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From the Editor

Dear readers of intWOJDE

Welcome to the last issue of the year 2018 Women Online Journal of Distance Education, intWOJDE. First of all, greetings to all you and best wishes from the intWOJDE team.

As known well the first issue of the intWOJDE appeared at the begin of April 2012 as Volume 1 Number 1. intWOJDE aims to establish some more new channels of communication for the women in distance education world in general from the world as a whole to its specific target.

In this issue, we present three article. The first article belongs to Asst. Prof. Dr. Nursel YALÇIN, Prof. Dr. Alemdar YALÇIN, and Lecturer Dr. Ferah BURGUL ADIGÜZEL and article are titled "DEVELOPING A SOFTWARE FOR INCREASING READING RATE AND EFFECTIVE READING COMPREHENSION: READ FAST ENHANCE MEMORY." In this article, a software called Read Fast Enhance Memory was developed. The software prepared by effective speed-reading and memory enhancement techniques was developed with Delphi programming language. The purpose is, in addition to speed-reading training, to support both educators and learners and to create active learning.

The second article is prepared by Prof. Dr. Mediha SAGLIK TERLEMEZ and Asst. Prof. Dr. Serap OZTURK, entitled "RELATIONS OF ANADOLU UNIVERSITY OPEN EDUCATION SYSTEM FEMALE STUDENTS WITH INFORMATION AND COMMUNICATION TECHNOLOGIES." Based on the assumption that distance learning cannot be separated from computer and communication technologies, which are the basis of learning, the goal of this study is to determine the dimensions of the relations of female students in Anadolu University Open Education System and information and communication technologies. In line with the obtained results, the conditions of using e-learning environments presented to them are evaluated.

The third article is titled as "EDUCATIONAL DATA MINING IN DISTANCE EDUCATION: A SYSTEMATIC LITERATURE MAPPING STUDY" written by Assoc. Prof. Dr. Aslıhan TÜFEKCİ and Lecturer Esra Ayça GÜZELDERELI YILMAZ. This systematic mapping study aims to provide an overview of the current work of educational data mining practices in distance education. In this study, various search engines were used to search the academic literature. This systematic map and its results are based on 140 primary sources that involve articles published in conferences, articles published in the magazines, symposium articles, theses, and others.

We have our guest, a female academician of Anadolu University Open Education Faculty, Assoc. Prof. Dr. Coşgul YUKSEL.

We hope to stay in touch and wish to meet in our next Issue, 1st of January 2019.

Cordially yours

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DEVELOPING A SOFTWARE FOR INCREASING READING RATE AND EFFECTIVE READING COMPREHENSION: READ FAST ENHANCE MEMORY

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ABSTRACT

Undoubtedly, one of the best ways of being a successful human being is to read a lot and understand what you read. Reading which is an important criterion for keeping up with the time is one of the main activities of the human brain. These activities are performed in three stages: Perception, storing in memory and reconstruction or structuring. The primary reason for not reading is not to know how to read. If the social and economic reasons prevent the individuals from getting this skill or if the individuals confront the problems such as reading incomprehension and reading slowly, they are discouraged. In addition, it is a known fact that women, for various reasons, enjoy reading more than men. However, the amount of time spent on reading and the amount of text to be read is a problem. It is crucial to read quickly and to have access to more resources to be read by distance learning.

In this very moment, everyone should learn and use the speed-reading techniques which help the individual read fast, comprehend what he read and make accessible to keep in memory, double the reading rate and increase the self-esteem, most of all. To that end, a software called Read Fast Enhance Memory was developed. The software prepared by effective speed-reading and memory enhancement techniques was developed with Delphi programming language. The purpose is, in addition to speed-reading training, to support both educators and learners and to create effective learning. A lot of software about speed-reading exist and are applied. However, this software was not developed in accordance with Turkish Language properties and its grammar.

When it is considered that the information technology gives a chance to get information in education in different ways, to support the skills of obtaining information and to make learning more enjoyable and productive, it is planned that learning speed-reading techniques would be more productive and efficient thanks to this software. As the amount of information multiplies rapidly in this day and age, learning speed-reading techniques is becoming almost compulsory.

Keywords: Speed-Reading Software, Speed-Reading, Effective Speed-Reading, Speed-Reading Techniques, Memory Enhancement.

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INTRODUCTION

Reading is a process which starts when the eyes take a picture of the written texts and which continues until the brain makes sense out of these pictures. The eyes move forward by skimming on the lines from left to the right during the reading and pause on a word or the phrases that are included in 2 degrees 56 minutes with an angle that extraocular muscles provide (Yalçın, 2002). Like a camera, the eyes transmit the words to the brain by shooting them during the pauses. The word or phrases that are transmitted to the brain via eye and extraocular muscles reach to image, image recognition, image interpretation area, and reading centers, respectively (Yalçın, 2002: 50). The brain bunches together these symbols that it has learned before by divulging them and completes the reading process by making sense out of these pictures.

When we think of that, we get most of the information by reading and allocate most of our daily time to reading, the concept of reading rate becomes more of an issue. According to research done by a private institution, (www.hizliokuma.com), an average company employee allocates 1,5-2 hours to reading while an individual working in the field of occupation such as strategic planning, law, finance allocates 3,5-4 hours to reading. An individual in our country has to go in for at least 5 examinations (LGS, LYS, DGS, KPSS, ALES, ÜDS, KPSS, etc.) that one has to compete with himself and his peers from primary school to higher education until he enters a profession, and every extra minute that this individual saves in these exams allows him to keep one step ahead. Starting from this indispensable part of time of an individual during the life, the concept of speed-reading may be described as such: the speed-reading is, by activating the extraocular muscles via various exercises, a reading technique that aims to give a rhythm to eye according to the type of the text, that is based on the competency of coordination of the classification, perception, and cognition between the eye and brain by extending the active visual field of the eye and that is predicated on the enhancement of the perception rate and its capacity. The speed-reading is based on these two principles:

- An eye can learn how to discern a word quickly or a phrase at a single glace that taking place in a wider visual field via practices and it can comprehend it.
- The brain, via practices, comprehends the phrases perceived, associates meaningful phrases with each other, classifies and organizes by storing them in the memory.

The speed-reading is a process that is based on the coordination of the brain and the eye, and that makes sense when the concepts of speed and perception combine. The speed-reading does not just consist of solving the code of the text quickly by activating the extraocular muscles. When one scrutinizes the introductions of the speed-reading training or the popular speed-reading books in the same area, it can easily be understood that they talk pretentiously about the speed-reading, they assure impossible reading rates, and they give no information about the development of the understanding rate. The speed which is not integrated with meaning is the indicator of an uncompleted reading process; however, effective reading is to establish a bond among speed, perception, and memory (Akçamete, 1990). One of the points that have been ignored in the books written about speed-reading techniques in our country is that the grammar features of the language and the structure of the text read affect speed-reading. Knowing the grammar features of a language and the structure of the text change the individual's reading rate and comprehension rate.

What is aimed at the end of the speed-reading training is to increase the perception rate and understanding rate as well as the reading rate of an individual. The researches done

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show that speed readers have a superior understanding rate compared with the others. (Carver, 1985; Lefevre, 1988; Stanovich, 1988; Duffy et al.,1986; Dökmen, 1990; Coşkun, 2006). At the end of speed-reading training that has been provided to the students of Gazi University, Gazi Faculty of Education Department of Turkish Language and Literature during a term (14 weeks) since 2002, it has been observed that students' comprehension rate and the reading rates have increased directly proportional. The speed-reading training provided within an organized program during 10 weeks, 30 hours enhanced the effective reading index, which shows the individual's reading rate and comprehension rate as 82% (Burgul ve Çeltik, 2010). Brown ve Hirst (1983:140) state that slow reading is a problem for the learners and they have a low comprehension rate, as the short-term memories of these learners cannot hold the details enough to get the whole text and to understand.

The lack of time, in the presence of the abundance of information to read, has pushed people to research speed-reading. The information has been increasing rapidly day by day, and it is achieved by reading simply and in the fastest way possible. The first researches have done about speed-reading date back to 1700s. Firstly, it started when Radonvillers used pictures to teach the meanings of the words, and then it was developed in 1843 by Leclerc whose studies include to reach the general meaning by pre-thinking and to guess for effective reading. In 19878, Sorbonne University, Ophthalmology specialist Dr. Emil Javal discovered that an eye could recognize a word in the quarter of a minute and it moves by skimming and recognizes the words during skimmings in 1930. Dr. William Bates stated the visual field had to be widened for an active vision in 1930. (Akçamete, 1990) After it was discovered that tachistoscope, which was used by English scouts during World War II to perceive the emblems on the German planes in a short time, had enhanced the perception rate of the eye and after this gadget was used for speed-reading training in USA Army in the 1940s, the speed-reading studies have started to extend worldwide (Türkkan ve Türkkan, 2007).

The various developments in medicine nowadays, especially several laboratory tests (MRI, BBT, EEG, EMG) used for diagnosis and treatment period of the illnesses such as epilepsy, alzheimers and migraine within the studies done in the discipline of neurology have revealed how data entry into the brain, how brain perceive the data and how data are reorganized in the brain, and brought out the process of brain-language-perception. The brain examinations confirmed that language skills are a period that is performed through the coordination of different centers in the brain (reading, listening, speaking and writing). In this respect, it can be said that the brain is a very complex system, but it works in harmony like an orchestra (Yalçın, 2002: 24). The determination of the work system in the brain and eye during the reading developed the speed and effective reading (Coşkun, 2006). The discovery that the brain's perception capacity and its qualifications could be improved has had an essential role in applying speed-reading concept as an educational technique.

Various applications about the speed-reading training have been performed from past to present, different techniques have been applied and are still being used. The basic approach for these applications determines the scope and the method of speed-reading training. When it is handled regarding language teaching approaches, the previous approaches are classified as I. Behavioral, II. Cognitive and III. Constructivist approach (Güneş, 2009: 15). According to the behavioral approach, language is a behavior, and it turns into behavior by the frequency of occurrence in the process of time by being learned by imitation. As to this approach, the instructional plan aims to create a behavioral change. In the reading education that is given in parallel with this approach, the practices for increasing the word extensity that an eye can perceive and for providing a rhythm to

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the eye are included; however, improving an individual's mental abilities are not focused. According to the cognitive approach, a language cannot be learned but acquired, and a human being has the required device for the acquisition. In the reading education that is developed by this approach, the practices for increasing active visual field of the eye are given importance by considering that a word or the phrases can be recognized as a whole and they can be jogged a person's memory like a picture. According to the constructivist approach, the language is learned by a person's actual experiences and structured in the brain. The aim of the speed-reading training developed in the scope of this approach is to enable an individual to comprehend the information units better considering his previous knowledge and to create new meanings by organizing it. In this way, an individual becomes skillful at synthesis and applying it into daily life by analyzing the information he acquired. Therefore, to structure the information, an individual practices the pre-reading and post-reading activities.

When the books on speed-reading training or the contents of the training performed are scrutinized, either it is understood that the speed-reading training is based on rhythm exercises that aim to give a rhythm to the eye paying regard to behavioral approach or it is considered as mechanical eye exercises concerning cognitive approach. It is seen that the previous approaches concentrate on the speed-reading training from certain points of view but ignore another aspect. The speed-reading includes all of the cognitive, affective and psychomotor periods and what is needed to succeed in these periods is to develop a training programme that provides for exercises about all approaches mentioned above and to apply it. From this point forth, it is thought that a speed-reading software including practices based on behavioral, cognitive and constructivist approaches may improve one's reading rate and comprehension rate.

The Aim of the Research

The aim of the research is to provide information about the function (purpose and method) of the speed-reading software 'Read Fast, Enhance Memory' within the process of speed-reading training as introducing it on account of the fact that common speed-reading programs are not in line with the purposes of speed-reading training.

The Significance of the Research

As it is necessary to consider the scientific datum for each step of it, the success aimed to be achieved in speed-reading training does not only depend on the teacher's endeavor. The quality of preparation of textbooks and the other educational materials to be used affects the results of the training directly. Speed reading training, which includes an important behavioral change, can only reach the desired targets through a systematic and planned training process and use of educational materials (Burgul and Çeltik, 2010). Each step of speed-reading training (practice and assessment-evaluation) should be planned in a way that ensures each learner's active participation. In all these studies, the learners, at the same time, criticize and control themselves and acquire work discipline assessing their improvement in an objective way.

The essential educational material to support speed-reading training which also focuses on individual work besides instructor-based teaching process is the speed-reading software. Studies have shown that progression through software-based speed-reading training has increased the reading rates (Just and Carpenter, 1987). However, as some researchers claimed (McConkie, 1984; Paisley and Chen, 1982), flashing perception increaser exercises are sorely insufficient to increase the rate of reading. Wepner and Feeley (1987) stated that even reading a text on a computer screen improves the efficiency of reading in proportion to reading it on paper and raises learner's concentration; also, learners find it more interesting to read it on the screen than paper.

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According to a research aiming to determine the influence of computer-aided speed-reading training on children with dyslexia (Irausquin, DrentveVerhoeven, 2005), the experimental group who were supplied with computer-aided training had higher levels in recognition of words, reading efficiency and progress of reading rates than the other group, though there was no difference between the two regarding comprehension.

Computer programs allow readers to study regardless of time and place; independently and as much as, they feel enough. Furthermore, with computer-aided training, a study expected to be hard adapts the individuals to work by providing a gradually progress in parallel with their progression rates, and it keeps them away from distractions (Irasquin, Drent and Verhoeven, 2005). Likewise, it is a fact that software developed imperfectly may lead the learners to gain a wrong reading behavior, affect their reading habits negatively and hinder their adaption to the text.

Concerning its influence on individuals' reading behavior, the evaluation of the speed-reading training regarding both the content and materials to be used is reasonably important. However, as the studies on the contents of speed-reading training released by several private institutions and software-based practices are taken in hand, it is detected that there are several deficiencies or errors on specific headlines. The mentioned insufficiencies can be sorted as:

1.   Practices' being especially limited to mechanical eye exercises which were built up as a result of the wrong conception that the speed-reading is a developmental process based only on speed independently of the notion of comprehension.
2.   Lack of enough space allocated for the exercises concerning brain and memory in speed-reading training although reading is a process related to brain functions.
3.   Training' being oriented only around developing while-reading parts although reading includes the integrity of pre-reading, while-reading and post-reading processes.
4.   Monotype texts in programs and the lack of variety of them although one of the facts that affect an individual's reading rate is the type of the text.
5.   Lack of the appropriate scaling during the development of programs because of the neglecting age and education levels, which are influent on learners' reading rates.
6.   Lack of organizing reading activities upon text structures due to not knowing the effects of the text structures on increasing reading rates and comprehension level by ignoring the correlation between the reading rate and text structure.
7.   Not reckoning the connection among the attention, concentration and perception training, which are built upon a completely different technique and the reading process.
8.   Negligence of the psychological facts and situations that organizes the reading rates.
9.   Negligence of many cognitive processes of reading and the association fact.
10.   Negligence of the relationship between reading rate and the structure of the Turkish language and the lack of activities dealing with Turkish language structure in designed programs.

The insufficiencies determined by the results of evaluations of speed-reading programs on hand and the literature on speed-reading and the questionnaire and measurement

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studies which have been applied throughout the speed-reading course given to the senior students in Gazi University Gazi Faculty of Education Department of Turkish Language and Literature since the academic year of 2002 have shown that there has been a necessity for a new computer program for speed-reading which focuses on text structures compatible with the semantics and grammar of the Turkish language. Thus, it is considered that the development of the program Read Fast Enhance Memory, which is designed to meet the deficiencies above, is quite important regarding increasing the efficiency of speed-reading training via its components and use.

THE DEVELOPED SOFTWARE: READ FAST ENHANCE MEMORY

The software Read Fast Enhance Memory, which was developed to achieve better results in speed-reading training, was designed by Delphi, Visual Studio 2008 and C# programming languages. Microsoft Office Access database program was utilized for the texts in the activities and Fireworks was used for the visuals in the software. In Figure 1, the main page of Read Fast Enhance Memory can be seen after user login.
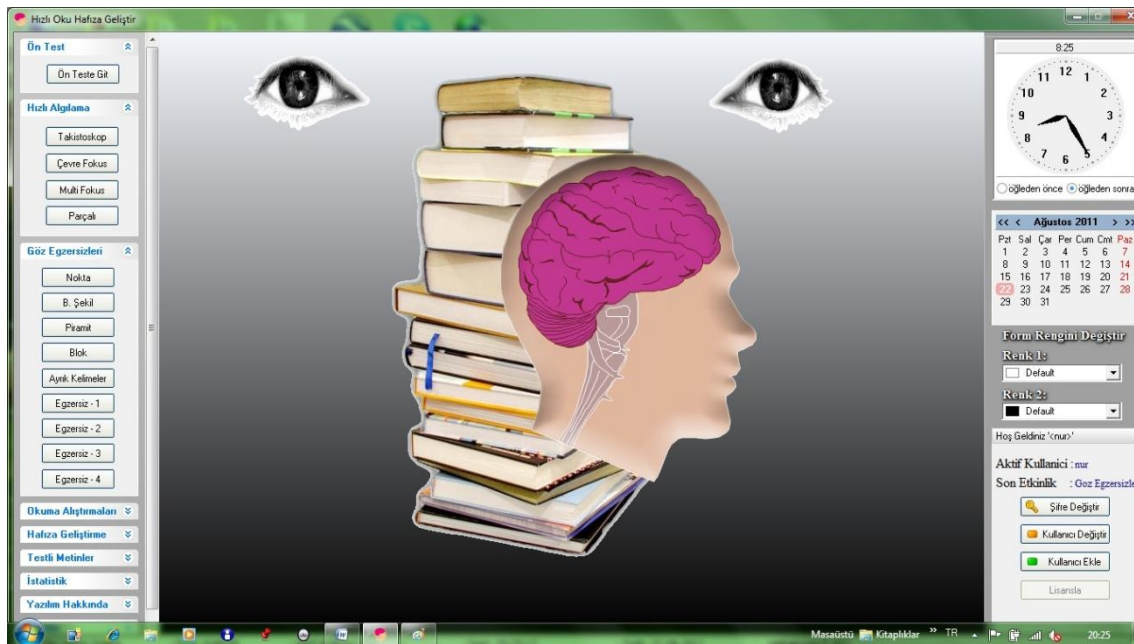
Figure 1:
The main page of Read Fast Enhance Memory after user login

As seen in Figure 1, the computer program Read Fast Enhance Memory consists of 11 separate main parts. Each part has been enriched with sub-studies and activities supporting the topic title. These activities are viewed in detail under section 2.1 in the article. The elements of the program can be sorted respectively:

1. Pre-test
2. Quick Perception Studies
3. Eye Exercises
4. Reading Exercises
5. Memory Enhancement
6. Texts with Tests
7. Statistics
8. About
9. Help
10. User Settings
11. Licensing

The pre-test is the part used before starting to determine the reading rate, comprehension rate and active reading index level of the participant who intends to get the training.

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Quick Perception Studies aim to increase the number of words individuals perceived and the rate of perception itself. Dr. Emil Javal's finding that the eye recognizes and apprehends a word in a quarter of a second has shown that speed readers' recognition and apprehension time of a word is shorter (Akçamete, 1990). Therefore, by preparing exercises to increase the eye's recognition speed, this part has been varied with attention and concentration studies.

The aim of the studies in the Eye Exercises section is to make the eye move and perceive faster by working eye muscles and increase the number of words in each skimming by expanding the eye's field and angle of view. In these studies usually, nonsense texts are used so that the learners gain only the psychomotor skill and not concentrate on the meaning of the text during the intended behavioral change process of the individuals. Within the exercises built on meaningless letters, words or collocations, the aim is not to reach the meaning but to improve the eye's capacity and speed of perception at the very beginning of speed-reading training. After reaching the desired level of speed, learners will progress through the exercises with meaningful texts. To begin working with the nonsense word and collocations is an elementary phase for individuals' adaptation to speed-reading training and it is a technique that is utilized in all the speed-reading programs and activities.

The Reading Exercises aim to provide the eye, which has acquired flexibility by eye and quick perception exercises, a specific rhythm and grouping skill. This is the part where individuals start using the practice exercises in which the mechanical and non-integrated behaviors the eye acquired are started to be used.

The Memory Enhancement studies aim to make the reader organize the data rapidly, store it with classifications and recall it. In other words, it is to make the individual gain the skill of organizing and using the information; because one of the key steps of comprehension is the process of combination of the new and old data in the brain by comparing them.

The aim of the Texts with tests is to test the learners' comprehension rate along with showing them their reading rates. The texts included in this part are the reading passages and comprehension questions chosen among the ones studied throughout the speed-reading course given to the senior students in Gazi University Gazi Faculty of Education Department of Turkish Language and Literature since the academic year of 2002.

The Statistics part is the section in which the results of acquisitions the participants obtained from block reading and speed-reading activities after the reading process determined in pre-test section are calculated by bar graphics.

The About part aims to organize an administrator (aka Admin) rights settings. This is the part in which the administrator can see the users list and operations such as removing users, giving administrator rights to required users and withdrawing administrator rights from required users can be done. The users are also informed of credits, the development date of the program and system requirements in this very part.

The Help section aims to give information about how to use each activity. With an index matching with the key words existing in this part, it is possible to access data of words searched for more efficiently and faster.

The User Settings part aims to do operations as signing up new users, changing users' password and exchanging users. On the main page of the program, the information of the active user at the moment and the last activity done by him is visible.

The Licencing part aims to enable the trial version of the program to be used as a full version by entering the license key for one computer.

One of the most crucial features of the software is its changeable background color depending on the educational environment. This feature is thought to be important in two ways. Firstly, this feature should undoubtedly be among the effective presentation techniques. It makes possible for users to personalize their studies arranging a profile for themselves. Secondly, when the users start the activities, it is important that the background color should be relaxing and not be distractive.

Time is an indispensable element of speed-reading. Therefore, as it is shown in Figure 1, the time can be seen on the right side of the main page of the program. The timer exists in all the activities of the program.

The Sections Used on the Software, Exercises and Outcomes

Pre-test section

The pre-test section indicated with Figure 2 measures the user's reading rate and comprehension level before he starts to do exercises on the software. The feature of the module indicated with Figure 2 is to start the pre-test and calculate how many words can be read in a minute.
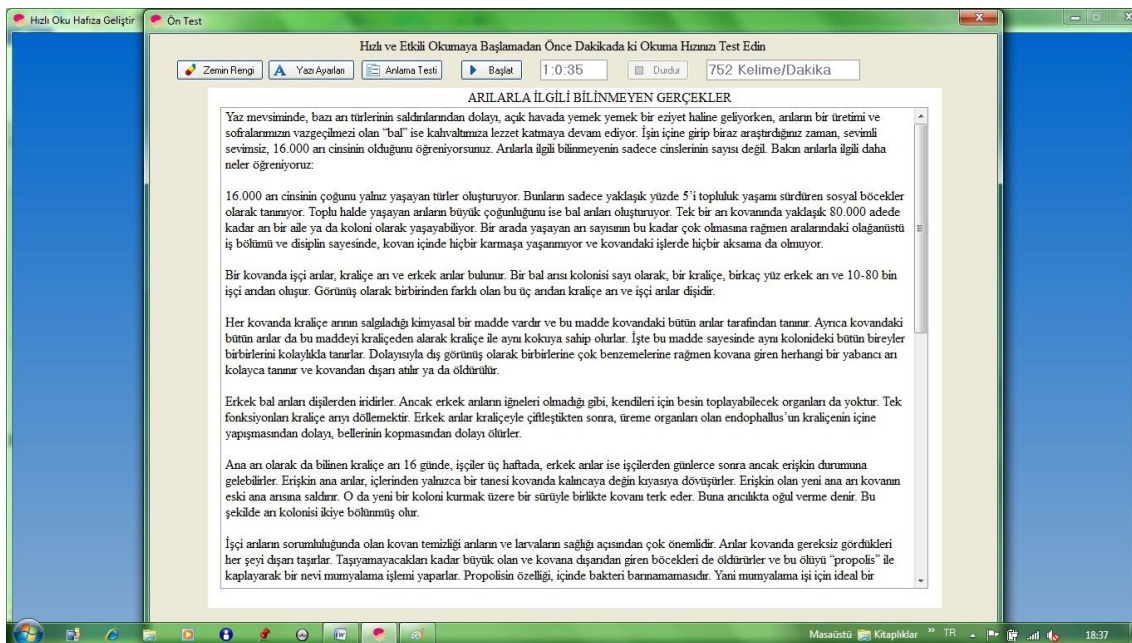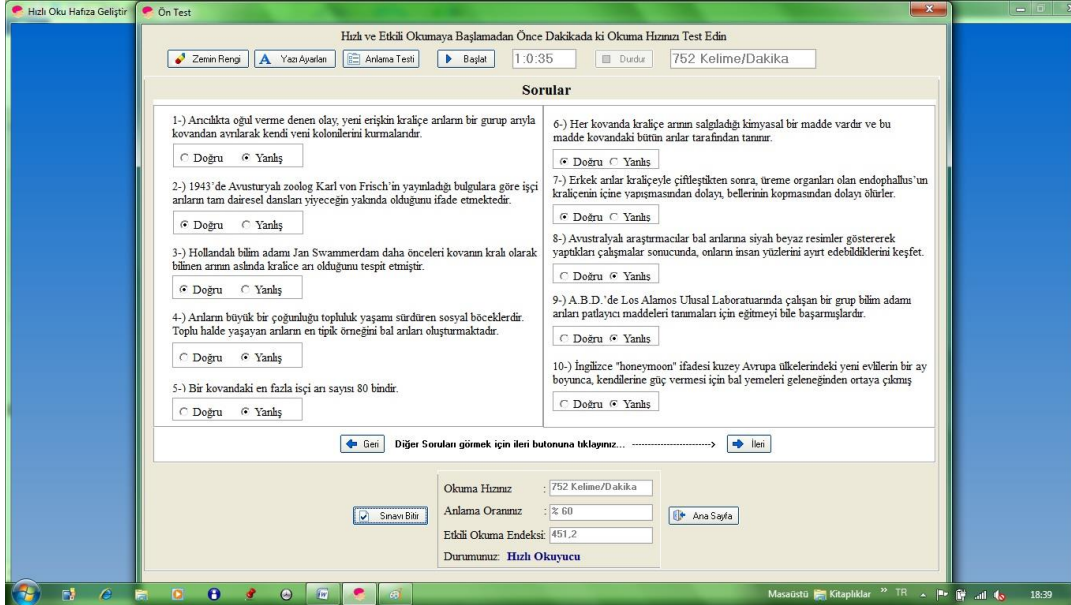
Figure 2:
Determining the reading level before starting the speed-reading training: Pre-Test

Comprehension test module has been added to pre-test to measure one's comprehension level for the reading text, and this module is opened when the user pauses the exercise at the end of a minute. After the user answers the comprehension test indicated in Figure 3,

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the speed-reading condition is determined by measuring the rate of the user's reading rate, comprehension rate, and comprehension index.

Figure 3:
Pre-Test Comprehension Questions and Statistics of Answer-Result

Almost all the exercises on the program have the view settings. It is also possible that user can change the background color of the objects on the form and the back color of the exercise form and arrange the font, font size, and font color settings effectually. There is a text only in the pre-test section because the programs have been prepared for personal use.

Although the pre-test application is a needed module in a speed-reading software to determine the beginning level of the user and to follow improvement process, this section has never been found on any software analyzed so far.

Rapid Perception Section//Reading and Perception Exercises//Perceive Fast Read Fast
a) Tachistoscope (Look and See/ See Fast/ Rapid Perception): Tachistoscope is a computer application that enables the reader to perceive wide word blocks during pauses by increasing eye's perception rate. The words appear and disappear in a certain time of a second on the screen. Thanks to this exercise, the eye starts to perceive faster. It is the tool, which was developed by Dr. Renshaw of Ohio University during World Wars years and used to improve the agility of the eye. The gadget whose lens is opened and closed in a 1/25, 1/50 and 1/100 of a second has been developed to increase the agility of the eye. Firstly, tower guards of the English Army used it, and then the pilots of the USA Army used it.

As the tachistoscope has an important role in adopting the habit of quick vision, we included tachistoscope exercises. The tachistoscope exercise involved in the section of speed perception of the program has an interface indicated in Figure 4.

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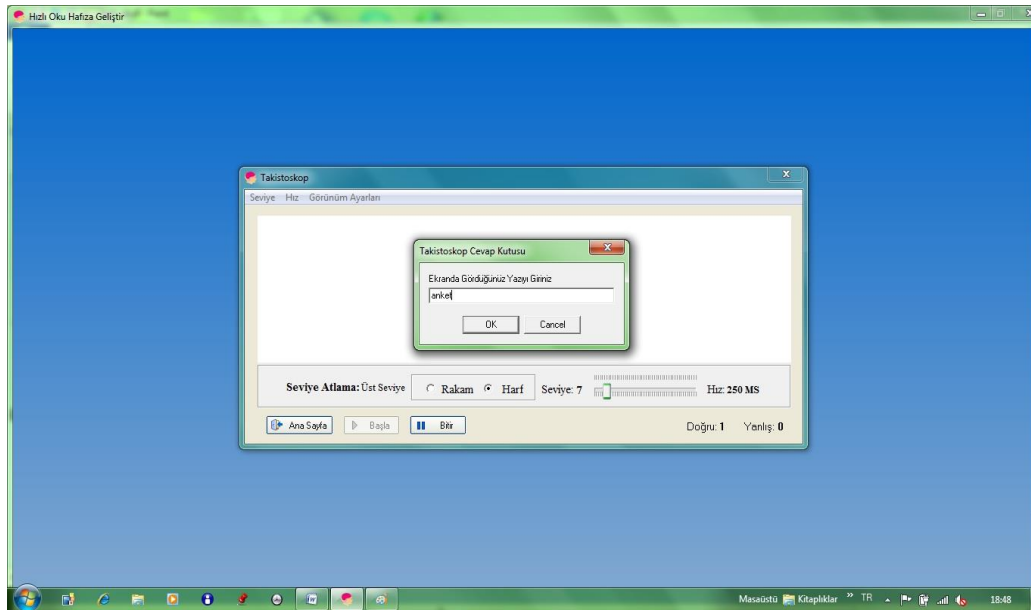
Figure 4:
Speed Perception Test: Tachistoscope

There are two different types of exercise as both a letter and number. The user is supposed to enter the image (words or letters) appearing in a 250 ms speed to "Tachistoscope Answer Box" according to the type of exercise. This exercise includes 50 levels, and its default speed is 250 ms. This level can be adjusted according to the user's reading rate by using the Speed section if the user wishes. Adjustable Speed level ranges between 10 Ms and 800 Ms. As in all exercises, "Right" and "Wrong" answers of the user are calculated in the tachistoscope exercise. The user's level is raised to another level (Figure 5) when he gets 12 right answers, and it is reduced down when the number of the wrong answers reaches 5 (Figure 6).
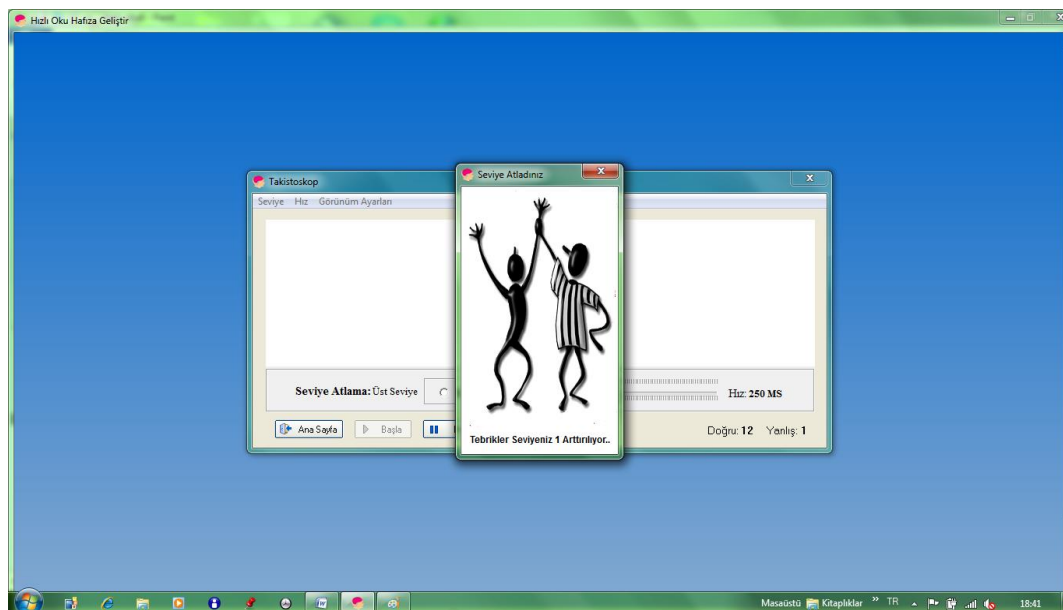
Figure 5:
The user interface indicating level rise on tachistoscope
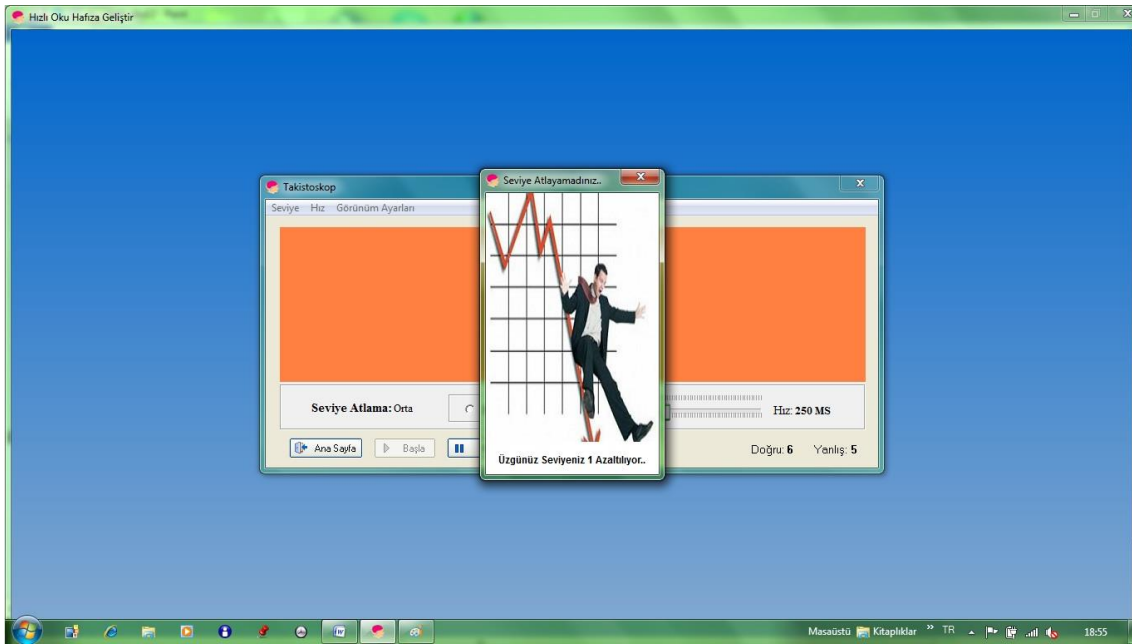
Figure 6:
The user interface indicating level reduction on tachistoscope

The wrong or right answer is reflected on the screen after a user's each wrong or right answer. This process is applied in two ways. The first one is done by the wrong and right images reflected on the screen while the second one is done by an indicator showing the number of wrong and right answers for each level. This application is an important step to enable the user to check his progress. As it is shown in Figure 6 and 7, it is possible to adjust the background color and font via "view settings".
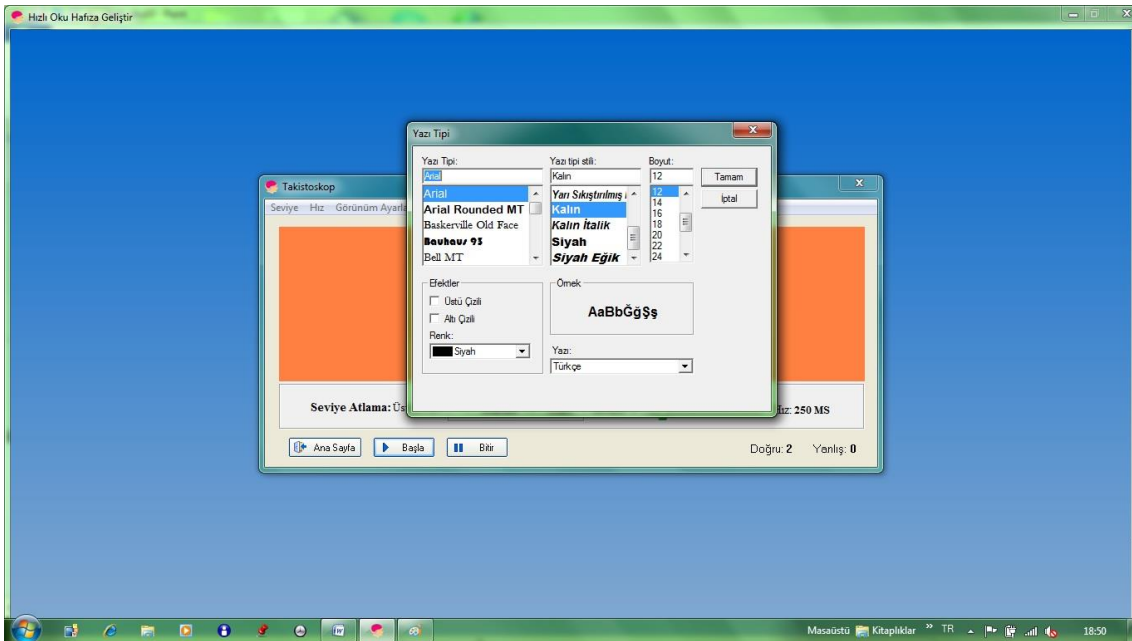
Figure 7:
Adjusting background colors and fonts via view settings

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b) Peripheral Focus (Wide Focus): The tachistoscope exercise aims to increase perception rate by focusing on the center of the screen. Peripheral focus exercise aims to improve perception rate of the eye by focusing on a wider space. This is an eye exercise that was prepared to enhance the eye's skimming rate-flexibility and perception rate.

Peripheral Focus exercise is showed in Figure 8. In this activity, the type of exercise can be changed as a number or letter as in the tachistoscope test. Peripheral Focus exercise consists of 30 levels. The default speed is 250 ms as in the tachistoscope. If the user wishes, he can change speed level via "Speed" menu and adjust view settings.
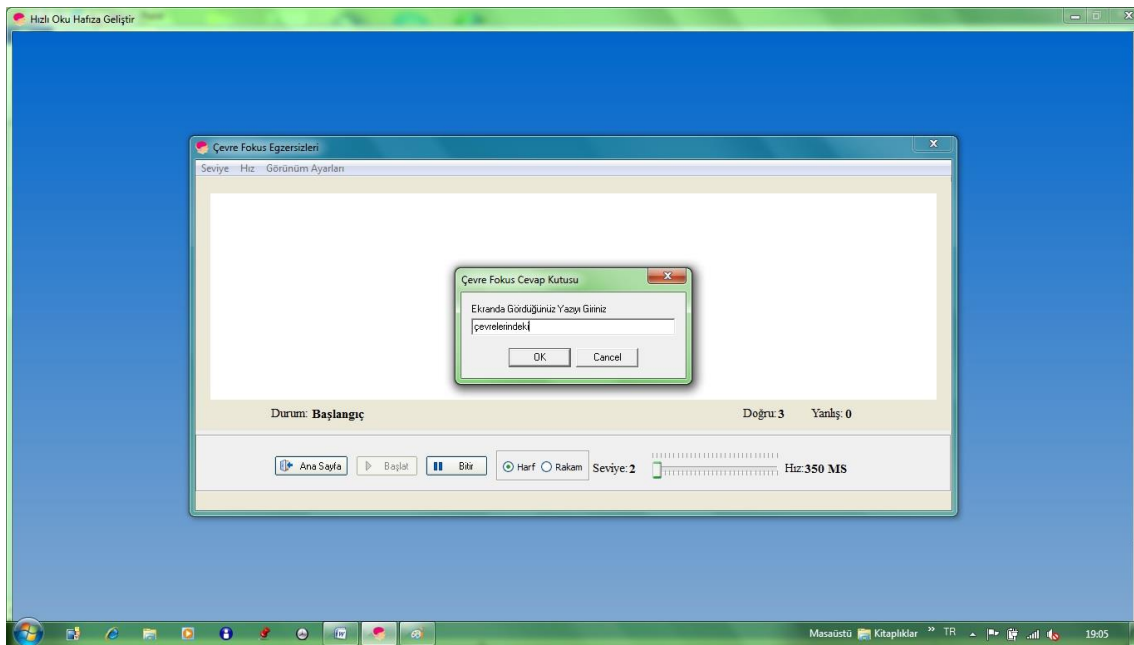
Figure 8:
Peripheral Focus

The level rise and reduction features of the peripheral focus are same as in tachistoscope. As it is shown in Figure 9, the wrong or right answer is reflected on the screen via visuals and an indicator showing the number of wrong and right answers as in the tachistoscope test.

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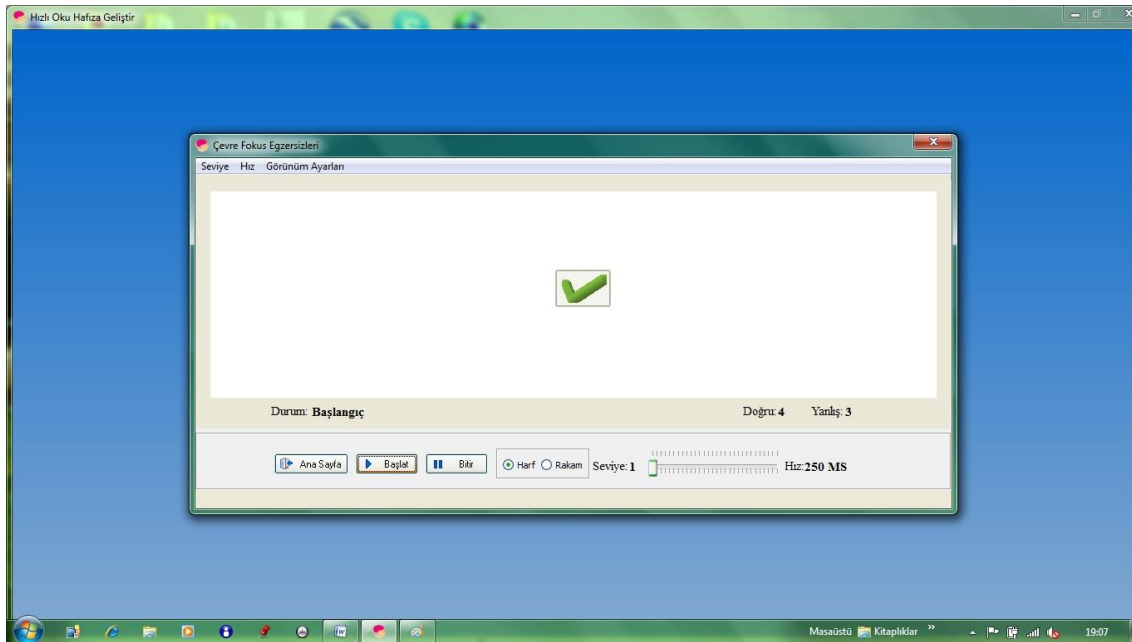
Figure 9:
The confirmation of the right answer in Peripheral Focus exercise

c) Multifocus (Quick Perception): **One of the vital reading mistakes affecting the reading rate is attention. Attention deficit reduces the reading rate and the comprehension of the text emerging during the reading as follows: mixing similar words, mixing similar letters, ignoring punctuation marks, etc. Multifocus exercise is an application helping to improve the interpretation competence between the eye and brain by increasing eye's perception capacity. This exercise was designed to improve the reader's attention, concentration and interpretation skills. The same and similar exercises aim to group and perceive fast the same and similar words without mixing them each other.**

A multifocal exercise is indicated in Figure 10. If the words appeared on the screen of multi-focus application are different from each other the user should press right key, if they are the same user should press left key, and the type of exercise is divided into two as "Same" and "Different". Multifocus consists of 30 levels. The rules for the level rise and reduction are the same as in tachistoscope and peripheral focus. The reading rate and level can be adjusted appropriately in the application.

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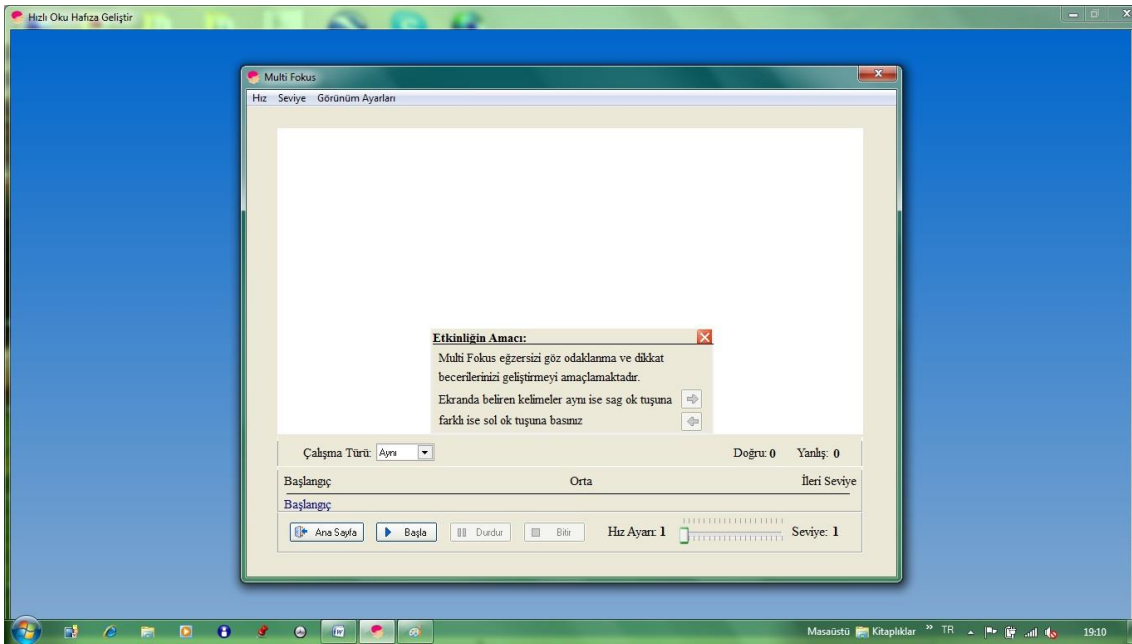
Figure 10:
The homepage of the multifocus exercise

When the type of exercise is "Same" as indicated, in Figure 11 the user should press the left key, as the words "gölet" and "böyle" are different from each other, and then the number of the correct answers increase.
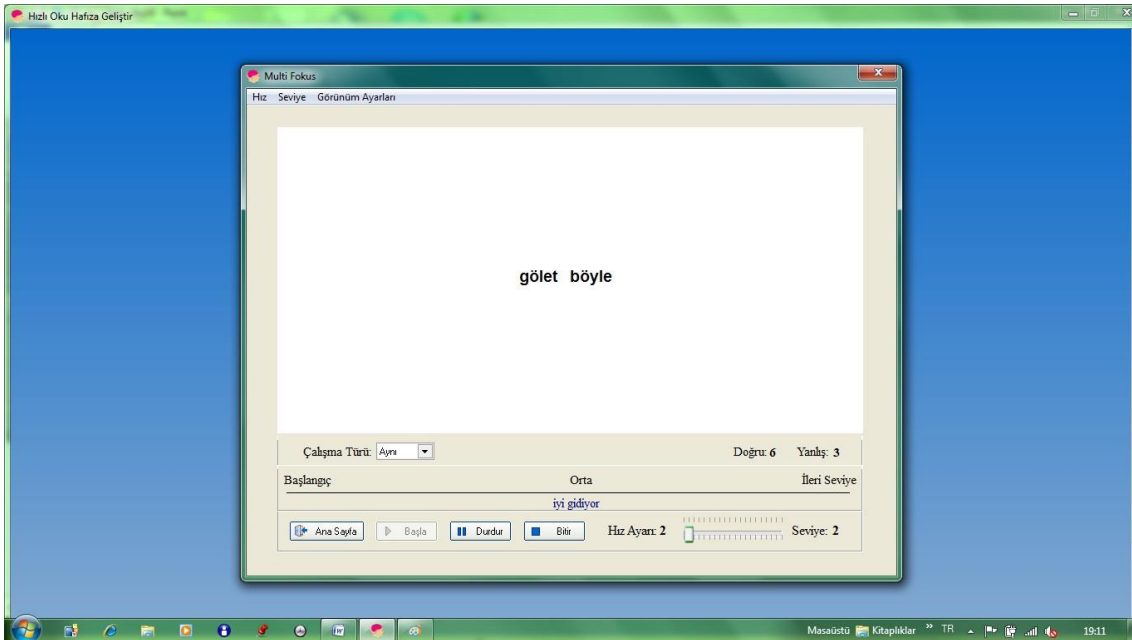
Figure 11:
Active Multifocus application

The view settings, fonts and the form color of the activity can also be changed in Multifocus exercise.

14

d) Partial (Part completion): If the visual field of the eye is improved in both vertical and horizontal directions, the number of the words perceived during a pause increases and the user's comprehension of the reading text improves. The purpose of the application is to widen the vertical perception field of the eye and to increase the perception rate.

The "Partial" application is indicated in Figure 12. This application consists of 10 levels. When the number of the correct answers reaches 12, the level is raised or after the user's incorrect answers reaches 5 the level is reduced. The level rise and reduction warnings are reflected on the screen via visuals.

The reading rate and level can be increased or reduced thanks to menus. In the Partial Exercise (Figure 12), when the user clicks on the "start", the word whose reading rate is determined is reflected on the screen in three lines, one of them is the full word, and the others are the different parts of it. Therefore, the exercise of increasing user's vertical perception field and the rate is performed.
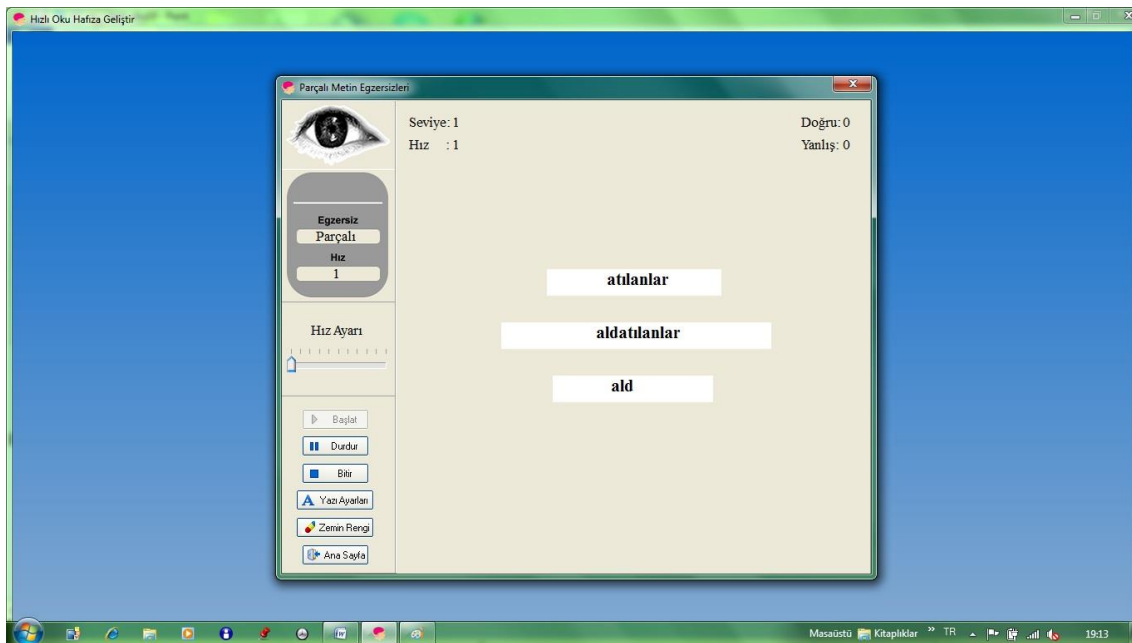
Figure 12:
The Active Partial Exercise

The user is supposed to fill three words via text boxes as indicated in Figure 13. "Check" button is used to check whether the answer given in control monitor of the Partial exercise is correct or incorrect. The correct or incorrect image is reflected on the screen according to the user's answer. If the user cannot remember or see what is reflected on the screen in a previous partial reading panel, he may press the "Skip" button. This situation does not increase the number of incorrect answers.

15
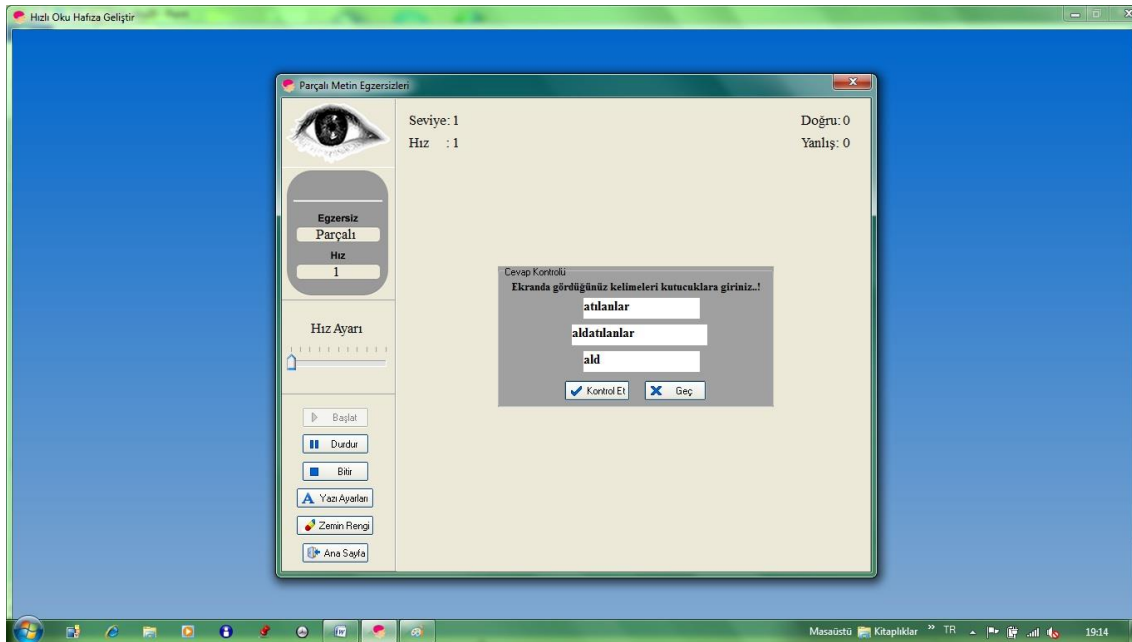
Figure 13:
The answer control panel in Partial exercise

Eye exercises

a) Point: This is one of the mechanical eye exercises. It aims to provide the eye speed and elasticity by activating extraocular muscles. The eye will be elastic and gain speed by following the flashing light on the monitor in order and rhythm.

In Figure 14, Mechanic Exercise Main page is indicated. In this activity, eye-skimming (transmission) exercises are being held according to the determined rate and given duration. In mechanic point exercise, there are 10 different transmission points. With this type of transmission which flashing pointers determine the direction, eyes make the skimming according to changing pointer direction(the direction of red color turning into yellow). If the random feature is selected, eye skimming will be enabled randomly. Thus, transmission number reaches 11. Time is adjusted from 1 minute to 4 minutes. Also, this activity can be arranged without a time limitation. That is, the user can start an activity, which does not strain the eyes. This duration can be less than 1 minute. Whichever time is selected, when clicking on the stop button above or clicking upon activity, the activity can be stopped.

16
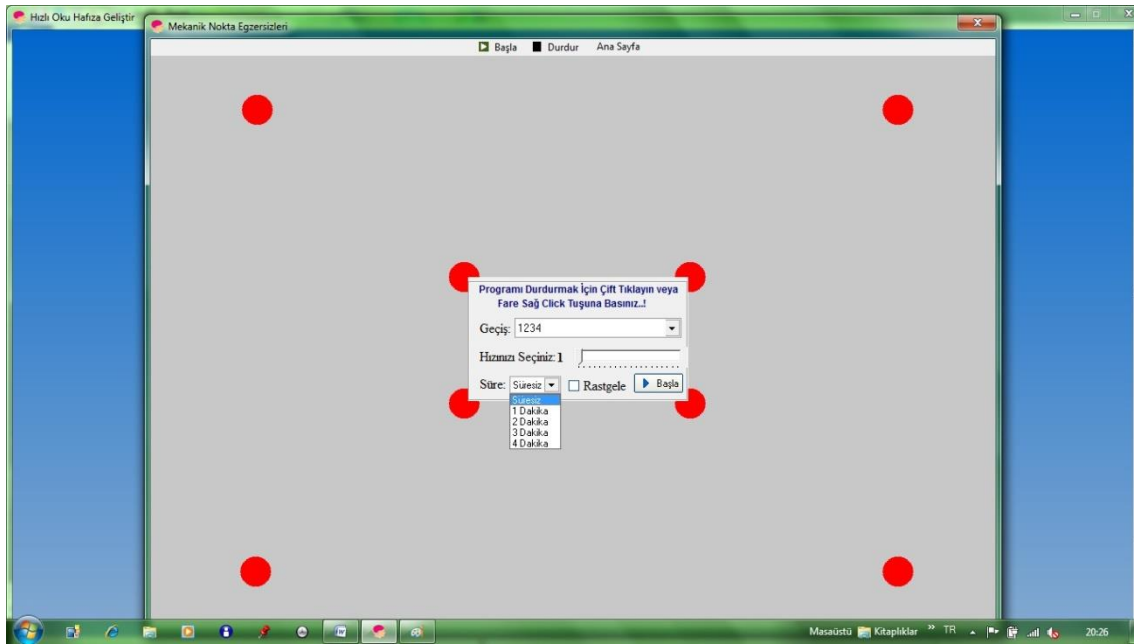
Figure 14:
Mechanic Point Exercises

b) Growing Figure: **This exercise aims to follow the figure that grows gradually with eyes by focusing on the point in the middle. It is one of the exercises that helps the eye focus on one point, make easy to concentrate on and pay more attention.**

In Figure 15, the monitor on which Mechanic Growing Figure Exercises are done is indicated. There are two different kinds of figures as circle and square in this activity which aim gathering attention by looking at the focal point of Growing figure and enlarging the visual field. The focusing time of eye, that is, the expanding growing feature of figure starts from 30 seconds and it can be arranged up to 150 seconds with 30 seconds intervals. If any time requirement is not chosen, from the moment of pushing "start" button the figure works 30 seconds as "default". In addition, the movement rate of the figure can be determined by the user.
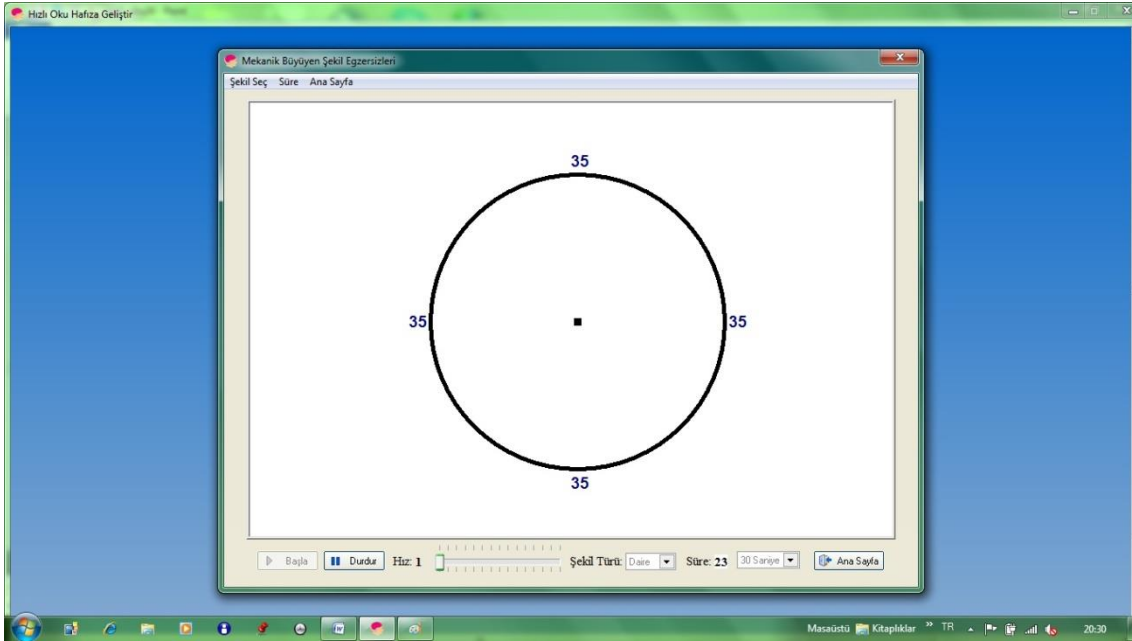
Figure 15:
Mechanic growing figure exercises.

c) Exercise (Pyramid): This activity aims to expand the peripheral vision area of the eye and improve the number of letter-word that the eye perceives in a pause. Active vision field is the area, which the eye has a clear view in a pause after each skimming. The eye also perceives the words, which take place in peripheral vision area that is out of the clear vision area but does not see them. Active vision field is standard and cannot be extended but peripheral vision area (perception- realization area) can be improved with the help of exercises, and it changes according to readers. This study aims to enable the eye to perceive the word blocks from two letters to twenty-two letters step by step.

Pyramid Eye Exercises monitor is indicated in Figure 16. This activity is one of the most important sections of the "Read fast Enhance Memory" software.

18
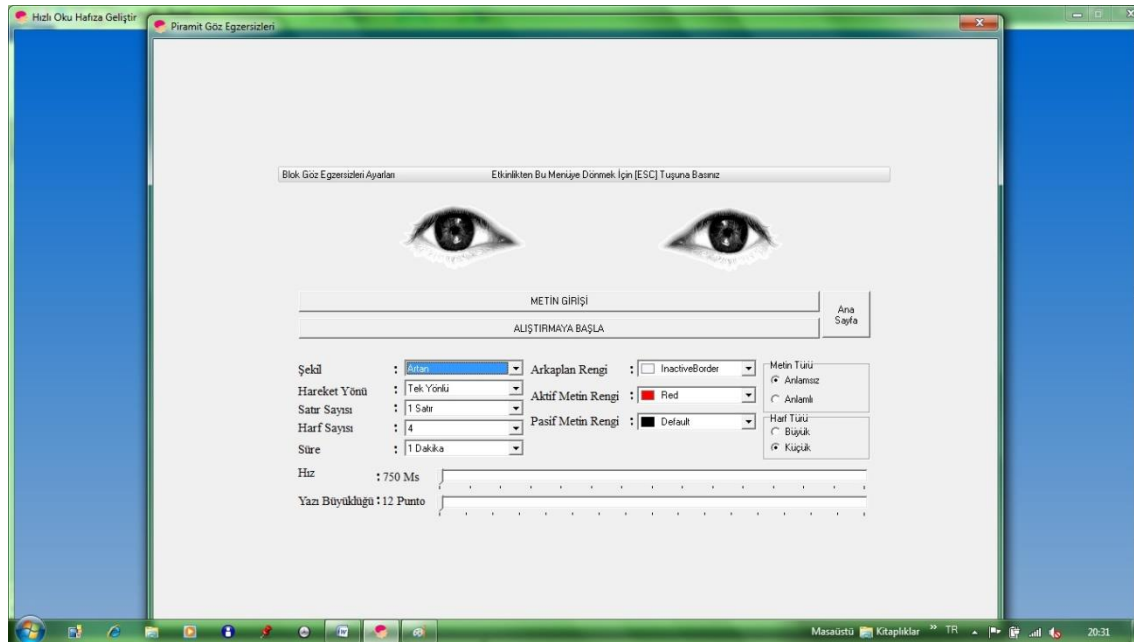
Figure16:
Pyramid eye exercises

In the activity, there are some adjustments to be done according to the exercise type. It is possible to explain these adjustments in this way:

Figure: There are two different types of Pyramid exercise. These are a single line and increasing lines applications. This feature is used to choose one of these options. "Increasing" feature is arranged as default.

Movement Direction: There are two movement directions used in the activity. These are single and double direction options. One of these two options can be chosen from the movement direction menu.

Line Number: It is used to determine how many lines will be activated in the movement area. In here, there are options from one to six lines.

Letter Number: It is used to determine how many letters will be chosen to go further during the activity. The numbers of letters that can be selected are between four and thirty-six.

Time: It is used to determine the duration of the activity. The period can be changed between 1 minute and 5 minutes and also it can be arranged without time limitation. While doing the exercise, without waiting for expiring one can leave the application by using [ESC] button.

Speed: It is used to arrange the rate of activity.

Type Size: It is used to adjust the type size used in activity.

Text Type: It enables you to choose a nonsense text or meaningful text.

Letter Type: It is used to determine whether the letters are capital or not.

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Color options: It is used to determine background color, the background color of activity, active text color, marked text color, and unchecked text color.

These arrangements are used for the Pyramid Eye Exercises indicated in Figure 17: Figure: increasing, Movement direction: one-side, Line number: 1, Letter number: start from 4, Time: 1 min., Text type: meaningful, Letter type: capital, Background color: btnface, Active text color: red, Unchecked text color: black Speed: 400ms, Type size: 12.

Figure 17:
Pyramid eye exercises meaningful capital letter exercise

In Figure 18, data entry can be made for the words which don't exist in Pyramid exercises database. These words can contain capital or small letters. This data entry can be adjusted from the "add text" menu. As shown in Figure 18 clearly, text entry will be limited with only chosen letter number. That is, from 4 letter texts to 36-letter texts. This is one of the features that is not included in the analyzed software.

20
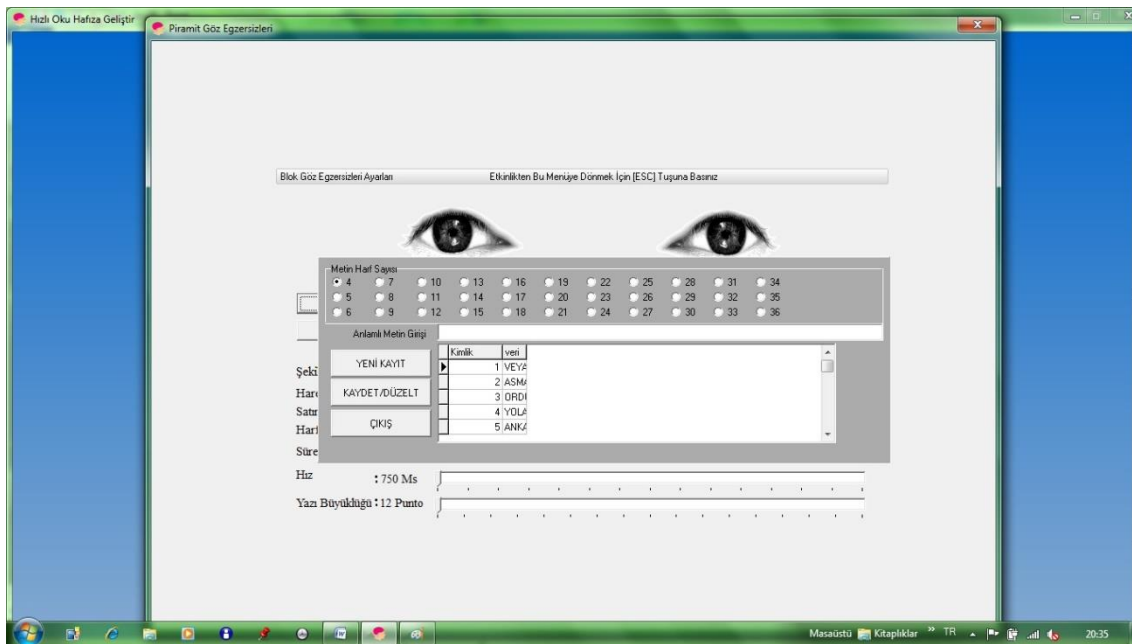
Figure 18:
Pyramid eye exercises meaningful data entry

d) Exercise (Blocking-Reading Blocks and Perception): It is one of the activities that enable the eye to gain block-reading habit by grouping the words. The eye focusing upon the middle of word groups, read the texts as the block. This habit prevents the eye from sticking the words and reading word by word.

In Figure 19, Block Eye exercise monitor is shown.

Figure 19:
Block eye exercises

21
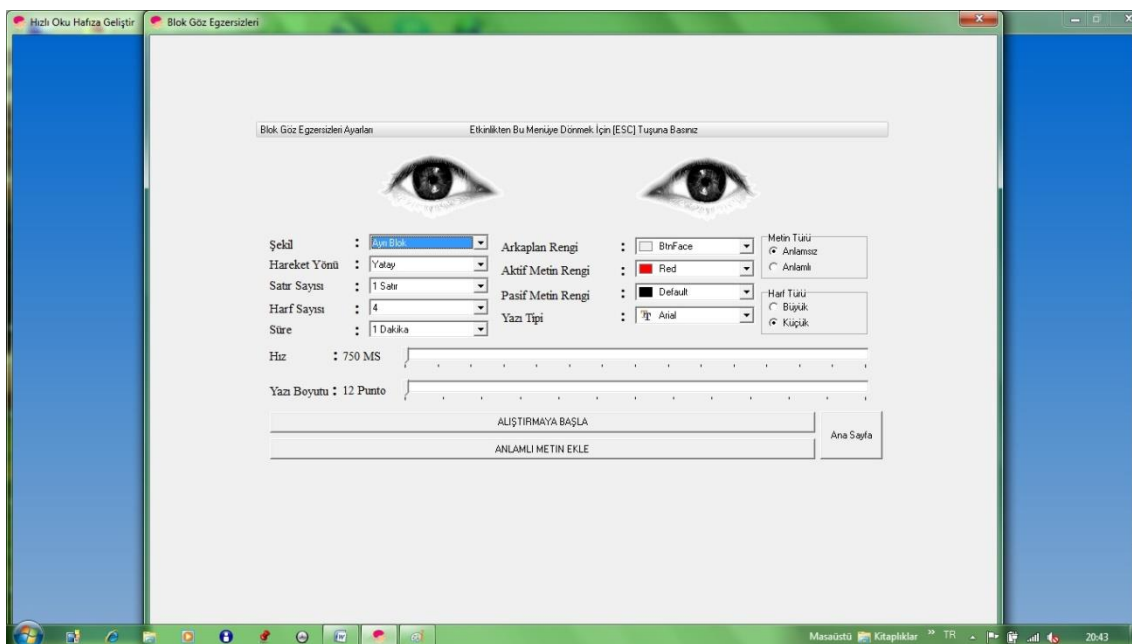
In activity, there are some adjustments to be done according to exercise type. It is possible to explain these adjustments in this way:

Figure: There are two different types of block activity. These are adjoint or separate blocks. To choose one of them, the Figure menu is used.

Movement Direction: There are three movement directions used in the activity. These are: horizontal, vertical and zigzag.

Line Number: It is used to determine how many lines will be activated in the movement area during the activity. In here, there are options from one to six lines.

Letter Number: It is used to determine how many letters will be chosen to go further during the activity. The numbers of letters that can be selected are four, six, nine, twelve, eighteen and thirty-six.

Time: It is used to determine the duration of the activity. The period can be changed between 1 and 5 minutes and also it can be arranged without time limitation. While doing the exercise, without waiting for expiring with [ESC] button one can leave the application.

Speed: It is used to arrange the rate of activity.

Type Size: It is used to adjust the type size used in the activity.

Text Type: It enables you to choose a nonsense text or meaningful text.

Letter Type: It is used to determine whether the letters are capital or not.

Color options: It is used to determine background color, the background color of activity, active text color, marked text color, and unchecked text color.

These adjustments are used for the block exercises shown in Figure 20. Figure type: separate, Movement direction: horizontal, Line number: 3, Letter number: 6, Text type: meaningful, Letter type: capital, Time: 1 min. It is important for the pyramid and block exercises that background color should be adjusted according to the educational environment.
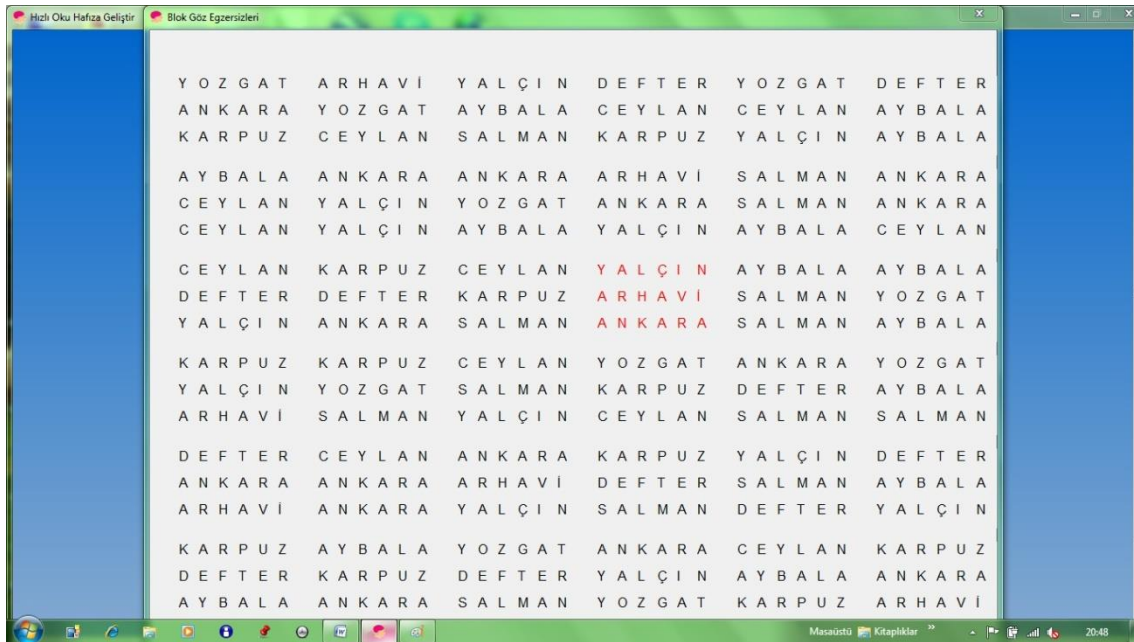
Figure 20:
Block eye exercises: meaningful, separate blocks

In Figure 21, a meaningful, adjoint activity, which has small letters and zigzag type, is shown.

Figure 21:
Block eye exercises: meaningful, adjoint block

The words in block eye exercises are related to the database but by clicking "Add Meaningful Text" button one can add new words, which are not in the database. (These can be four-letter, six-letter, nine-letter or twelve letter words.)(Figure 22). It is easy to

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start a more dynamic activity with this feature because one can add new words, which are required to practice to the database of the program.
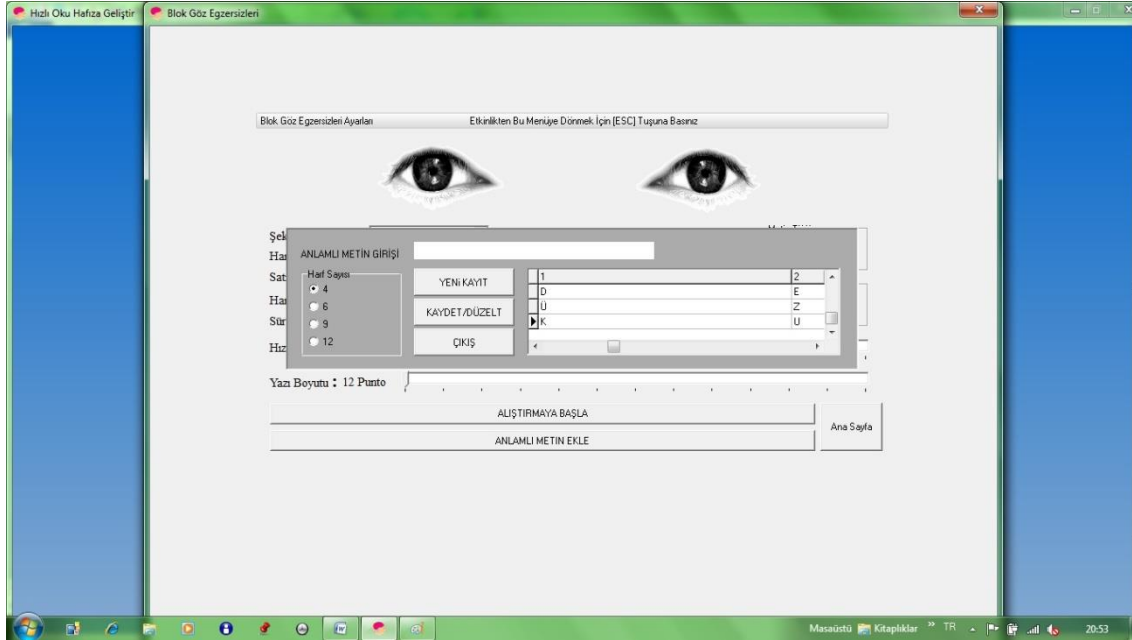
Figure 22:
Meaningful data entry for the database of block eye exercises

e) Separate Words: Emil Javal identified that an eye moves with skimming, in the meantime of this skimming process it recognizes the words, but it doesn't analyze each word in detail. Instead, it perceives them as a whole. Even if none of the words is seen, or the words are not completed, brain completes them. One of the reasons that speed up the reading process is eye's quick perception and brain's guessing and completion of the perceived word. The aim of this activity is, by focusing on the column appearing in the middle, to perceive the words, which diverge gradually from the column. The final aim of this exercise is to increase the noticed area by expanding the skimming distance and perception rate of an eye.

As seen in Figure 23, in separate words eye exercise, there are 5 levels and 5 distance points. As the level increases, the word numbers that are shown on the monitor also increase. Thanks to the distance tab, it is possible to increase or decrease the space among word blocks.

24
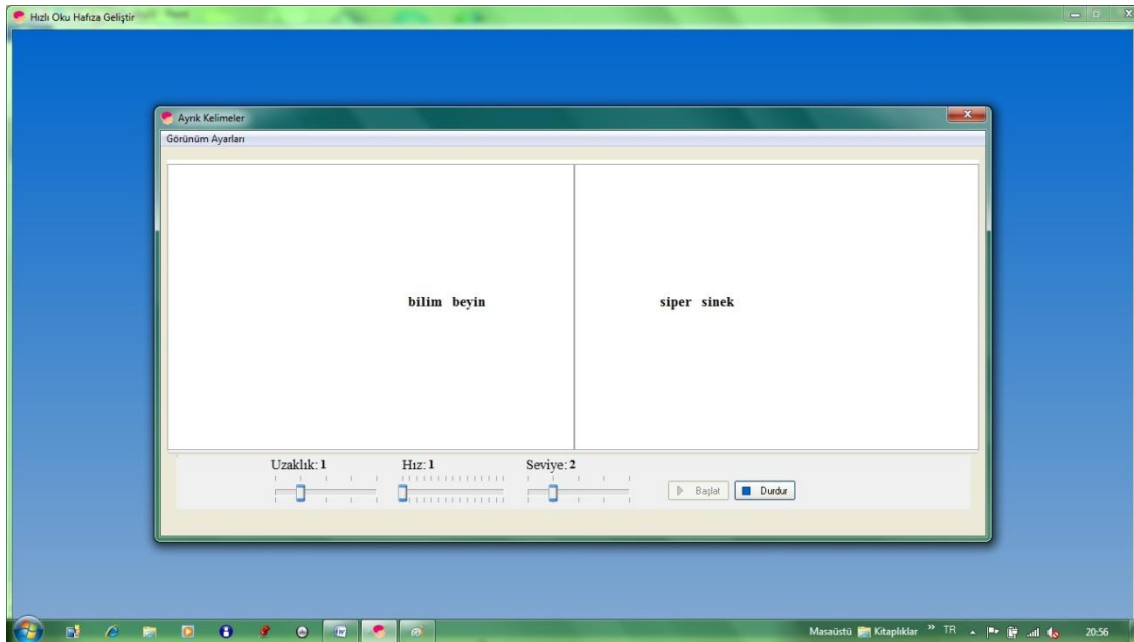
Figure 23:
Separate words

f) Eye Exercises-1: The aim of this activity is to enable the eye to gain the habit of moving faster by following the flashing line in the text from top-down and bottom-up.
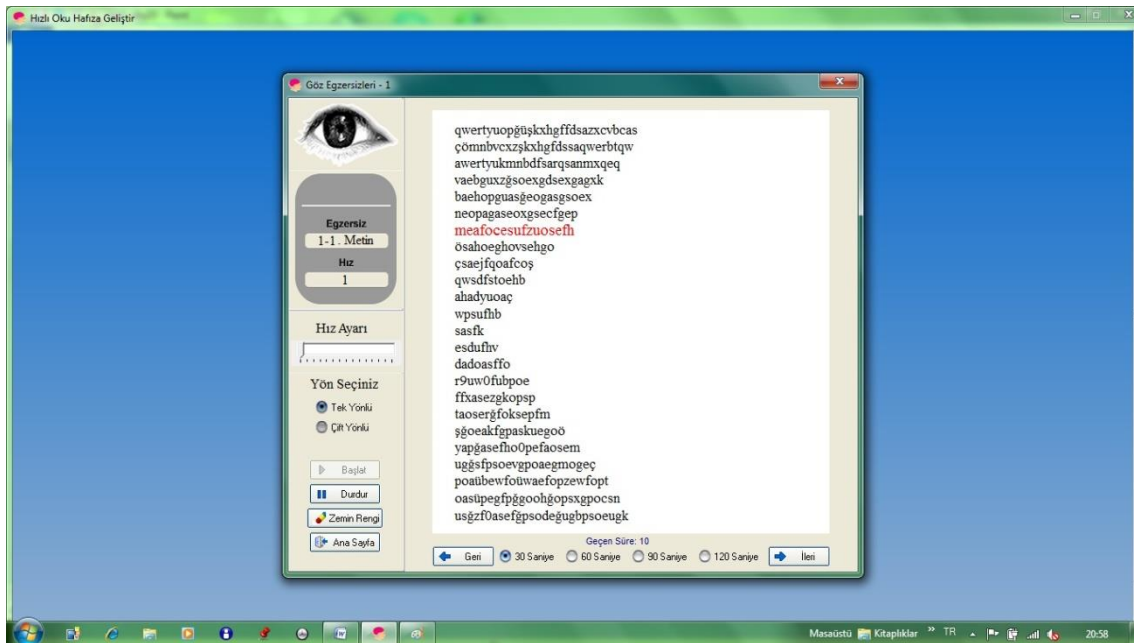
Figure 24:
Eye Exercises -1

As seen in figure 24, in total, there are 6 different texts in this activity. With the options of one-way or double-way, the movement adjustments of flashing line can be made. With the back and forward buttons, the texts can be chosen. Doing exercise with each text within a determined time is possible. The duration in here is between 30 seconds and 2

25

minutes with 30 seconds lag. As in other activities, the word and background color adjustments can be done in this activity.

g) Exercise (Beginnig/End): The aim of this activity is, to enable the eye to move faster and flexible by activating extraocular muscles. The eye only perceives quickly the word groups colored in line's beginning, and end and one can check how long it takes to reach the end of the text. In this activity, there are 5 different texts and three pages for each text. There are 15 exercise pages in total. (Figure 25). The eye is expected to follow the marked line, which takes place at the beginning and the end of each line, at a determined rate. Also, the changes in view settings can be done in this activity.
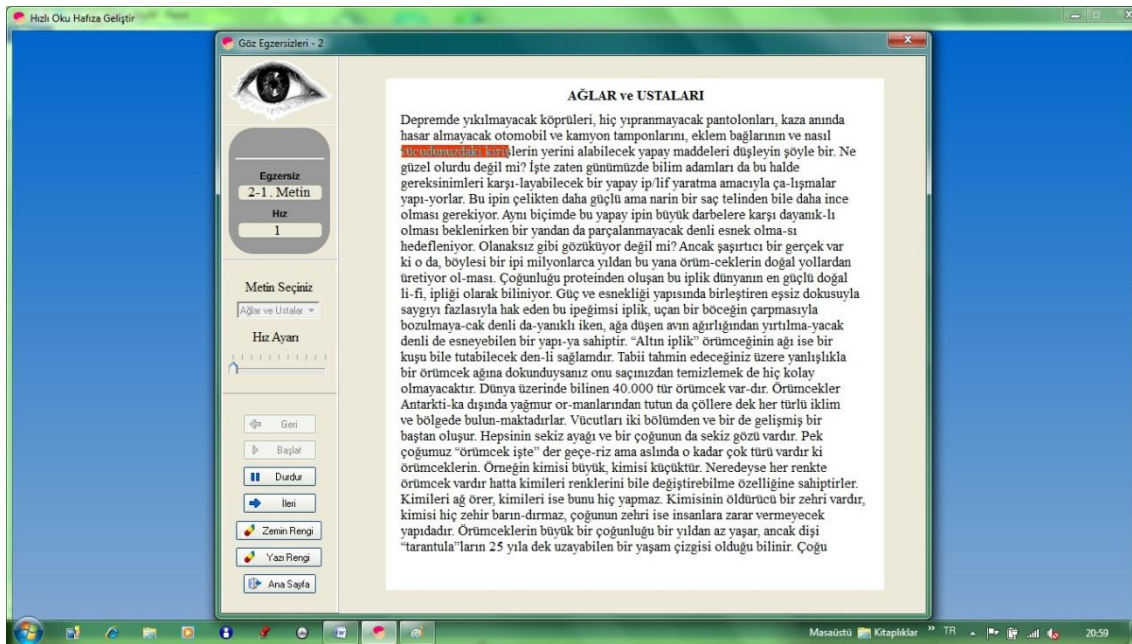
Figure 25:
Eye Exercises -2

h) Exercise (Column): This exercise aims to provide the eye the ability of flexibility. By focusing on the red light in the middle of the word, the eye will perceive the word. Column activity is one of the activities that increase eye rhythm and enlarge peripheral vision field. The readers expected to read the whole line by focusing on the point in the middle of the columns.

In Figure 26, a three column-eye exercise is shown. In this activity, there are two parts as text and sub-text. In the text group tab, how many columns the exercise to be done consists of is chosen: one column, two columns or three columns. In the sub-text group, there are three exercise pages arranged according to the chosen column. In total, it is possible to do a nine-page exercise by adding three worksheets for each column type. With pointer direction, the direction of the moving red points in exercise will be determined.

26
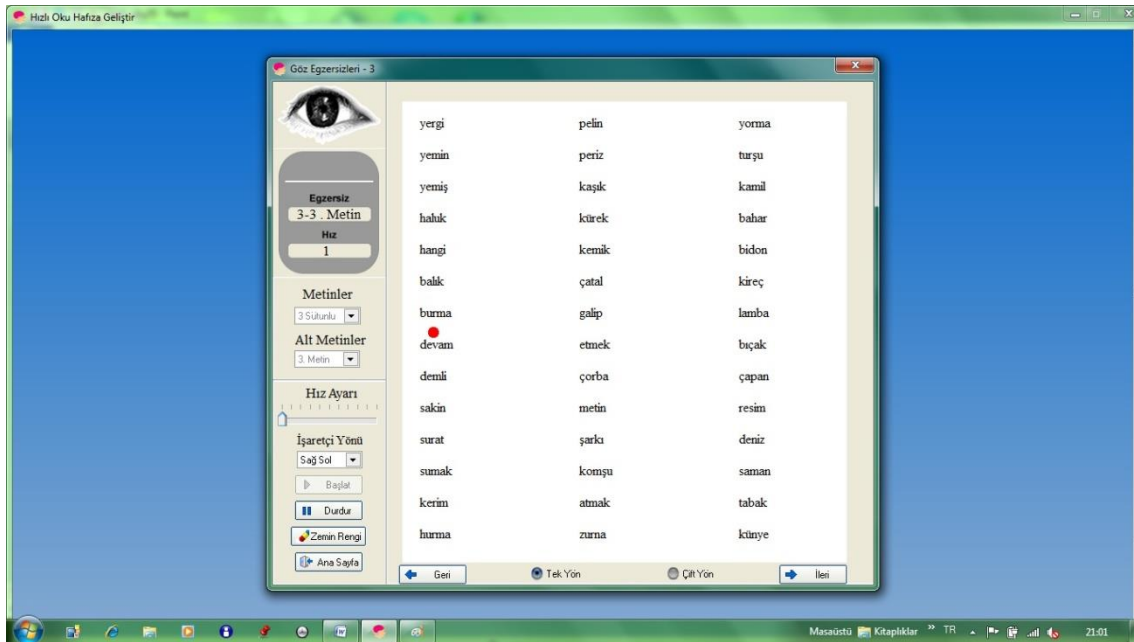
Figure 26:
Eye Exercises -3

ı) Eye Exercises-4: The aim of this activity is to enable the eye to read the word groups, which have the same origin, as blocks from 3 lines to 5 lines according to determined movement speed. In Figure 27, an eye exercise belonging to four-line word groups is indicated.
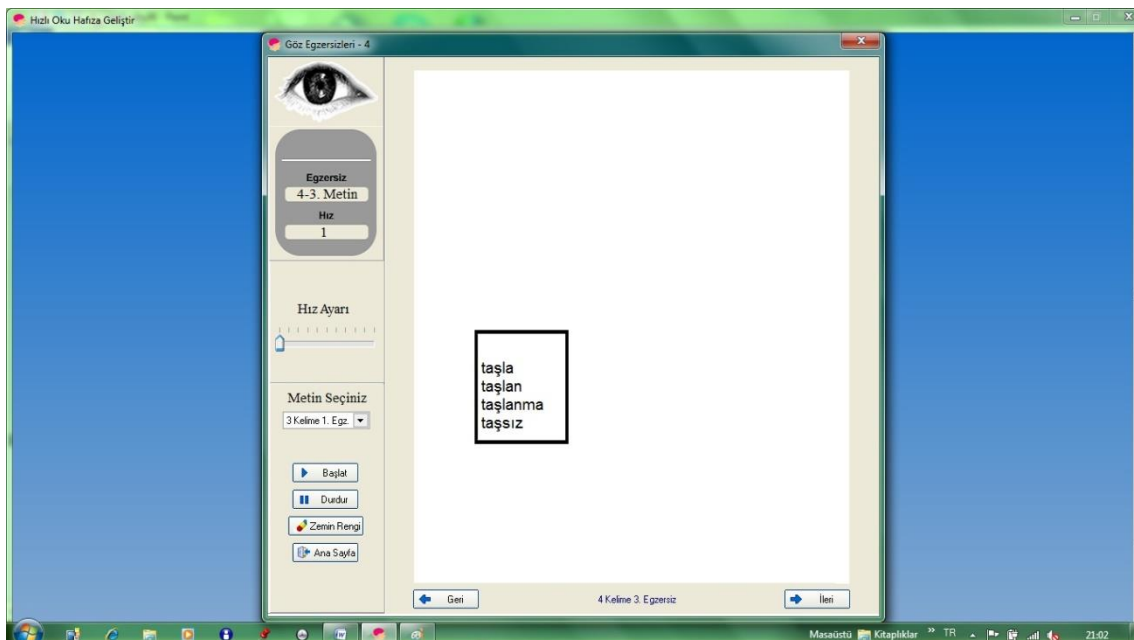
Figure 27:
Eye exercises – 4

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Reading Exercises

In this section, users are aimed to increase their reading rate by the eye movement habits they got in the previous parts. There are three different eye exercises in this section of reading exercises. One of these is block-grouping reading, the second one is flowing reading- flowing text, and the third one is shading.

In Figure 28, you see the screenshot of reading exercises. In this section, the user can do practice with three hundred different texts. However, if the user wishes, he/she can add new texts by setting up a new section and new sub-sections below the added sections, to the reading exercises. Moreover, he/she can make an edit to the section he/she added. These features make the programme more important.

In the reading texts, the database can be used in five groups being: newspaper texts, liberal texts, scientific texts, journals and a group of reading texts, which is a mixture of all, the above. In general, the programme has features of both being appropriate for a University, high school, secondary school students and the evaluation of these student groups. As Speed Reading and Memory Developing exercises are also among the self-development training, other adolescents can use them, too.
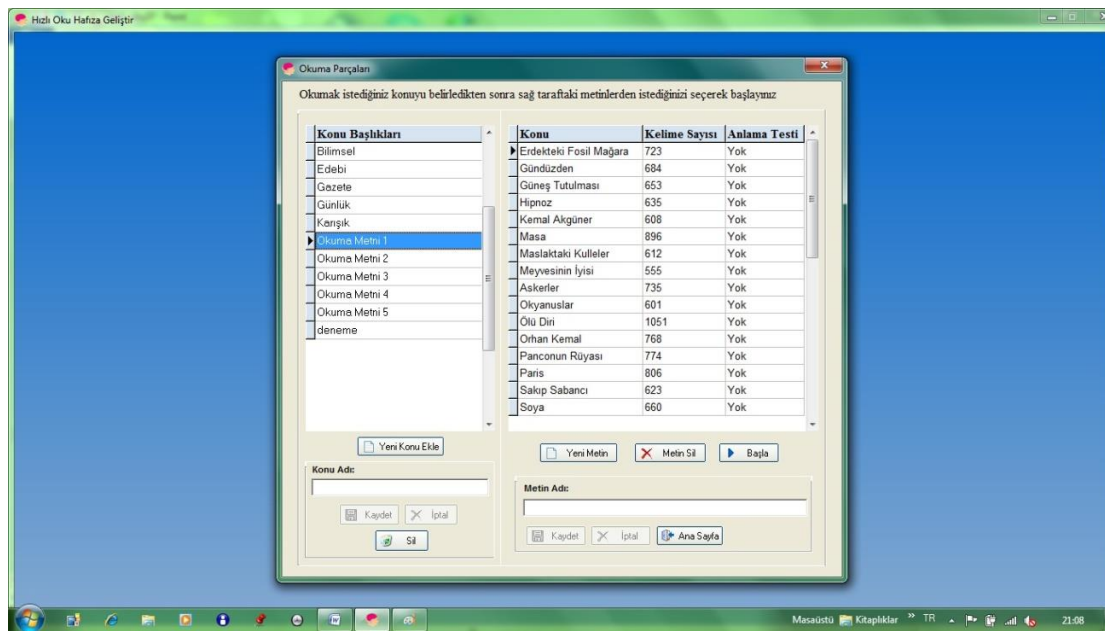
Figure 28:
Reading Exercises

a) Block Reading(Grouping/ Group Reading)

An uneducated eye will make pauses on lines and in every pause, it will send the picturized word to the brain. This study aims to make it possible for the eye to perceive more than one word in each pause. With the study, the ability to see a wide group of words in one pause will improve by enhancing the field of view. With the acceleration option included in the programme, the eye will be forced to read much faster. In the study, trying to perceive the number of words, by focusing on groups of words, is aimed (Figure 29).

28
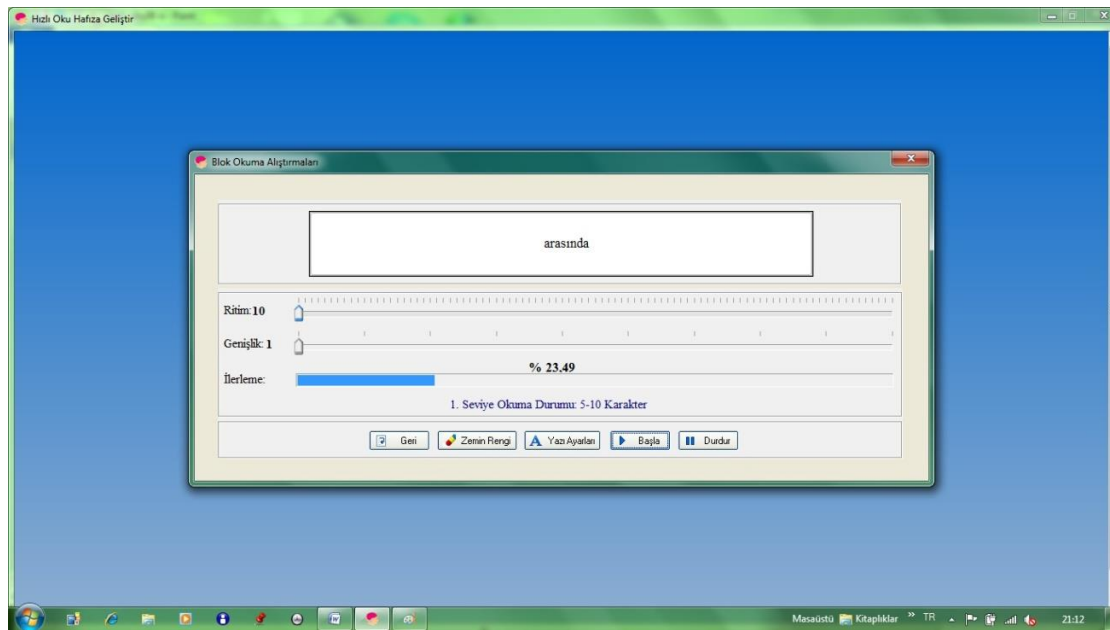
Figure 29:
Block Reading Exercises

b) Speed Reading - Flowing Reading/ Flowing Text:
In this section, When the text line slides up and down, the eye is aimed to get the habit of reading faster by picturizing the sliding texts as a group of words in the brain.
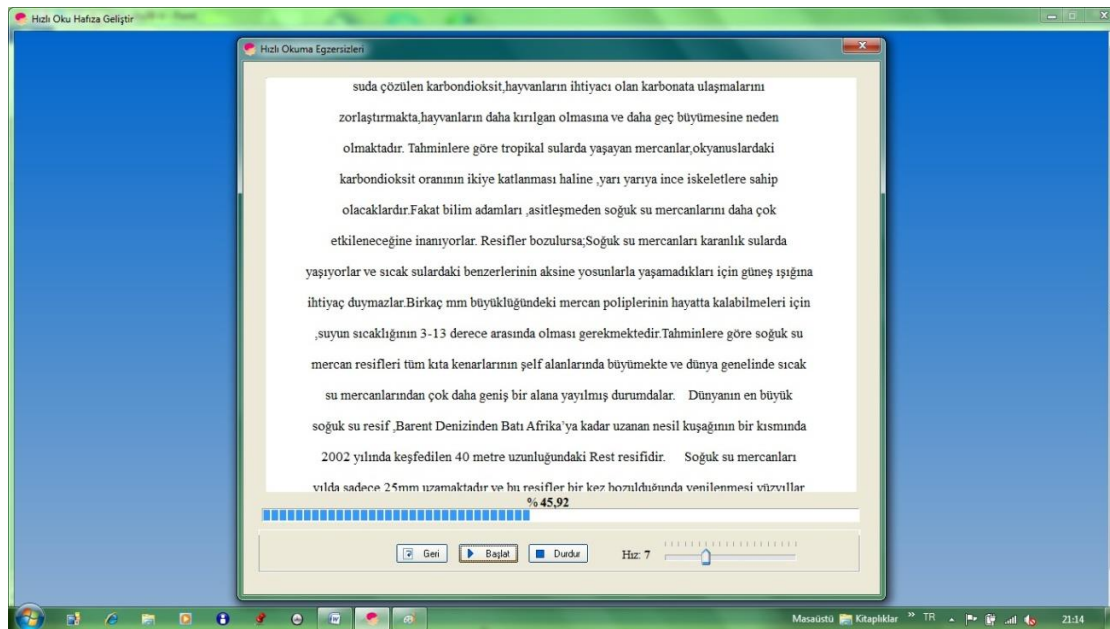
Figure 30:
Speed Reading (Flowing reading/Flowing text) Exercises

When the reading is completed in the block reading and flowing reading exercises, the information of the time the user took and the information of the number of words read is displayed on the screen. In the attention message seen in figure 31, if the "save" option is chosen, the statistics of reading information will be kept in the form of graphics.

29
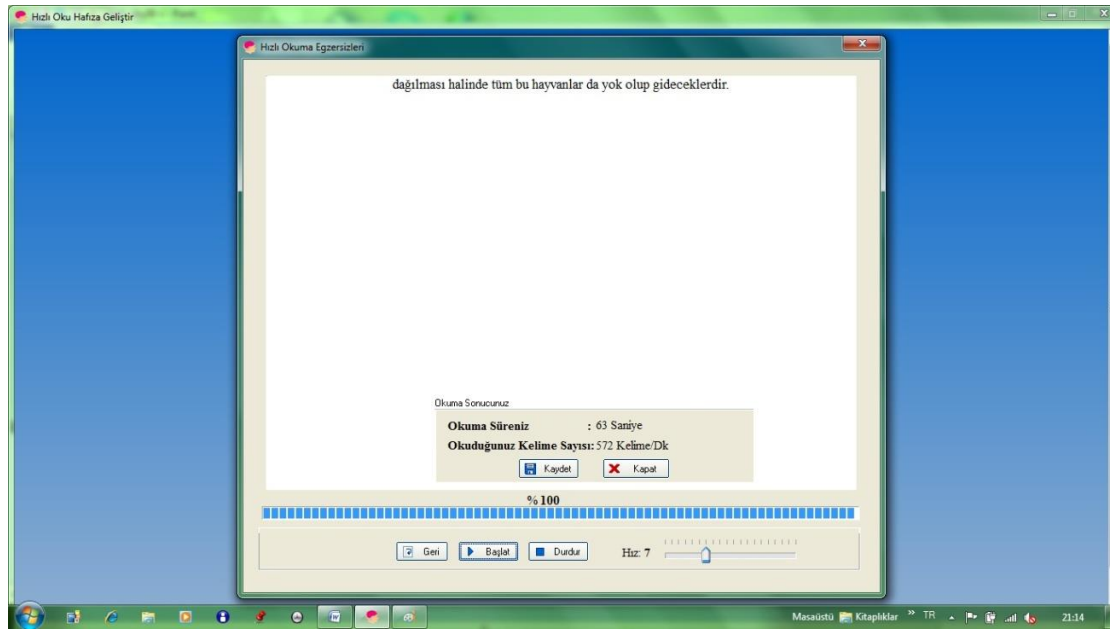
Figure 31:
Users reading information of the flowing text reading exercises

c) Blocking:

An uneducated reader will read word by word; however, a human eye can see one to three words (changing according to the number of alphabets) at once. With these exercises, the eye is aimed to acquire the habit of seeing groups of words instead of one word. Learning to read by dividing texts into word groups, the eye will perform the same dividing activity in the daily life texts as well, and there will be an increase in his/her rate of reading. The acceleration section of the study will enable the eye to move faster and more rhythmically among the grouped texts. The disguised text is grouped according to the rate and the reader chooses level. When the reading starts, the word group that is supposed to be read is revealed, and at the same time, the programme will give the order to the brain and eye about the pace and the number of words that should be perceived in the proceeding process according to the word group and rate. The eye that gets used to the said rhythm and width performs reading with the same rhythm and width in the normal texts.

In Figure 32, there are three different types of reading in reading exercises. These are normal reading, skipping reading and easy reading.

30
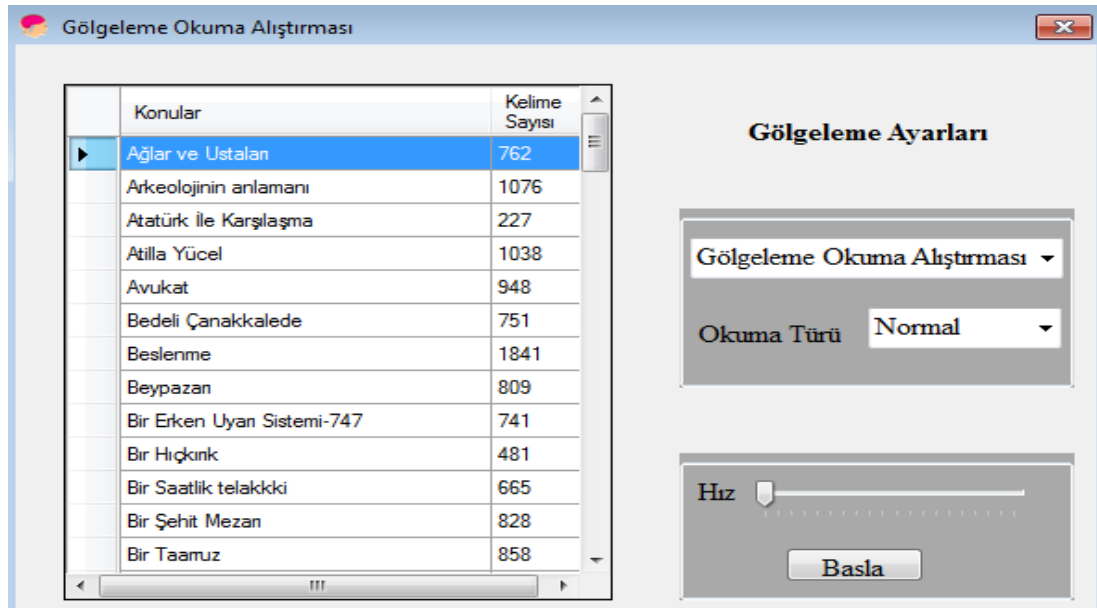
Figure 32:
Shadowed reading exercises

Memory enhancement
In this section, some exercises keep the individual's memory sharp and increase his attention and concentration so that he can use memory techniques effectively. The section is aimed for such processes as remembering important grades (exams etc.), important chapters of a previously read book or essays, matching people's faces and names, telephone numbers or remembering formulas, words and their meanings in foreign language teaching, etc. There are seven different activities in this section.

a) The Number Game
The activity is aimed at the individual to improve his/her visual scanning ability. The event seen in Figure 33 contains mixed numbers from 1 to 84, and among these numbers, the individual is aimed to find the number 84, in the shortest time possible. By this way, the eye will get the ability to look at the whole rather than searching for the number one by one.

31
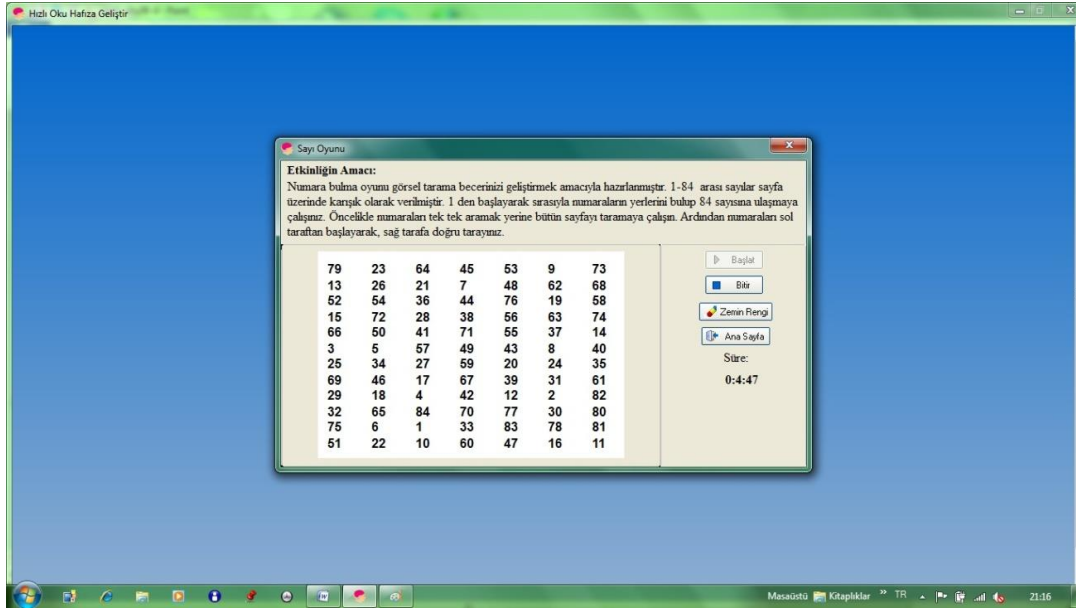
Figure 33:
Number Game

b) Matching name with picture

As seen in Figure 34, in this activity, the users are asked to look at the pictures and the names under the picture and memorize them in the given time, and at the end of the given time, they are expected to write the names under the pictures that are mixed. Here, there are five categories of picture types. In the activity, there are looking duration options that change by tens, from 10 to 60 second; and studies are consisting of pictures od 12, 8 and 4 according to the primary and adolescent age groups. The given time for the answer changes from 1 minute to 4 minutes and if you like, you can choose the unlimited time option.
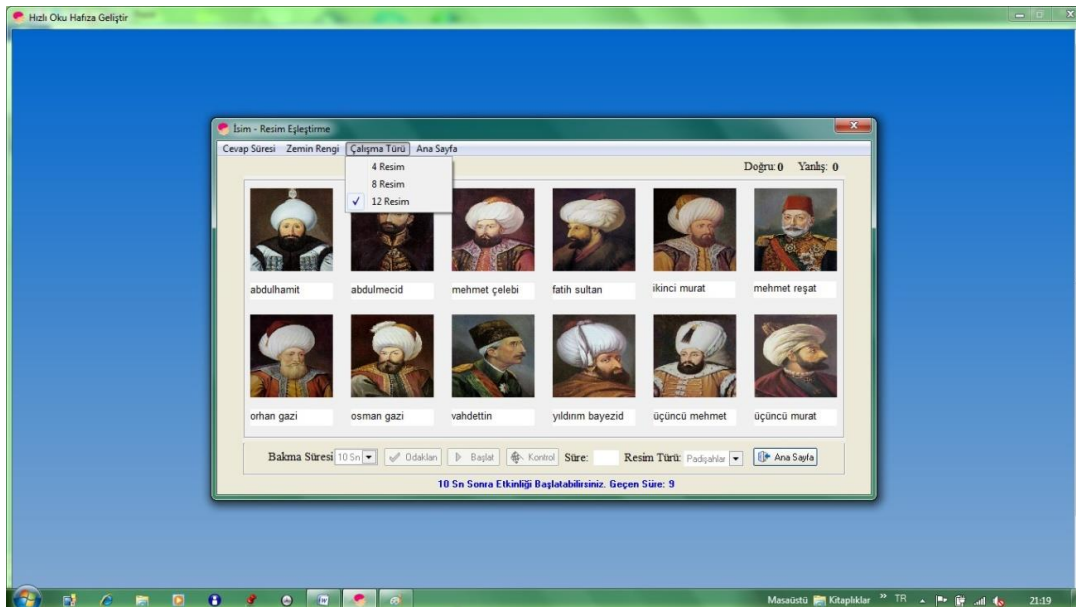
Figure 34:
Picture matching of twelve parts

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c) The Picture Game
In this section, the user is asked to find the same pictures, in the given time (Figure 35). The study level consists of 32, 16 and 8 pictures. It is the most popular memory improvement activity, and it includes study levels that are appropriate for every age group.
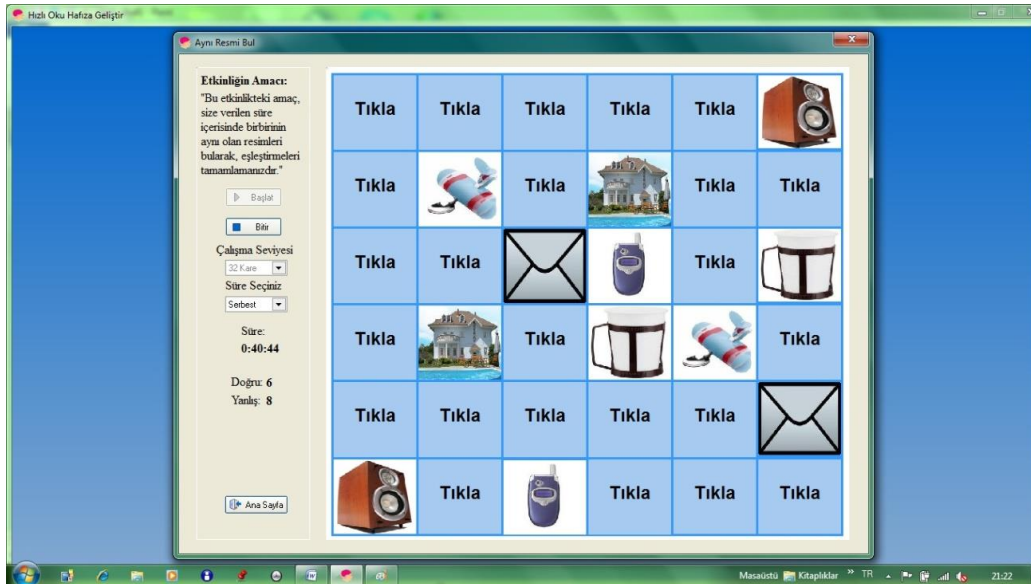
Figure 34:
The Picture Game

d) Memory Improvement
The activity aims to develop the users' eye-brain coordination. In the activity that consists of 8 levels, as seen in figure 35 (according to the chosen level) the place of the white boxes that flash on the green ones are expected to be found according to the selected level.
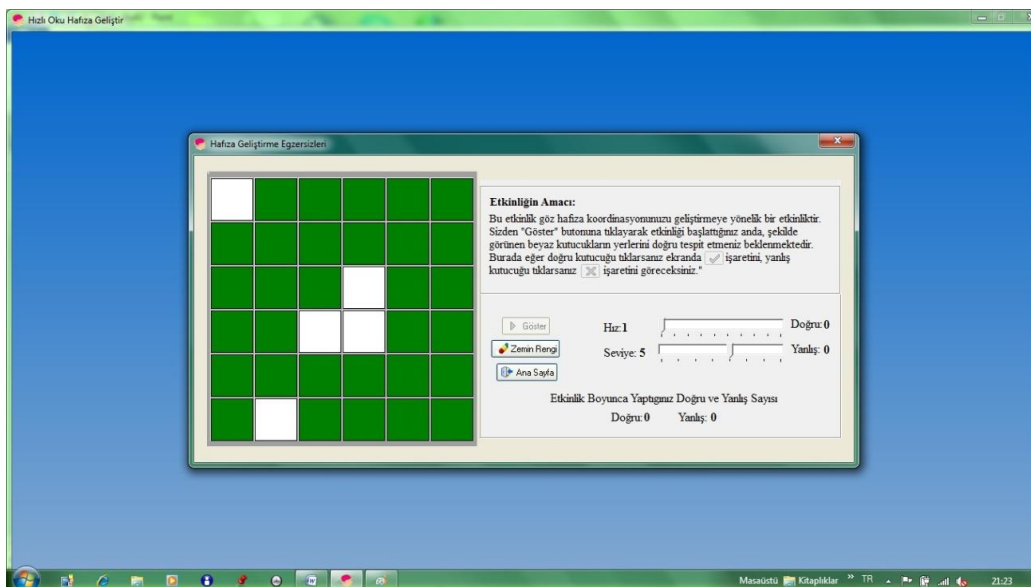
Figure 35:
Memory Improvement

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e) Maze

In the activity maze, which is one of the best in memory improvement, there are seven different levels. It is an activity that has been developed with the aim of starting from the starting point and getting to the "end" in the shortest time possible (Figure 36).
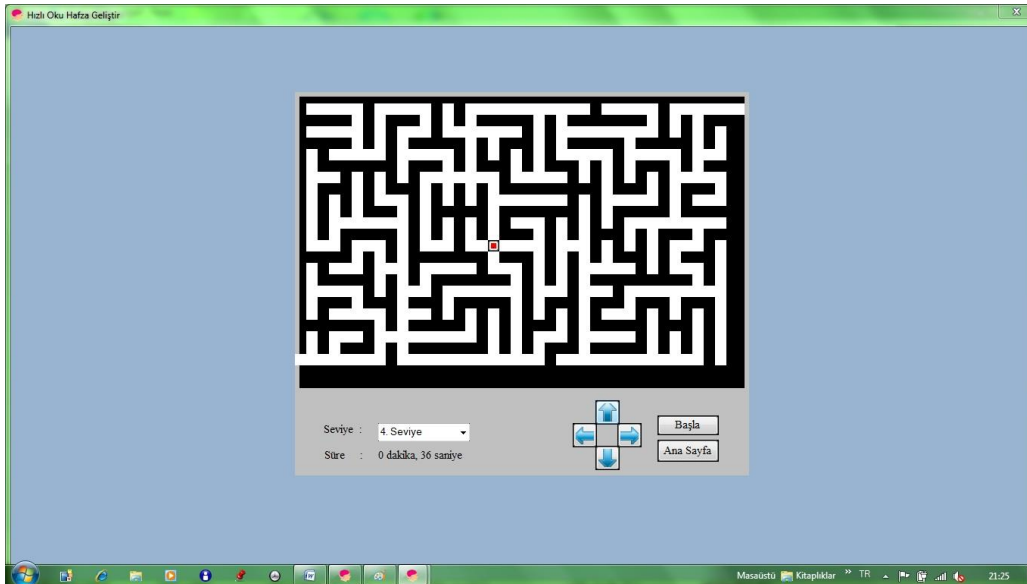
Figure 36:
Maze, the activity of level four

f) Find the Number

There are two different types of study in this activity. The first one is finding the number of the digits in the line that is given mixed, and the second is finding the number of the alphabets, both in the given time (Figure 37). The allowed time changes from 10 to 20 second.
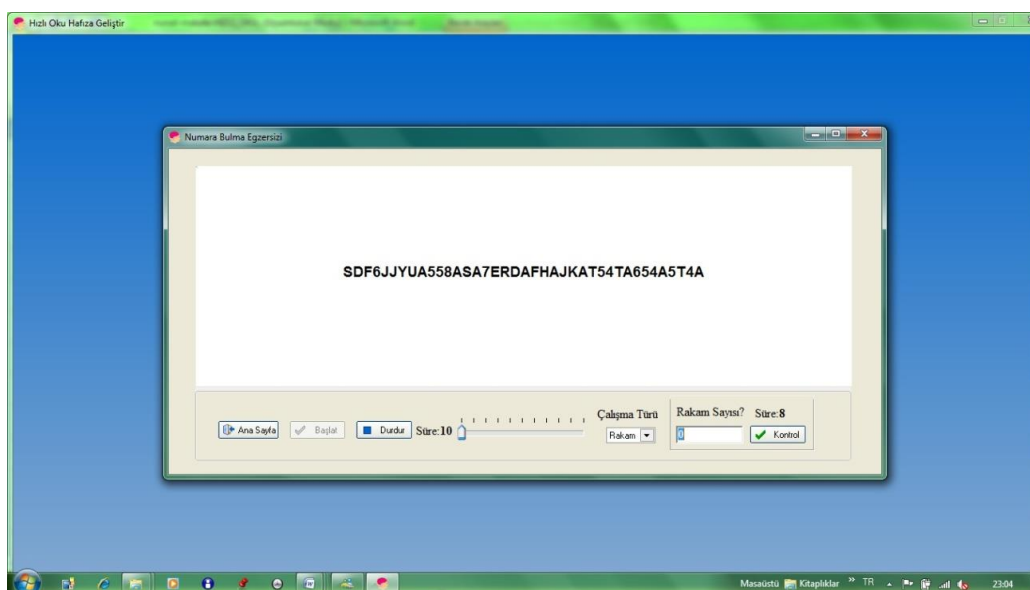
Figure 37:
"Find the number" activity

34

g) Strip

The activity is designed to increase the power of perception and attention of the individuals. As seen in figure 38, by looking at the flowing pictures and names on the screen, the user is expected to find the picture that did not appear on the screen.

There are five categories of pictures in the activity. Two different types of study consisting of 10 and 6 pictures and two different levels of transition exist.
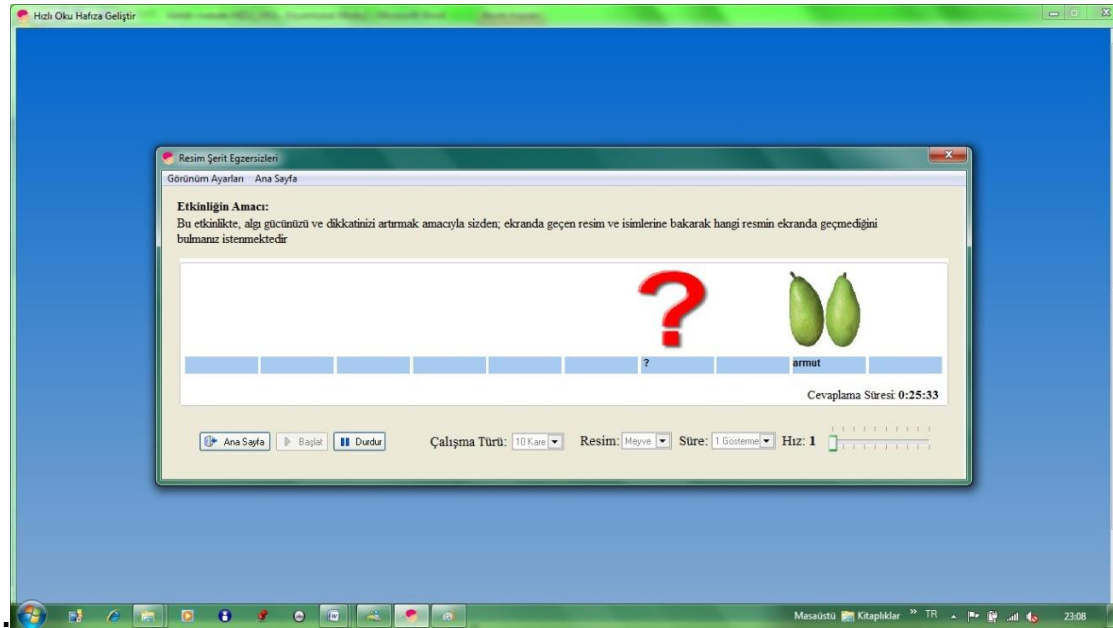
Figure 38:
Ten pictures of picture strip with one unknown

Reading passages with tests

This section aims to define the reading and comprehension rate, according to the text. With the help of the multiple-choice questions prepared after the passages with tests, the comprehension rate of the individual is defined. Through passages with tests, by showing the rate of reading and comprehension of the individual, the number of the words he/she reads per minute, the comprehension rate and the reading efficiency are estimated.

There are two different types of reading exercises. These are normal reading and flowing reading. Here, first, the text that is a comprehension test is chosen from the section of reading exercises, it is read, and then the user is tested for the calculation of his/her reading comprehension.

Here, in this test, there are: true-false, fill in the gaps and multiple-choice exercises.

35
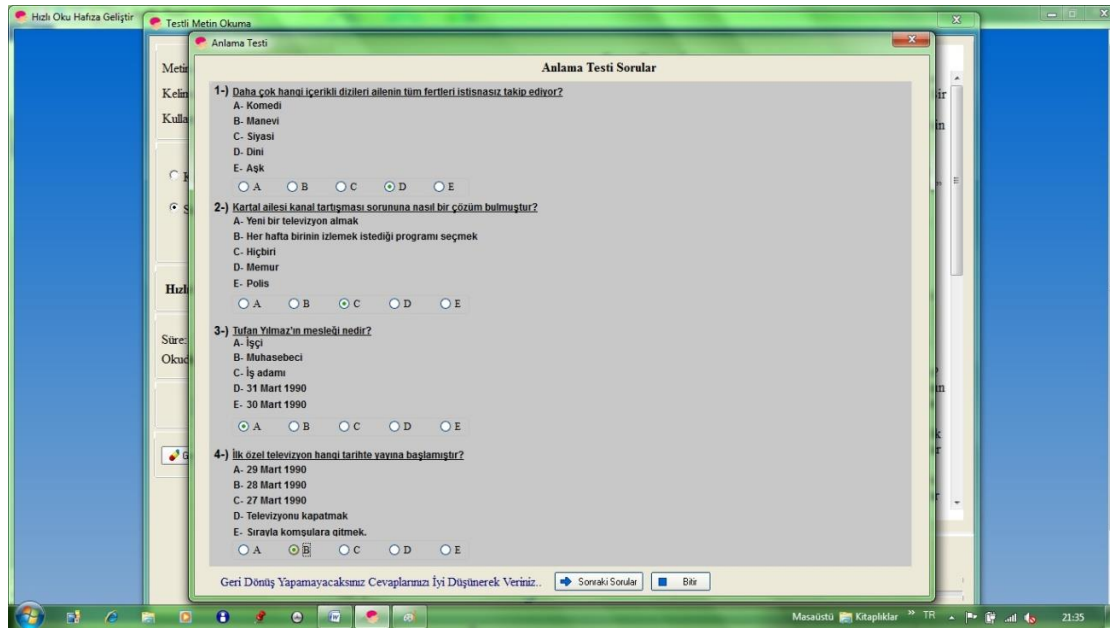
Figure 40:
Comprehension test of the chosen text

After the user completes the test, the results of the comprehension test in Figure 41 are calculated. (Comprehension rate, reading efficiency, the number of correct and incorrect answers, the rate of his/her silent reading, and the number of words read).
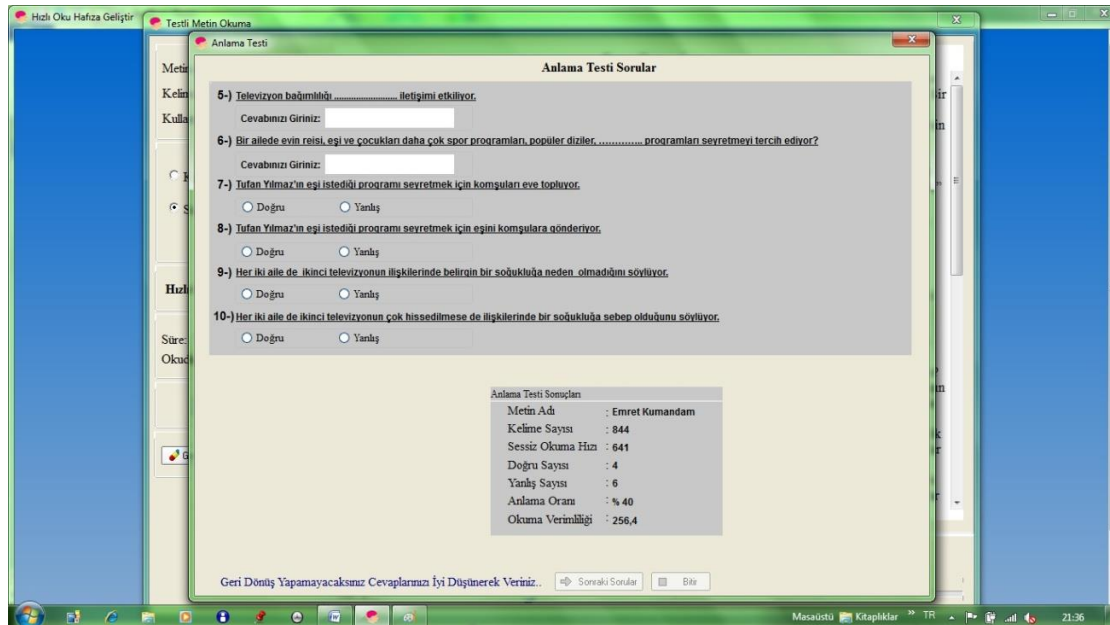
Figure 41:
User's comprehension test results of the chosen text

Statistics
In this section, the statistics of the active readers in speed-reading and block reading exercises is kept in the form of graphics. In figure 42, the statistics of the user named "Nur" can be seen.

36
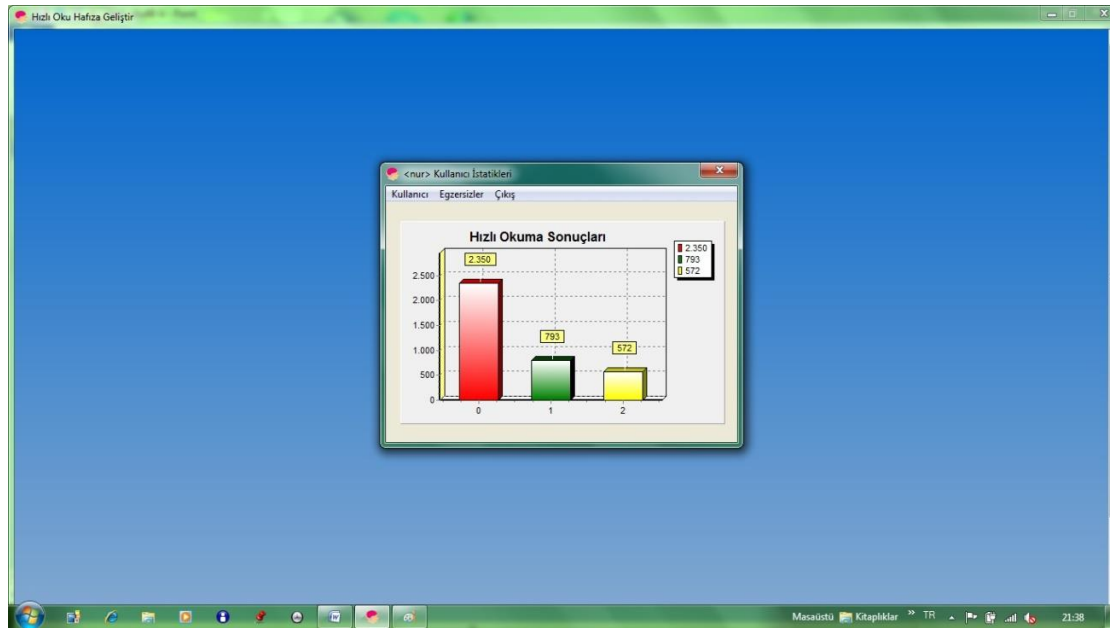
Figure 42:
The statistics of the user "Nur"

About the software

This is a section that consists of three tabs: the first one is by whom and where the software was developed, the second is explanations of the minimum software requirements and the third is where you can do the management setups. The most important feature of the section is the "management setup" in the "setup" tab.

a) Management Setup

In this section, it is aimed for the administrator of the computer the programme was installed, to be able to give authority to any user he/she wants and delete any user he/she wishes. As shown in figure 43, it displays the user list registered to the programme. The users who have administrative authority can access this form.

37
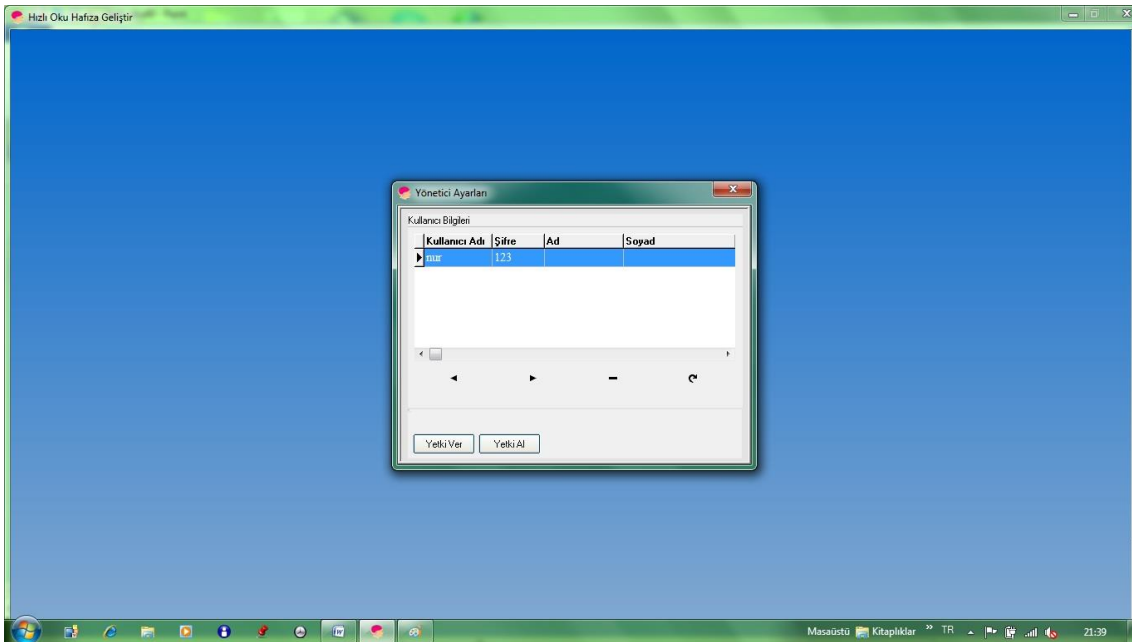
Figure 43:
Management Setup

Help
In this section, information is given about how the programme is used. As well as looking up a word in the programme, one can also access information about the programme, within the index prepared (Figure 44).
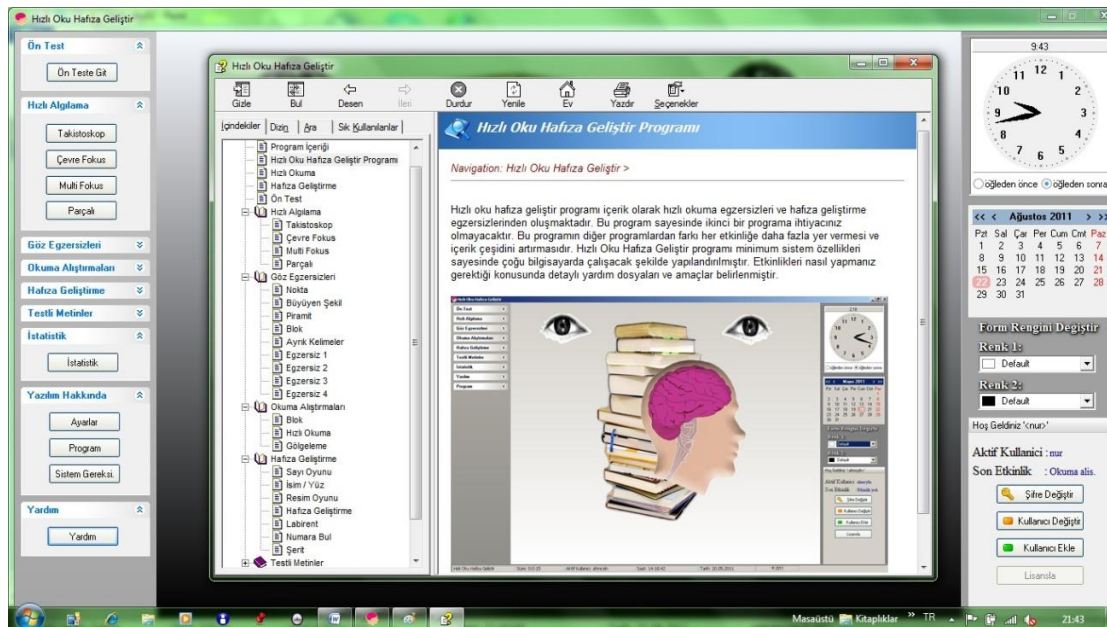
Figure 44:
Help section of the "read fast, enhance memory"

User operations
In this section, operations such as adding a user, changing user (Figure 45) and changing password are performed.

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Figure 45:
Changing User

Figure 46:
Changing Password

In the homepage of the programme, the information of who the active user is and the last activity he/she studied is given.

Licensing

The software "read fast, improve memory" can both be used licensed and non-licensed. Licensing the non-licensed programme to preserve its feature of being installed only once to the same computer, is aimed in this section. After clicking the licensing button on the homepage and entering the license key to

Figure 47:
Licensing module of the software "read fast, enhance memory"

CONCLUSIONS

Speed-reading is a method that has cognitive, structural and psychomotor aspects and can be developed through education. However, it can be seen that in many of the speed-

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reading programmes used in our country(being a simple version of the ones in the West) are prepared without taking into consideration the language features of the Turkish language, and they focus only on a specific psychomotor aspect.

The speed-reading study that is prepared by focusing only on the psychomotor aspect is not enough in making an attitude change because "speed-reading" is a cognitive process that is reinforced with the concepts of "memory, attention, perception, and concentration". On this account, with the programme "read fast, enhance memory", the defects above have been tried to be removed.

- Through the programme "read fast, improve memory" the individual is enabled to widen his/her active visual angle and read faster by benefitting from the associations, in the course of reading.
- By activating the concepts of memory, attention, and coordination together, speed-reading enables the rate of keeping in mind.
- It enables the trained individual to acquire the discipline of working individually, regularly checking his/her development by evaluating it in terms of study duration and types of activities and studying in accordance with his defects.
- Through the enjoyable memory studies, it increases one's motivation by developing a positive attitude, and as a result, it increases one's study duration.
- By enabling the trained individual to read other texts as well in the same rate and type, it makes the individual keep on doing reading exercises and improve practice.
- Widening one's active field of vision, it enables one to see words as groups, by studies based on width and rhythm, to evaluate himself and check his development through the reading texts and comprehension questions, to develop cognitively through the attention studies, to acquire a positive attitude to speed-reading through enjoyable activities and to do the exercises without getting bored.
- Due to the more and more frequent reading of women in our country, the reading rate with the speed-reading software will be increased.
- The developed program, the use of distance learning modules, is essential to reach more people.

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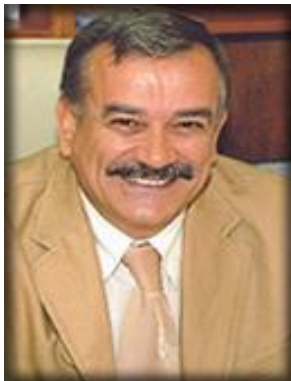
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RELATIONS OF ANADOLU UNIVERSITY OPEN EDUCATION SYSTEM FEMALE STUDENTS WITH INFORMATION AND COMMUNICATION TECHNOLOGIES

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ABSTRACT

Anadolu University Open Education System, established in 1982 in Turkish education system, gave education to almost 3 million graduates and currently has been giving higher education to approximately 1.500.000 students. The system continues giving national education, health, theology, agriculture, police, gendarmerie, land, sea and air forces and associate degree for justice personnel, undergraduate completion and undergraduate educations.

Besides being a necessity of the era, information and communication technologies are highly important for the students of Open Education System. In a specific portal, in line with the personal learning rate, time, usage habits and interest of a student of distance education, many different learning materials are presented in order to ease, reinforce and motivate learning. The goal is to enable all of the students benefit from these materials in the intended manner.

While there are various researches implying that women are more active than men in terms of the access and use of information and communication technologies, results of the researches on the same topic are more negative especially in developing countries. This research aims at analyzing female students in Anadolu University Open Education System in terms of their access and use of information and communication technologies.

Keywords: Information and Communication Technologies, Open Education System, Female Students

INTRODUCTION

It is mentioned in the 5th and 12th clauses of the law no 2547, effectuated on November 6, 1981, that Turkish Universities have the right to give continuous and Open Education. This duty is given to Anadolu University with the delegated legislation no 41, effectuated on July 20, 1982. Open Education System, formed as a part of already existing Faculty of Communication Sciences, is tasked with national distance education service.

Firstly, Open Education System started with units in books, radio and television programs in TRT (Turkish Radio and Television Association) and academic counseling services in centers located in different cities. In 1994, Anadolu University Open Education System e-Learning services work began in parallel with the television and books to provide interactive course to Business, Economics and Open Education Faculty students. Academic counseling services started in 1997 through video conference practices. Internet entered daily life after 1996, Open Education System e-learning portal was established and opened to student access. These developments pioneered the establishing of Open Education Faculty, Distance Education Programs that are carried out completely based on internet in 2001-2002 academic year. Studies in order to synchronize Open Education System e-Learning content with mobile devices such as tablets, smartphones and mobile communication systems started in 2010 and there have been significant developments in the field. "In relation to internet services and material development opportunities, various

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services such as e-Exam, e-Television, e-Practice, e-Lesson, Simultaneous and non-Simultaneous e-Counseling, e-Audiobook, e-Support, e-Lecture note started as part of e-Learning Portal (Mutlu et al., p.22)."

Anadolu University Open Education System continues its projects aiming at increasing motivation of learners who are in continuous interaction with learning and communication technologies that it created and placed at the center. The system presents unit teaching videos, lesson videos, Previous exam questions (PDF), Tests (Online and PDF), Sheet Test (PDF), Exercises (Online), Live Lesson Unit Teaching Video, Unit Summary (PDF) and Audio Summary to students (Anadolu University Open Education System 2018) Yanpar and Yıldırım mentions the benefits of e-Learning environment as such:

- E-Learning enables students learn a topic according to their personal speed.
- E-Learning ensures efficient participation of students in lessons.
- E-Learning increases quality and quantity of educational activities.
- Students get the chance to watch performances through e-Learning.
- E-Learning gives the opportunity to practice and repeat what they learn (Cit. Arslan 2006, p. 35).

Anadolu University used to present education service with 17 undergraduate and 36 associate degree programs in 2017, the year of the research. All of the web pages serving to learners are combined in https://aof.anadolu.edu.tr. Learner automation is ensured in https://aof.anadolu.edu.tr/ogrenci.

In Open Education System, learners are expected to be successful by benefiting from learning environments in specific time period, pass the exams and get the right to have a diploma. This is why; different learning materials for the same lesson are prepared. Learner can use these environments according to his learning conditions and wish. The significant point in here is that he makes decision for himself. He needs to be aware of personal sufficiency and trust himself. In Open Education System, learners are expected to have self-sufficiency to use learning environments. In this system, learner needs to accept technology as a learning environment. Davis et al. with "Technology Acceptance Model" explain having positive or negative decisions in this respect. Individuals can make decisions according to the concepts in this model. Concepts included in the model are: attitude, purpose, perceived benefit, perceived ease of use and behavior (Cit. Bolat et al. 2017, p.66). Individual is expected to observe perceived benefit after evaluating the process and to evaluate the positive contribution of the technology he uses to his exam results. Learner can also decide not to use digital environment with the same content in a system in which assessment and evaluation is based on printed resources.

It is known that this development in information and communication technologies and most of the practices in public and private sector increasingly prefer digital environment. Internet is used in various daily services such as buying bus, cinema or train tickets or paying tax. This situation naturally directs individuals to use technology. There has been an increase in the number of studies on determining male-female differences in the use of

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Internet technology all around the world. Besides showing that difference between genders decreases in the world, these researches show that the male are more advantageous in the use of internet technology almost everywhere in the world. On the other hand, there is another inequality in terms of the access and use of technology by females in developed countries and the ones in underdeveloped countries (Akça and Kaya 2016, p.309). In terms of gender, it can be said that females are more willing than males and they have more positive behavioral objectives (Çabuk et al. 2017, p.148). On the other hand, in terms of exhibiting a behavior, females are more willing; they have more positive objectives (Çabuk et al. 2017, p.148).

According to "2016 Household Information technologies Use Research" carried out by Turkish Statistical Institute, while the total use of internet is 64,1 %, the ratio of female internet use is 51,9%. Female internet use purpose percentages are: Social media (82,4%), watching video from video sharing sites (74,5%), reading news, newspapers or magazines (69,5%), searching for information about health (65,9%), searching for information about goods and services (65,5%) and listening to music (63,7%) (Turkish Statistical Institute, 2016). The fact that female internet use in Turkey is below average proves the claim that gender is one of the most significant variable that affect information and communication access and usage habits.

GOAL

Based on the assumption that distance learning cannot be separated from computer and communication technologies, which are the basis of learning, the goal of this study is to determine the dimensions of the relations of female students in Anadolu University Open Education System and information and communication technologies. In line with the obtained results, the conditions of using e-learning environments presented to them are evaluated.

METHOD

Limitations of the Research
This research is limited with the views of Anadolu University Open Education System registered students (in 2016-2017 academic year) participated in the survey about English lesson television programs.

Data Collection and Analysis
In this research, based on the quantitative data obtained through survey method, inferences are made and results are interpreted by using relational survey model and descriptive research model.

The research survey, carried out as a part of Scientific Research Projects, besides 33 questions on determining demographic features of students, there are 3 points and 5 points likert type questions and frequency questions. The survey is evaluated through quantitative data analysis. Data obtained from the survey applied in the research are transferred to SPSS 24 package program and analyzed with the help of it.

Evolution and Sampling
Research Environment; Anadolu University 2016-2017 academik year Open and Distance education students. Research sampling; 12.878 students in 2016-2017 academik year participated in the survey on internet; 5181 female students, which is the 40,2% of that total is the sampling of this research.

In Open Education System, 56,8% of registered active students in April, 2015-2016 academik year was male while 43,2% was female (Anadolu University, 2016). Participatory

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gender distribution parameter ratio of representing universe is high, which implies that the results based on the universe of the study can be generalized.

RESULTS

I. Demographic Features

Demographic features of female students registered to Open Education System are researched under the titles of age, qualification of the program, working status and settlement quality.

Table 1:
Age Distribution

	Frequency	%
<= 19	3764	72,7
20 - 24	723	14,0
25 - 29	348	6,7
30 - 34	157	3,0
35 - 39	94	1,8
40+	79	1,5
Total	5165	99,7
Unanswered	16	,3
Total	5181	100,0

Six different ranges are used in age evaluation. The first age range involves participators below 19, which is 72, 7% of the entire group (Table 1). The next age group is 20-24 ages, which is 14% of the entire group. In other words, 87% of the group is made of individuals who are at the age of 24 or below. This result indicates a participator group who has a close link with information and communication technologies. This fact also support the data obtained in the study in 2015; according to the results of that study, the highest internet use ratio belongs to the 16-24 age group (cit.from Turkish Statistical Institute by Akça&Kaya 2016 p.309).

Table 2:
Registered Open Education System (OES) Programs

	Frequency	%
OES Undergraduate	3219	62,1
OES Associate	1962	37,9
Total	5181	100,0

Registered Open Education System programs are at the level of undergraduate and associate degrees. According to the data presented in Table 2, 62,1% of students were taking undergraduate education while 37,9% were taking associate degree education.

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Table 3:
Working Status

	Frequency	%
Not working	2889	55,8
Retired	60	1,2
Working in public sector	660	12,7
Working in private sector	1325	25,6
Free lancers	181	3,5
Total	5115	98,7
Unanswered	66	1,3
Total	5181	100,0

Working status of participators are presented in Table 3. According to the table, more than half of the participators don't working (55,8%). This result doesn't contradict with the fact that age group in the study is mostly 19 and below. 25,6% of workers are working in private sector (the highest ratio), while 12, 7% of participators are working in public sector. 3, 5% of participators are free lancers while 1, 2% are retired, which is quite low.

Table 4:
High School Type

	Frequency	%
Anatolian Fine Arts High School	12	,2
Anatolian High School	858	16,6
Science High School	44	,8
General High School	2163	41,7
Imam Hatip High School	249	4,8
Vocational and Technical Training High school	1512	29,2
Social Science High School	76	1,5
Foreign Language Based High School	267	5,2
Total	5181	100,0

According to the results of Table 4, in different programs and departments in Open Education System, there are graduates graduated from high schools varying from science high schools to the ones with foreign language education. The highest amount of participators in the study is general high school graduates (41, 7%). 29,2% of participators are Vocational and Technical Training High school graduates while 16,6% are Anatolian High School graduates.

Table 5:
Settlement Type

	Frequency	%
Province	3461	66,8
District	1499	28,9
Rural Center	221	4,3
Total	5181	100,0

Settlements of participators are classified as province, district and rural centers. Although qualification of the settlement isn't a predictive factor in terms of success, they are efficient in terms of access and use of information and communication technologies. According to the data obtained in 2013, while computer use ratio in urban places is 59%, it is 29,5% in rural locations. Internet use in rural areas is half of the use in urban locations (Akça&Kaya 2016 p.309).

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II. Relations with Information and Communication Technologies

Uses of four different instruments are researched in classifying information and communication technologies; smart phones, tablets, computers and television. These instruments are the most significant ones used in accessing information and establishing communication. Instruments owned by the participators are listed in Table 6.

Table 6:
Information and Communication Instruments

	Frequency	%
Computer, Smart phone, Tablet, Television	**1478**	**28,5**
Computer, Smart phone, Television	**1252**	**24,2**
Smart phone	**944**	**18,2**
Computer, Smart phone	**454**	**8,8**
Smart phone, Television	**346**	**6,7**
Computer	**301**	**5,8**
Computer, Smart phone, Tablet	**98**	**1,9**
Smart phone, Tablet, Television	**85**	**1,6**
Television	**79**	**1,5**
Smart phone, Tablet	**47**	**,9**
Tablet	**48**	**,9**
Computer, Television	**33**	**,6**
Computer, Tablet	**3**	**,1**
Computer, Tablet, Television	**7**	**,1**
Tablet, Television	**6**	**,1**
Total	**5181**	**100,0**

Results of Table 6 indicate that participators are open to information and communication technologies; in other words, they have the opportunity to use internet through different instruments. 28,5% of participators have all of the four instruments while 24,2% of participators have computer, smart phone and television. While there is no participator who doesn't have any of the instruments, 1,5% of participators only have television, which may imply that they don't have internet access. Although there are televisions with internet access, this feature isn't researched in the study.

Having information and communication technologies is analyzed in terms of settlement type and it is observed that most of the participators who own four different technological instruments live in urban locations. The ratio of participators who have only smart phone or only television is higher in rural areas.

A. Relations with Television

Although there had been some interruptions, Anadolu University television programs continued to be broadcasted by TRT until January, 30, 2016. Television programs were based on giving information mostly according to units and they can be described as lesson programs. There were also different descriptive and supplementary television programs besides the lesson programs. According to a research by Turkish Radio and Television Supreme Council, it is determined that 4,4% of the females watch all of the channels by TRT (Turkish Radio and Television Supreme Council, 2013).

On the other hand, research results present interesting data about media use in Turkey. 84% of the society watches television every day. In a research by Turkish Radio and Television Supreme Council, it is shown that women watch 70% of daytime programs

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prepared for them and 73% of these women like these programs (RTÜK 2013). The primary reasons why women watch TV programs are that "They are curious about other lives" and "They take lessons by watching problems similar to theirs". The secondary reasons are "To pass time at home all day long" and "There is nothing else to watch". Other reasons are "To obtain knowledge and learn something new" and "TV is a school, it educates people" (Rahte 2010, p. 73).

Another reason why people like television is that it is a kind of habit since little ages; watching television becomes an automatic behavior in time without noticing. Television is interesting as it presents slices of life (religious beliefs, customs and traditions, national values and sexuality). As most of the programs use simple language coherent with the language used in daily life of audiences, it attracts attention. Most of the programs don't involve intellectual activities, they aren't tiring (Karaboğa 2013). Using television as an educational instrument results from other features of it; it can reach various audiences, it can be watched in a wide range of areas, it ensures understandability of information through the use of picture and sound and it is a system that bring professionals-learners and scientists together.

Table 7:
Daily Average Ratio of Watching Television

	Frequency	%
1-2 hours	2011	38,8
3-4 hours	980	18,9
Less than 1 hour	1324	25,6
More than 4 hours	215	4,2
Doesn't watch	588	11,3
Total	5118	98,8
Unanswered	63	1,2
Total	5181	100,0

While 11,3% of participators doesn't watch television, 87,5% of them watches. In terms of the watching period, 38,8% of participators watch TV for 1-2 hours per day while 25,6% watch TV for less than 1 hour per day. Period of watching TV is also analyzed in terms of age and working status of participators.

Table 8:
Relation between Daily TV Watching Period and Age Distribution
Age Distribution

		<= 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
1-2 hours	Count	1418	291	151	72	48	31	2011
	% with in Age	38,0%	41,0%	43,9%	46,2%	51,1%	39,2%	39,3%
3-4 hours	Count	720	149	54	26	16	15	980
	% with in Age	19,3%	21,0%	15,7%	16,7%	17,0%	19,0%	19,1%
Less than 1 hour	Count	966	193	82	40	21	22	1324
	% with in Age	25,9%	27,2%	23,8%	25,6%	22,3%	27,8%	25,9%
More than 4 hours	Count	157	31	17	3	2	5	215
	% with in Age	4,2%	4,4%	4,9%	1,9%	2,1%	6,3%	4,2%
Doesn't watch	Count	474	46	40	15	7	6	588
	% with in Age	12,7%	6,5%	11,6%	9,6%	7,4%	7,6%	11,5%
Total	Count	3735	710	344	156	94	79	5118
	% with in Age	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

When TV watching period is analyzed in terms of age groups, it is observed that; the highest ratio of daily TV watching period among all of the age groups participated in the research is found to be 1-2 hours or less than 1 hour (Table 8). There isn't a serious difference among age groups in terms of watching period. In the research by Turkish Radio and Television Supreme Council in 2010, 33,7% of female age group below the age 29. In the research by Turkish Radio and Television Supreme Council in 2010, it is determined that female age group below the age 29 watch 33,7%, female age group up to the age of 44 watch 38,6% while female group over 44 watch 27, 8% television (Turkish Radio and Television Supreme Council 2010).

Table 9:
Relation between Daily Watching TV Period and Working Status

<u>**Working Status**</u>

		Not working	Retired	Working in public sector	Working in private sector	Free lancers	Total
1-2 hours	**Count**	**1054**	**20**	**285**	**574**	**69**	**2002**
	% with in working status	**36,7%**	**33,3%**	**43,4%**	**43,4%**	**38,5%**	**39,3 %**
3-4 hours	**Count**	**647**	**14**	**99**	**186**	**33**	**979**
	% with in working status	**22,5%**	**23,3%**	**15,1%**	**14,1%**	**18,4%**	**19,2 %**
Less than 1 hour	**Count**	**675**	**12**	**191**	**386**	**48**	**1312**
	% with working status	**23,5%**	**20,0%**	**29,1%**	**29,2%**	**26,8%**	**25,8 %**
More than 4 hours	**Count**	**160**	**9**	**16**	**21**	**7**	**213**
	% with in working status	**5,6%**	**15,0%**	**2,4%**	**1,6%**	**3,9%**	**4,2%**
Doesn't watch	**Count**	**336**	**5**	**65**	**155**	**22**	**583**
	% with in working status	**11,7%**	**8,3%**	**9,9%**	**11,7%**	**12,3%**	**11,5 %**
Total	**Count**	**2872**	**60**	**656**	**1322**	**179**	**5089**
	% with in working status	**100,0%**	**100,0 %**	**100,0%**	**100,0%**	**100,0 %**	**100,0 %**

The relation between daily watching TV period and working statuss is presented in Table 9. While there is not a significant difference among participators in terms of their working statuss, the highest watching period is determined to be between 1 and 2 hours. On the other hand, the group of the retired watch television for longer hours; 23,3% for 3-4 hours, 15,0% for longer hours. Freelancers group is the one with the lowest TV watching period ratio (12,3%).

Table 10:
Watching Television Program in Terms of Their Types

Television Program Types	I generally watch'		I sometimes watch'		I never watch		Total	
	F	%	F	%	F	%	F	%
News	2228	50,8	1743	39,8	413	9,4	4384	100
Serials	921	21,4	2771	64,4	609	14,2	4301	100
Magazine	334	23,5	1740	44,5	1838	47,0	3912	100
Daytime Programs	303	7,8	1392	36,1	2166	56,1	3861	100
Films	1332	32,7	2230	54,7	512	12,6	4074	100
Sport	330	8,7	1409	37,0	2066	54,3	3805	100
Art and culture	806	20,6	2370	60,6	737	18,8	3913	100
OES Television Programs	318	8,2	1609	41,7	1935	50,1	3862	100
Competition	846	21,1	2298	57,2	872	21,7	4016	100
Others	320	9,3	1687	49,1	1427	41,6	3434	100

Television program types are classified under ten titles and participators are required to choose one of the options: 'I generally watch', 'I sometimes watch' and 'I never watch'. While there had been a total of 5181 participators in the process, the number of them according to television program type changed, and calculations in Table 10 shows the number of participators that answered this section.

The basic goal in this questioning process is to determine the ratio of watching educational television programs that are presented as supportive learning materials by Open Education System; the secondary goal is to determine program types that are attractive and preferred by female audience group.

The option of 'I generally watch' is separated from the option of 'I sometimes watch' as it implies watching a program continuously and specifically. According to the results based on choosing this option, the highest ratio belongs to the news group (50,8%). The group of 'movies' is the second most preferred option (32,7%) and 'magazine programs' is the third most preferred option (23,5%). 8,2%of the participators regularly watch Open Education System programs. At this point, it is important to mention that, based on the research by Turkish Radio and Television Supreme Council, 4,4% of female audiences preferred to watch all of the channels by TRT (the assessment involved all of the TV channels) (Turkish Radio and Television Supreme Council, 2013).

The most preferred option in terms of 'I often watch' answer is series (65,4%). Culture-arts programs (60,6%) and game shows (57,2%) are the following most preferred options. The ratio of 'I often watch Open Education System' is 41,4%, which is significant in terms of the use of these programs as educational instruments.

In terms of the programs that are never watched, 56,1% daytime programs has the highest ratio, sports programs (54,3%) and Open Education System programs (50,1%) are the following ones. As 41,3% of participators are working (Table 3), not watching daytime programs is a natural result. On the other hand, as sports programs target audience in Turkey is men and they generally focus on football, female audience-watching ratio is low,

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which is an expected result. But on the basis of the obtained data, half of the participators do not benefit from the educational opportunities presented to them, which is not an expected result.

In the research presenting female audiences' watching habits in Turkey, the frequency of these habits are; 78% of participators watch domestic TV series, 76 %of participators watch news, 49% of participators watch health programs, 42 % of them watch religious programs and approximately 36% of participators watch music-entertainment programs (Turkish Radio and Television Supreme Council, 2013; p. 13). It is seen that these data obtained by the Turkish council is coherent with the data obtained in this research.

B.   Relations with Internet

It can be said that the relation between women and internet isn't sufficient. There is difference between men and women in addition to the difference between women living in urban and the ones living in rural locations. The ones that use internet according to the working status, students, employers, salaried workers and the unemployed are the ones who use internet the most. Digital division in terms of settlement and gender make us think that present inequalities are reproduced by internet. However, it should be noted that these numbers show use ratio and they don't give information about the practices of use (Akça&Kaya2016, p. 312).

Table 11:
Daily Average Internet Use Period

	Frequency	**%**
1-2 hours	**1449**	**28,0**
3-4 hours	**1367**	**26,4**
5-6 hours	**686**	**13,2**
Less than 1 hour	**698**	**13,5**
More than 6 hours	**743**	**14,3**
Doesn't use Internet	**155**	**3,0**
Total	**5098**	**98,4**
Unanswered	**83**	**1,6**
Total	**5181**	**100,0**

Whether or not the participators use internet and daily average use ratio of users are presented in Table 11. Total ratio of internet users is 95,4%, 3% of participators mentioned that they don't use internet while 1,6% didn't answer this question. These results are in line with the opportunity to access study environments presented by Open Education System. In terms of the Internet use period, 28,0% of participators stated that they use internet for 1-2 hours per day while 26,6% said that they use internet for 3-4 hours.

Table 12:
Relation between Daily Average Internet Use Period and Working Status

Working Status

		Not working	Retired	Working in public sector	Working in private sector	Free lancers	Total
1-2 hours	**Count**	**797**	**15**	**200**	**370**	**56**	**1438**
	% with in Working Status	**27,9%**	**25,0%**	**30,8%**	**28,3%**	**31,6%**	**28,4%**
3-4 hours	**Count**	**797**	**13**	**193**	**322**	**33**	**1358**
	% with Working Status	**27,9%**	**21,7%**	**29,7%**	**24,6%**	**18,6%**	**26,9%**
5-6 hours	**Count**	**379**	**5**	**92**	**178**	**27**	**681**
	% with in Working Status	**13,3%**	**8,3%**	**14,2%**	**13,6%**	**15,3%**	**13,5%**
Less than 1 hour	**Count**	**416**	**17**	**79**	**152**	**24**	**688**
	% with in Working Status	**14,5%**	**28,3%**	**12,2%**	**11,6%**	**13,6%**	**13,6%**
More than 6 hours	**Count**	**379**	**7**	**69**	**254**	**29**	**738**
	% with in Working Status	**13,3%**	**11,7%**	**10,6%**	**19,4%**	**16,4%**	**14,6%**
Does'nt use Internet	**Count**	**92**	**3**	**17**	**33**	**8**	**153**
	% with in Working Status	**3,2%**	**5,0%**	**2,6%**	**2,5%**	**4,5%**	**3,0%**
Total	**Count**	**2860**	**60**	**650**	**1309**	**177**	**5056**
	% with in Working Status	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Relation between daily average internet use period and working status is analyzed and obtained results are presented in Table 12. Non-working participators and the ones who work in different sectors use internet mostly for 1-2 or 3-4 hours; most of the retired participators use internet for less than one hour per day (28,3%). Private sector workers are the ones who use internet for more than 6 hours in a day.

Table 13: Relation between Daily Average Internet Use Period and Age

| | | **Age Distribution** | | | | | | |
		<= 19	**20 - 24**	**25 - 29**	**30 - 34**	**35 - 39**	**40+**	**Total**
1-2 hours	**Count**	982	225	137	49	31	21	1445
	% within age	26,5%	31,8%	40,1%	31,8%	33,0%	27,3%	28,4%
3-4 hours	**Count**	1044	172	75	30	31	9	1361
	% within age	28,2%	24,3%	21,9%	19,5%	33,0%	11,7%	26,8%
5-6 hours	**Count**	533	84	30	21	7	10	685
	% within age	14,4%	11,9%	8,8%	13,6%	7,4%	13,0%	13,5%
Less than 1 hour	**Count**	453	123	53	36	12	19	696
	% within age	12,2%	17,4%	15,5%	23,4%	12,8%	24,7%	13,7%
More than 6 hours	**Count**	588	88	36	11	9	10	742
	% within age	15,9%	12,4%	10,5%	7,1%	9,6%	13,0%	14,6%
Does'nt use	**Count**	108	16	11	7	4	8	154
	% within age	2,9%	2,3%	3,2%	4,5%	4,3%	10,4%	3,0%
Total	**Count**	3708	708	342	154	94	77	5083
	% within A	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

The most significant results in terms of the relation between daily average internet use and age are; participator group at the age of 40 or older is the group with the most non-users of internet. On the other hand, individuals at the age of 19 or below are the ones who use internet the most in a day (15,9%). Except the group at the age of 40 and older, internet use period generally vary between 1 and 4 hours per day.

**Table 14:
Purposes of Internet Use**

The purpose of using internet	Usually use		Uses occasionally		Never use		Total	
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**
E-Mail	1663	32,0	2595	50,0	923	18,0	5181	100
Social networks	2034	39,3	2321	44,8	826	15,9	5181	100
Individual development	1590	30,7	2749	53,0	842	16,3	5181	100
OES E-learning	1086	21,0	2772	53,5	1323	25,5	5181	100
Watching movies-serials	1004	19,4	2544	49,1	1633	31,5	5181	100
Games-entertainment	624	12,1	2322	44,8	2235	43,1	5181	100
Shopping	744	14,3	2709	52,3	1728	33,4	5181	100
Bank transactions	1156	22,3	2463	47,5	1562	30,2	5181	100

The reasons of internet use is classified into eight different groups and participators are required to choose one of the options which are 'I generally use', 'I sometimes use' and 'I never use'. Results of this process are presented in Table 14.

In terms of the results of 'I generally use', internet is most frequently used for social media (39,3%). Sending or receiving e-mail (32,0%) and individual development (30,7) are the following two most frequently preferred reasons. 'I sometimes use' option is mostly preferred for individual development (53%). As mentioned, Open Education System is in a portal in which all the related learning materials are presented through internet; but the use of this portal is 21,0%, which is below the expected level. Open Education System e-learning materials use ratio is the highest one (53,5%) among internet use purposes. On the other hand, it is determined that 25,5% of participators never use these learning materials. The fact that one quarter of participators doesn't use these environments implies that they only use printed learning materials.

43,1% of female students stated that they use internet environments for games/entertainment, 33,4% for shopping, 31,5% for watching serials/films.

Each one of the purposes of internet use is questioned with crosstab in terms of age and settlement location variables. Through this process, it is determined that the ratio of not-using internet is higher in rural locations, by individuals who are 40 or older. There is not a significant difference in terms of other variables.

CONCLUSIONS

As is known, distance learning continues to develop with technology. Learning environments and materials are affected from technology, develop and diversify according to it while both traditional and technologic learning environments are used through these processes.

Content of Open Education learning materials is based on textbook, which is accepted as the basic source of information. Assessment and evaluation processes are also based on textbooks. Learners decide environment and material through which he/she will reach content. There is not a compulsory process in the choice. Sometimes, there are project based practices. For instance, there are five different learning materials (book, internet, TV, computer and DVD) for an English class in 2011-2013 academic years, which are based on different learning targets such as pronunciation, grammar or culture sharing.

Open Education System learners are required to have self-sufficiency, readiness in order to learn the content they are responsible for by using the opportunities presented to them. Results of this research carried out with the students of Anadolu University Open Education System, giving distance learning method education since 1982, are significant both in terms of determining readiness level and in terms of presenting the relation between female higher education students in Turkey and information and communication technologies.

This research, carried out in order to determine Anadolu University Open Education System female students' relations with information and communication technologies, involves a total of 5181 participators. Most of the participators are below the age 24, which are defined as 'Digital Native' and "Zero Generation'. Digital environment becomes more and more significant in the education and development of these individuals who are more than one third of the population in Turkey (Parlak 2017, p. 1743). Most of the participators in this group live in cities; more than half of them is unemployed. This demographic information created an expectation about a dense relation between participators and information and communication technologies. The ratio of having information and

communication technologies and internet access show that female students are keeping up with the requirements of the age. There is a relative decrease in the relations with information and communication technologies based on the settlement type; relations decreases when settlements get smaller.

Most of the participators use internet. However, according to the data obtained by a study by Turkish statistical institute, the first goal of using internet is not education. Creating profiles on social media, reading news, listening to music, researching information about health are the reasons why internet is used (Turkish statistical institute, 2016). These general results show that two thirds of participators use internet environment as learning material (although female participators don't use internet for this purpose). Another result that is important in terms of education is that participators use internet for personal development. Personal development can be defined as the highest level to be achieved in terms of personal and professional life. Healthy nutrition, eloquence, artistic interests, establishing good communication, self-awareness, developing body language and understanding it are some of the issues included in the definition of personal development. Personal development is acquired apart from the development acquired through schooling. Relations with television, which is a part of daily life, are especially important as news resources, while there isn't significant difference on the issue of preferred program types on television in terms of work type and different variables. Open Education System television program ratings are quite low. Although television lesson programs have been produced since the beginning of the system, learners don't use this channel sufficiently. Surely, there are various reasons of this such as unpopularity of Turkish Radio and Television channel, not broadcasting attractive programs, not perceiving television as a way of learning.

Although Open Education System requires students have close relations with these technologies, it doesn't cause deficiencies in terms of assessment-evaluation system in which printed materials are the basis.

Relations of women with information and communication technologies aren't only based on their use of these instruments; women all around the world have role in the production of content for these instruments. The sentences will make perfect sense once there is equality both in terms of owning information and communication technologies and in terms of their instruments.

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EDUCATIONAL DATA MINING IN DISTANCE EDUCATION: A SYSTEMATIC LITERATURE MAPPING STUDY

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ABSTRACT

The education-training process and all activities related to this process have the power to direct the future of society. Nowadays, online distance education with rapidly spreading information and communication technology can overcome the various problems of traditional face to face education. It is a practical training system especially for women who do not work in our country. From this point of view, the process should be analyzed frequently concerning input, output, and other process elements. System requirements, changes in users' demand over time and open system design depend on changes in demands are essential factors to achieve maximum performance from the system at the design of web-based distance education systems. In web-based education, the restructuring of courses or contrary pages with taking into account individual differences provides a determination of individual needs and the best way for the adaptation of learners. Educational data mining is a multidisciplinary research area that develops methods and techniques for discovering data derived from various information systems used in education. This systematic mapping study aims to provide an overview of the current work of educational data mining practices in distance education. In this study, various search engines were used to search the academic literature. This systematic map and its results are based on 140 primary sources that involve articles published in conferences, articles published in the magazines, symposium articles, theses, and others.

Keywords: Distance education, Educational data mining, Systematic literature mapping

INTRODUCTION

Distance education has taken its place among the indispensables of education and training in the developed world as well as in most developed countries. This is due to changes in the needs and expectations of people in parallel with the developments in technology. The widespread use of the internet in our age has an essential place in accessing information. It also becomes an indispensable tool for information sharing and communication between communities and people living in the same society (URL-1, 2010). Distance education is an alternative to traditional educational problems, and it is a method of teaching by organizing educational activities and providing communication and interaction between practitioners and students through a specific center through specially prepared teaching units and various mediums (İçten, 2006).

Information and information technology from being just a tool, teachers, students and educational institutions-institutions that are effective in undertaking different tasks. At the same time, it is among the most important elements that have a say in the world economy. All societies aim to call today's economy as knowledge and technology economy; from education to healthcare using information technology to improve in every area of human resources and putting lifelong learning as the priority is to try to obtain a place for themselves in this area (Arı, 2010).

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Successful distance education systems depend on students, faculty/institutions, assistants, technical staff and managers to work continuously and in teams. When designing distance education systems, design, interoperability, integration with other systems, scalability, performance levels, upgrade operations, support, security, and accessibility should be considered.

Technological developments that are now influential in educational environments have also enabled large volumes of data to be generated in the field of education with the integration of technology into education. The contribution of this data set to the quality of education is directly related to the uncovering of meaningful patterns within the data. For quality education, higher education institutions should be able to make the right decisions in an administrative and educational sense. Incorrect or incomplete academic planning, failing students, students who can leave school are the problems of higher education institutions. Solving these problems and taking precautions are very important for the quality of education.

The education-training process and all activities related to this process have the power to direct the future of society. From this point of view, it can be said that the process should be analyzed frequently regarding input, output, and other process elements. Although this analysis is carried out at micro and macro level achievement exams, the convergence of the achieved success to the desired one is controversial when the exam scores are considered as the only input. Therefore, it is important to predict the transition period of input to the desired output to establish the awareness of the situations in which interruptions in the process should be intervened. In this respect, educational data mining methods can be a powerful tool for academic interventions.

In the field of distance education, educational data mining studies are carried out widely, especially in the area of ethics, data protection, storage of data in appropriate systems, detailed data collection for in-depth analysis of learning processes, and development of reports that can be easily understood by teachers and learners.

Educational data mining concerns issues such as developing recommendations for students, providing feedback and support to trainers, modeling student data, grouping students, supporting planning activities, and identifying student analysis. Educational data mining is a relatively new field of study in scholarly research, and it increases its importance among educators day by day. It is an interdisciplinary field of study which is directly related to many areas such as computer science, statistics, mathematics, data visualization, etc. It aims to transform the data produced by the information and communication technologies used in education into meaningful information for actors involved in education by analyzing them with various methods. When the studies conducted in the field of education are examined, data mining seems to be used for classification, clustering, cohesion rules, methods and techniques for students' achievements, clustering according to their information, determination of their interests and trends, automatic presentation of learning contents and revealing misconceptions.

In this study, the educational data mining applications in distance education attempted to capture an overview of the systematic classification and mapping of current relevant studies. The contribution of the research is a systematic mapping of the primary sources that exist in the online resource repository on educational data mining distance education. The rest of this study is organized as follows; a summary of the educational data mining and its applications are given in Part 2. The research methodology, including the general systematic mapping process, the target followed in this study, and the

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research questions are listed in Part 3. Part 4 discusses the source selection process. Section 5 analyzes the recurrent development of the map. The results of systematic mapping are presented in Part 6. Finally, Part 7 specifies the results of this mapping and future work to be done.

FIELD SUMMARY AND RELATED STUDIES

Distance education can be defined as methods and techniques that enable the learner who is far away from the teaching as time and space to reach the education program (Romero and Ventura, 2007). Many different methods have been used in distance education from past to present, such as learning by letter, audio and video cassette training, radio and TV broadcasting, teleconferencing and computer-aided education. Nowadays, in parallel with technological developments, these methods have been replaced by internet-based training which is easier to use and access. Internet-based education systems; course content preparation tools, simultaneous and asynchronous conference systems, questionnaires and quiz components, virtual work environments for resource sharing, whiteboard, note reporting system, diary book, homework publishing (Zaiane and Luo, 2001). However, the educational activities carried out by the students with these tools cannot be wholeheartedly followed up and evaluated by the educators. Although they present statistical reports on student activities, they do not have advanced tools to derive meaningful information for understanding student mobility. Therefore, data mining is used to reveal significant information, to define data patterns, to visualize and analyze data (Talavera and Gaudioso, 2004).

The technological developments that effect on educational environments have enabled the accumulation of large amounts of data in the field of education with the integration of technology in education. Data mining studies in education are driven by the fact that there is still unexplored knowledge available to students, teachers, administrative staff, and educational institutions in large volumes of data. Therefore, the information obtained from these data stacks will play an active role in the design of future educational environments.

Educational data mining concerns issues such as developing recommendations for students, providing feedback and support to trainers, modeling student data, grouping students, supporting planning activities, and identifying student analysis. Educational data mining is a relatively new field of study in educational research, and it increases its importance among educators day by day. It is an interdisciplinary field of study which is directly related to many areas such as computer science, statistics, mathematics, data visualization, etc. It aims to transform the data produced by the information and communication technologies used in education into meaningful information for actors involved in education by analyzing them with various methods. When the studies conducted in the field of education are examined, data mining seems to be used for classification, clustering, cohesion rules, methods and techniques for students' achievements, clustering according to their information, determination of their interests and trends, automatic presentation of learning contents and revealing misconceptions.

According to Calders and Pechenizkiy (2012), educational data mining is a multidisciplinary research area that develops methods and techniques for discovering data derived from various information systems used in education. Along with the increase in educational data, educational data mining has become a rich application area for data mining as well as learning knowledge. Educational data mining contributes to the understanding of the learning styles of learners and also enables data-driven decision-making to develop existing education practices and learning materials. Baker et al. (2010)

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define educational data mining as a discipline that develops methods of discovering unique types of data coming from educational environments and using them to understand better students and how they learned. According to another definition, educational data mining is the application of data mining methods and techniques to specific sets of data coming from educational environments to find answers to educational questions (Romero & Ventura, 2010).

Many information is obtained such as the application of educational data mining techniques on the data in distance education systems, identifying frequently and rarely used paths, identifying pages that are not visited at all, and how learner-based groups use them. Obtaining this information for learners will play an active role in providing better learning in similar web-based applications. For example, in the previous form, the short paths of user activities as suggestions for learners or activity suggestions will play a useful role in the development of similar learning. In short, if the learning attitudes, interests and previous behaviors of the students can be adapted logically to the system content, this can be beneficial.

RESEARCH METHOD

An overview of the research method, the objectives and mapping questions are presented in this section.

The Purpose of the Study and the Mapping Questions
This work aims to identify the challenges and to find alternatives for future research from the perspectives of researchers and practitioners. To this end, the literature on educational data mining applications in distance education has been systematically mapped and reviewed to find the current approaches and trends in this area. Based on this reasoning, the following mapping questions (MQ) were created:

- **MQ 1- Mapping of studies by type of contribution to the field:** The question of what type of contributions the scientific studies on educational data mining in distance education make to the field regarding the method, techniques, models, tools, processes, etc. According to Peterson's systematic mapping studies, the contribution type is a commonly used practice. Answering this question will help us to understand the tendency of the area that the current researches focus on in error determination.
- **MQ 2- Mapping by type of research:** It is aimed to answer the question of which research method was used to develop the studies. Peterson also introduced guidelines for classifying research approaches of the studies, and these principles were used to answer this question. To respond to MQ 2, primary studies were classified according to 6 different research methods. Each study was classified as including only one research method.
- **MQ 3- Mapping according to educational data mining technique used:** Mapping has been done according to data mining techniques used in the study of educational data mining. This step will help to understand the trend of existing data mining techniques and algorithms used.
- **MQ 4- Mapping according to the purpose of use of data mining in distance education:** In scientific studies covering data mining applications applied in distance education, the question of the purpose of using data mining techniques was sought. The answer to this question will help to understand how the scientific studies that are being developed in this area intensely serve for and what the general tendency is.

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An Overview of the Process
As mentioned before, this systematic mapping study is conducted based on the guidelines provided by Peterson et al. [1]. The process underlying this systematic map is summarized in Figure 1, which consists of three phases:

- Article selection (Part 4)
- Development of systematic mapping (Part 5)
- Results of systematic mapping (Part 6)
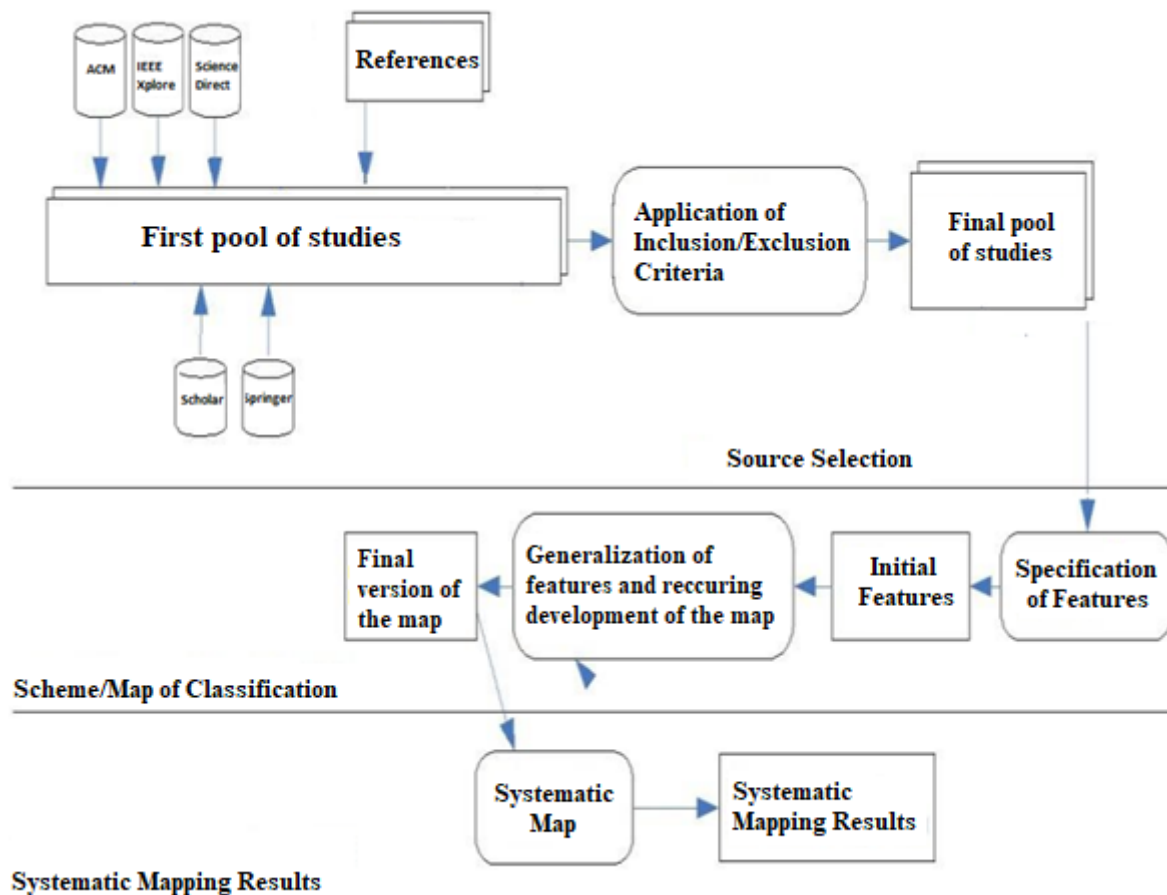
Figure 1:
The protocol used for systematic mapping studies

Resource Selection
The first step in systematic mapping is the selection of resources. In this phase, the following steps were applied in order:
- Resource selection and search for key words (Part 4.1)
- Inclusion / exclusion criteria (Part 4.2)
- Completing the resource pool (Part 4.3)

Source Selection and Keywords to Search
The digital libraries used to find resources in the study are IEEE Xplore, (2) ACM Digital Library, (3) Science Direct, (4) Springer, and (5) Google Scholar. The search begins with the search keyword "educational data mining in distance education." This search resulted

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in a total of 143 studies in the initial pool. By reviewing the summary and introduction parts of the studies obtained with this keyword, their relevance to the research field was evaluated concerning the reliability of the studies and the number of studies in the resource pool was reduced to 140 as a result of this evaluation. Also, some of the resources referenced by the studies were searched manually to minimize the risk of overlooking the related studies, and the studies that were not in the resource pool but were likely to be relevant were included in the study.

Inclusion/Exclusion Criteria
The inclusion criteria considered in this study were: (1) the relevance of each study to the context of educational data mining; (2) the level of coherence, evaluation and validity followed in the work. Only studies written in English and accessible only electronically were included. The studies that are related to the scope but do not have valid evidence were excluded. Articles related to the scope but not accessible for free were also excluded. To apply the inclusion/exclusion criteria in the first pool, each study was rated as "1" and "0" by evaluating the studies in the first pool. "1" indicates that the study might be included, and "0" indicates that the study might be excluded. The title, abstract, and keywords of the articles were reviewed to identify each study. If there was insufficient information available from these sources, a more in-depth assessment was made. As a result, the final pool was reduced from 143 to 140.

Recent Article Pool and Online Storage
The spreadsheet link (e-table) can be checked for the full reference list of 140 primary resources. The final pool of selected studies was published in an online repository using the Google Docs system. The classification of each publication chosen by the classification scheme described in Chapter 5 is also available in the online repository. The annual publication volume of educational data mining in distance education is shown in Figure 2. Regarding the beginning year of the publication period, educational data mining studies have begun to emerge in the year 2000, and there seems to be a growing concentration of work since 2013. Forty-three studies from 2017-2018 on educational data mining were included in the mapping.
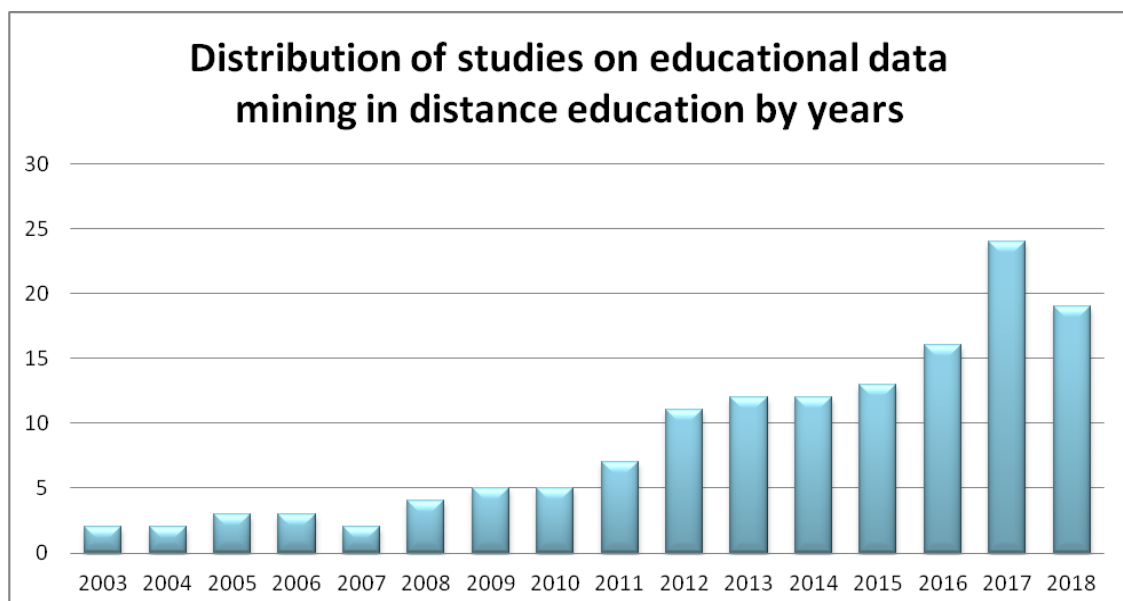
Figure 2:
Distribution of studies by years

THE DEVELOPMENT OF SYSTEMATIC MAP (CLASSIFICATION SCHEME)

Table 1 shows the final classification scheme developed after applying the processes described above. Column 1 in the table is the mapping question (MQ) list. Column 2 is the corresponding attribute/property. Column 3 is a set of all possible values for the property. Finally, column 4 specifies an attribute as to whether more than one selection can be applied.

Table 1:
The systematic map developed and used in the study

| MQ	Attributes	Categories	(M)ultiple/ (S)ingle
1	Type of contribution	{Methods / Techniques, Models, Tools, Processes, Case studies, Others}	M
2	Type of research	{Basic research, Applied research, Experimental Development, Product development, Descriptive research, Others}	S
3	Data mining technique	{Association analysis, Clustering, Classification, Estimation by ANN, Others}	M
4	Intended use	{Identification, Predict, Knowledge discovery, Comparison, Others}	S

RESULTS

The results obtained in the context of the mapping questions asked in the systematic mapping study are presented in this section.

MQ1- Contribution Types of Studies to the Research Field

The first research question aims to find out how many studies have contributed to the literature through educational data mining methods/techniques, models, tools, processes, case studies, and others. Figure 3 shows the distribution of the contribution types of all 140 sources involved in the study.

Figure 3 shows that a large number of studies contribute to the field of the data mining process. It has also been determined that 49 studies have committed or developed an existing technique/methodology with new methods/techniques and models. Thirty-one studies that produced results by applying techniques on the case and 11 studies that contributed by the new tool were identified. According to contributions, an article can be included in more than one classification.

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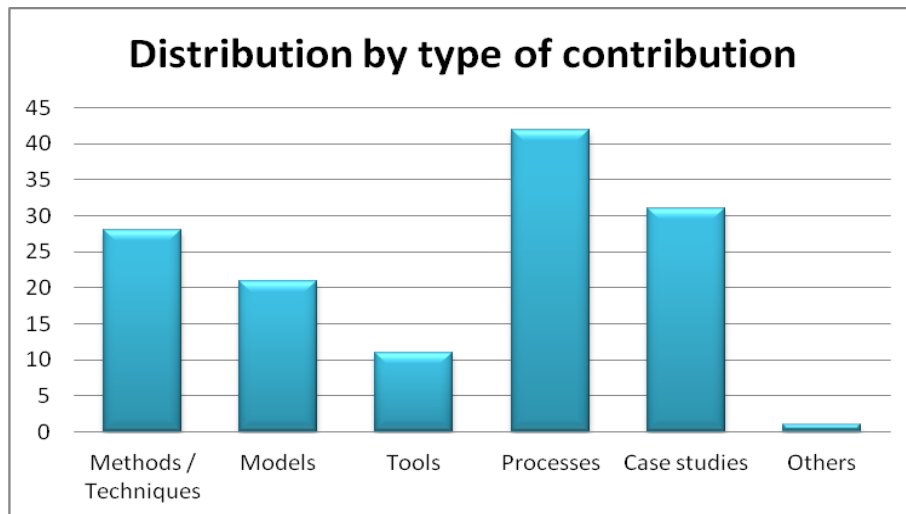
Figure 3:
Distribution by type of contribution

MQ2- Type of Research

This research question is aimed to determine what kind of research methods are used in the studies. Figure 4 shows the distribution of studies regarding research types.

In the pool of 140 studies included in the mapping study, Figure 4 shows that the most used research method is the necessary research. The results show that 54 articles use research questions or hypotheses. Following the primary analyses, there are also a lot of studies to apply data mining techniques on educational data in distance education systems. Nevertheless, the number of empirical or product-oriented studies that perform these functions is minimal. Especially in recent years, it has been determined that the emphasis is given to explanatory researches that present future proposals.
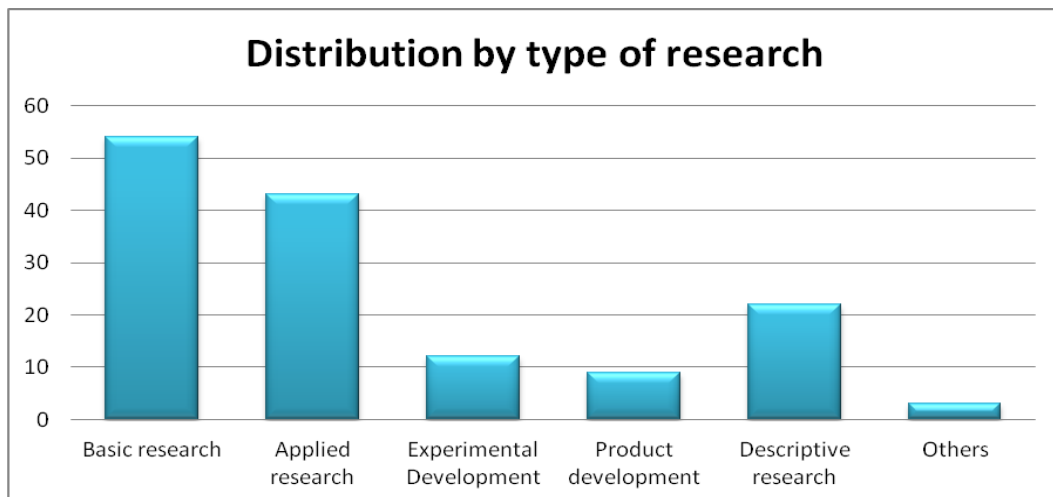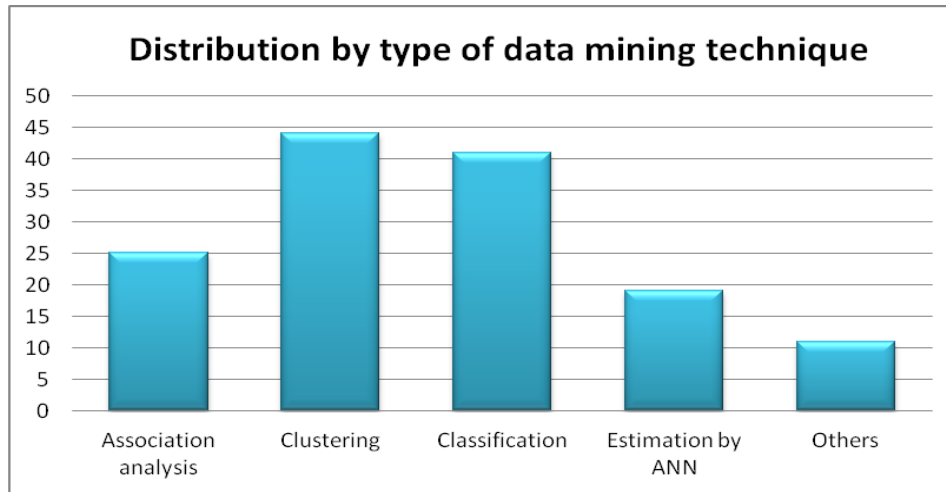

Figure 4:
Distribution by type of research

MQ3- Types of Data Mining Technique

To investigate which data mining techniques were used in educational data mining studies which are applied in distance education systems, the studies in the pool were

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classified according to data mining techniques. **Figure 5** shows the distribution of the methods used in all of the 140 studies examined.

Figure 5:
Distribution by type of data mining technique

MQ4- Purpose of Educational Data Mining

To study how data mining techniques are being used for educational data mining studies in distance education systems, the data mining activities in the pool were classified by the purpose of use. Figure 5 shows the objects for which the techniques used in all of the 140 studies examined serve. Accordingly, it can be said that the reviews were generally developed towards the purpose of forecasting, identification, and discovery of information. The number of publications prepared for the comparison of techniques is relatively low.
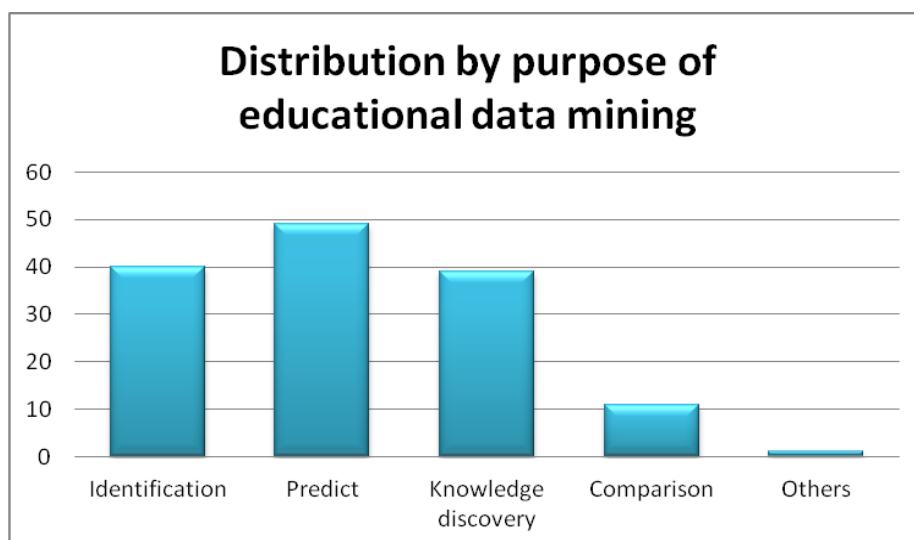
Figure 6:
Distribution by purpose of educational data mining

CONCLUSIONS

In this article, a systematic mapping study was conducted to characterize the educational data mining in the distance education area. A total of 143 primary studies were analyzed, and 140 sources remained in the final pool after filtering with inclusion and exclusion criteria. Subsequently, research questions were formed within the scope of the study. In response to the research questions, the charts related to the problems were analyzed. Accordingly, it is seen that studies which is educational data mining used in distance education systems began to emerge in the year 2000 and that since 2012 there has been a growing study intensity. It has been found that numerous studies have contributed to the data mining process. It has been determined that there is a density in the number of studies demonstrating new methods/techniques and models.

On the other hand, there are very few studies that put forth new tools. It has also been observed that studies in which classification and clustering techniques are predominantly studied, but studies that make predictions for the future are relatively small. As future work, based on this work, it is planned to carry out a Systematic Literature Review (SLR) study in the field of educational data mining by extending this work from different angles.

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FEMALE ACADEMICS IN DISTANCE EDUCATION FIELD

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Dear readers,

We give their opinions in the field of distance education in terms of women's point of view, their contribution to this field, and their opinions on the topic of "women education and distance education". We have our guest, a female academician of Anadolu University Open Education Faculty, Assoc. Prof. Dr. Coşgul YUKSEL.

My First Encounter with Distance Education

The first thing I had heard about this field was "the Institute for Education through Television". The year was 1980. This institute was founded in Eskişehir... It was affiliated with the then-called Eskişehir Academy of Economics and Administrative Sciences. Having passed the job entrance exam of this institute, my fiance was entitled to work there. Both of us had graduated from Ege University, Journalism and Public Relations College, Department of Radio and Television.

While the Institute for Education through Television was being staffed, in the meantime the test filming was done and the programmes were being prepared. Research was being conducted into the use of means of mass communication in education throughout the 1970s. Meanwhile national and international meetings were being held. New publication and broadcasting was being made. Projects oriented towards the practical application of distance education were being prepared. Furthermore, technological infrastructure was built thanks to foreign funds, and staff recruitment was maintained in order to train technical human force to use this technology. The foundations of the institution, later named Open Education Faculty, to carry out the first practices of distance education in Turkey, were thus laid. The task of offering distance education at higher education level was assigned to universities in 1981. The institution to undertake this task in 1982 was to be Anadolu University, founded on 20 July 1982.

It was 1985 when I started to work for the Institution for Education through Television, later named Educational Television (ETV), of Anadolu University Open Education Faculty,

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which set out with such knowledge and experience in 1982. That was a period when there was intense work for Education Associate Degree project, developed for high school graduate teachers to have associate degree of 2 years. That was the first time the radio was to be used in education, and radio programmes were to be prepared for the target group. Having completed the first year as a programme production assistant, I continued in this unit as a programming assistant. Then a project for bachelor's degree completion program followed. I was working as an assistant director on educational television when Turkish and Maths programmes began to be produced for the target group preparing for the university exam.

Those were the times when I was writing a thesis for my master's degree in Film and Television Programme, which the Institute of Social Sciences offered. My thesis topic was based on opinions of the target group about the radio programmes which we had prepared.

1992 was the year when the Department of Scriptwriting was set up for the purpose of overcoming the problems in the scripts written by the teaching staff. I was one of those assigned in this department. Since then my work as an educational scriptwriter has been continuing in this institution. So has my interest in documentary cinema...

Documentary Cinema and Me

My first encounter with documentary cinema came when I started to write a script for Nazmi's (Ulutak) documentary film "*Baş Makinist*" (Chief Mechanic). I was being introduced to a new understanding of documentary cinema which didn't overlap with what I had slightly known about it till then. This interest was one of the reasons why I did Proficiency in Art Degree in Film and Television Programme. I enrolled in Film and Television Programme in the Institute of Fine Arts at Marmara University in 1998. I completed the Proficiency in Art Programme with my thesis paper "*Yaylaçalı Beklemede (Yangın Kulesi)*" (Yaylaçalı On Standby − Fire Lookout Tower) in 2000. However, documentary cinema was going to be a subject which I kept interesting myself in forever.

In 2000, I watched a documentary about village institutes, about which I had just picked up some pieces of common knowledge till then. It was a documentary made by Can Dündar. There arose a question in Gülfem's (Gürses) and my minds: What do village institutes mean to women? We set out to research into this question. At that stage did we meet my dearest Pakize Türkoğlu, the author of the book titled *"Tonguç ve Enstitüleri"* (Tonguç and His Institutes). First, I gave Teacher Pakize a ring... She was a bit worried when she answered my call... After I told her about our village institute project on women, she got excited. I

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shared the title of the film with Teacher Pakize on that telephone conversation. It was going to be *"Mandolinli Kız"* (Girl with Mandolin). And so it was. We completed the project in 2004. As we met the graduate teachers, each of whom had a distinguishing success story, we were to see what could be achieved in this country. For instance, having finished the primary school, Pakize Türkoğlu came to Aksu Village Institute from a mountain village of Alanya with the support of his father, who said, with obstinate refusal to old wives' tale that educted girls would burn in hell, that they wouldn't, either. Ayşe Baysal was a girl, who was sent to the institute because she was thin, feeble and couldn't work in the field.

She was coming to Ivriz Village Institute from a mountain village of Konya Ermenek. She witnessed how the older institute students coming to assistance from village institutes of different cities worked in the building construction. Accompanied by a family moving from Erzurum to Kars, Halise Apaydın arrived at Cilavuz to study at the Village Institute. In the years to come, Pakize, Halise and so on were going to meet at Hasanoğlan Higher Village Institute, to be the university of the institutes in the future. However, the story of village institutes in our country were to be completed with their closure in 1956.

For my part, I have continued both writing educational scripts for televison and shooting documentaries. The documentaries such as *"Öte yüz"* (the Other Side)*,* "*Bu Millet Bunları Gördü Kızım*" (This People Has Faced These, Daughter) were to come out in this process. My portfolio, I prepared with my articles on educational scripts and documentary cinema, was to enable me to be an associate professor in visual arts.

Distance Education as a Student

The year was 2011 when my way overlapped with distance education as a student. Whenever I encountered a problem while either writing educational script or working on a documentary, I always found the solution in a dictionary of philosophy. Life was based on a philosophical foundation whether we were actually aware or not. However, when we were aware of this fact, life would be more meaningful. Such thoughts led me to use the opportunity of second university that Open Education Faculty offered. I enrolled in bachelor's programme in Philosophy.

Coursebooks from educational environments became basic course materials for me. Especially the books, prepared in accordance with distance education techniques after having been written by leading names of the Turkish academic life, were very important. As a student, did I benefit from the video programmes, the production of which I had contributed to for years? Yes. Especially the video programme about "Symbolic Logic", in

which the field expert explained the basic points on the board, helped me overcome this challenging course.

Future Plans

Educational videos are still being prepared in ETV, established as the Institute for Education through Television. The huge TV studios of the past are much smaller now. Presenter films shot in a corner of the studio are converted into video programmes in computer environment. The shooting team of several people are smaller, so are the studios. At this point the issue which has maintained its importance from past to present is content design… I think I will keep on my work related to the content design in distance education.

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