <u>yanlışlarımızı görmedikten sonra hiçbir ilerleme kaydedemeyiz</u>.

[76] Resimli olması çok güzel bence çünkü hayal edebiliyoruz. Mesela anlamakta zorluk çekiyoruz bir paragrafı ama, resimden tahmin de edebiliyoruz orada ne anlatılmak istediğini. Resim çok iyi olmuş.

[77] Genel olarak böyle şey vardı, küçüklük var yani sistemin genelinde, onun dışında Allahım çok eğlenicem diye girmediğimiz için problem yok, böyle çok cafcaflı renkler olsun, aman çok eğleneyim gibi bir derdi olmuyor insanın.

[78] İlk uygulamada uyarı sayfası yoktu, mesela kelime oyunundan önce sadece 'start game' diye bir uyarı vardı o kadar. Ama sonradan açıklamaları koydunuz ve gerçekten çok iyi oldu. Çünkü uyarı sayfası olmayınca sayfayı hemen açıyorduk ve oyuna girmiş oluyorduk zaman da ilerliyordu.

[79] Her uygulama öncesi okudum. Sonuçta vizelerde de bunlar çok önemli. Bu yüzden bildiğimiz şeyleri yanlış yapıyoruz yani okumadığımız için. Bu yüzden okumaya dikkat ediyordum ben. Yönergelerin tümü rahatlıkla anlayabileceğimiz düzeydeydi.

[80] Kelimeleri yazarak çalışıyordum. Ama yazarak en fazla 3,4 gün aklımızda kalıyordu. Ve bir daha imkanım olmuyordu o kağıda çalışmaya ya da belki imkanım oluyor da benim tembelliğim… ama <u>bu sistemde 2 ay sürekli tekrar ettiğimiz için kolay yerleşti ben bir daha unutacağımızı düşünmüyorum</u>.

[81] Ben bugünlerde daha çok bilgisayar kullanmaya başladım. Kelimelere daha kolay, çabuk ve rahat ulaşabilmemiz ve öğrenebilmemiz bakımından böyle sistemlerin olması daha iyi bence. Sonuçta teknoloji geliştiği için her evde bilgisayar kullanıldığı için böyle sistemlerin yaygınlaşması önemli.

[82] <u>Bu sistemler daha kullanışlı daha ilgi</u>, çekici sözlüğe göre falan çünkü insanlar artık bilgisayarla iletişim kuruyorlar ve öğreniyorlar. <u>[Bu materyallerle öğrenmek] daha kolay, daha verimli ve rahat</u>.

[83] Böyle bir programla en azından kendimizi sorumlu hissediyoruz. Girmeliyiz bakmalıyız bu hafta ne oldu? Bu haftada bakalım ne oldu ne değişiklik var diyoruz.

[84] Merak ediyor insanın içinde kalıyor. Bakma gereksinimi hissediyor baktığında da yeni şeyler öğreniyor.

[85] Bir merak oluyor bunu da zaten hikâye sağlıyor. Her hafta devam edişi ve belirli bir yerde kalışı ile.

[86] Bence İngilizceyi daha çok sevdirmek açısından böyle güzel uygulamalar daha fazla yapılabilir. Sonuçta dediğim gibi ben fazla İngilizceyi sevmiyorum ama bu tip bir uygulama ve daha farklı alıştırmalar ile daha fazla ilgimi çekip bana sevdirebilmiş olması bence önemli yani.

[87] Genel bir şey olduğu için bu da faydalı ve güzel, ama çok dersle bire bir gidecek bir planı olsa bunun, o daha faydalı olurdu...

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