THE EFFECT OF CLASSIC AND WEB BASED EDUCATIONAL APPLICATION, APPLIED FOR TURBO PASCAL LESSON, ON STUDENT SUCCESS LEVEL

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ABSTRACT
The aim of research is to compare difference between tenth class students and determine their level of success about classic and web based educational applications of Turbo Pascal lesson.

This research was applied to 10 A and 10 TLB students of İzmir Karşıkaya Anatolian Technical and industrial high school computer department in second term of 2004-2005. In this research in order to apply web based education the program named "Pascal Öğreniyorum" was planned using PHP language for control group on TLB and for experiment group on A classes were choose. The equivalents of these groups were scaled with pre-test . Then the program prepared for experiment group, subjects were told and applied in the environment of the post-test lab. For controlled group the subjects were taught in classical method and post test was applied as in written exam. The success paints which were collected by the help of pre test and post test. I were transferred to SPSS analyzing program and program and interpreted. As a result of this analysis it was determined that there was a significant difference in favor of web based education

Keyword: Web Based Education, Computers, Turbo Pascal

1. INTRODUCTION

Traditional learning–teaching environment, crowded classes, time and limited places affect in a bad way the students' participation to learning duration. As a result of this, individualized learning which is one of effective circumstances occurs.

In order to individualize teaching, various methods have been claimed and while some of them are accepted, some of them are refused. Data age, affects our educational system mostly. New developments in data technology form some new concepts for education. These new educational concepts bring reach learning areas which are supported by well planned resources. Web based education can be used as a new learning and teaching material in forming this kind of rich teaching environment. (Hacker, R. G, & Sova, B. 1998).

We come across rapid growing communication and computer technology in every area and make our lives easier. In order the catch contemporary education, level of the developments in data and communication areas, it is inevitable to complete education program one of the technologies used effectively in educational system is computer based learning. The works have been done in this area, when computer based education is compared with traditional education method, the success in computer based education is found to be higher. (Chang, 2002; Hacker ve Sova, 1998; Yalçınalp, Geban, ve Özkan, 1995).

It is necessary for all students to learn individually in each learning. Because, in life, it is necessary for all people to solve the problems they come face to face by their efforts. The importance of learning individual working is hidden in the fact that learning is all about the person himself or any one else can't make learning for another one. But, on the other hand, he can help another one to make learning.

Students in web based computer learning environment can be more effective then the traditional class environment and they benefit from individualized teaching opportunities.

Thanks to teaching and learning activities with computer, students can intensify the subjects they have learnt and while doing that they can progress at their speed. (Rushby, 1989, p150). Web based education is an a appropriate environment for multiple environment application that shelter the elements like text, graphic, animated picture, audio video clips, etc...by the help of multiple environment applications, concepts can be given more effectively this kind of interacted environments transform individuals' learning activities to a more enjoyable and qualified type so learning can come true in a higher level.

Computer based education applications are getting wider and wider in Turkey. In government program published in official newspaper on the 31st of December 1987, it has been mentioned to use also a computer in new technology in education. In the same year "one million computers"- slogan forms the basic of these applications

and it has been determined the concepts and scope of computers under the name of new technologies in the thirteenth article of The Ministry of Education. (MEGSB.I987, p.26 and p.31).
Up to now used of computer in education goes on increasingly its importance, today governments points the importance of computer in education again and again by producing this kind of projects. In 1996 computer and teaching technology department was opened as a result of these works. In the near past the project "giving fast internet to 40.000 schools" is an indicator for how much importance is given for this project.

In this research, problem condition; as a result of classical and web based education applications in turbo pascal lesson in curriculum which is applied in İzmir Karşıkaya Anatolian Technical and industrial high school computer department 10 A and 10 Tlb class students, it is asked if there is a significant difference in "Turbo Pascal" class between 10 A and 10 Tlb classes' students.

The aim of this research is to decide whether the classical education or web based education is more effective after applying them to students of 10 A and 10 Tlb students in Izmir Karşıkaya Anatolian Technical and industrial high school computer department. This research shows that in which education method the students in İzmir Karşıkaya Anatolian Technical and industrial high school computer department 10 A and 10 Tlb are more successful. Besides, it shows that in successful education methods what they should do for success and how they can be successful with individual learning methods.

This research is applied under these limited conditions.

- With the students İzmir Karşıkaya Anatolian Technical and Industrial High School Computer Department 10 A and 10 Tlb.
- With students' pre and post test.
- It is restricted by a web site "Pascal Öğreniyorum" developed by the researcher.

2. METHOD

In this part of research it is given place to the method that is used to solve the problem, research model, universe and determining the models, data gathering materials and the statistical method and techniques that used for solving gathered data and interpreting.

2.1 The Model of Research

In this research that examined the effectiveness of learning method which is web based in Turbo Pascal teaching, it is applied pre-test and post-test control grouped model which is the real experiment model.

2.2 The universe of The Research

The universe of the research is 54 students who have been studying in İzmir Karşıkaya Anatolian Technical and industrial high school computer department in 2004-2005 spring learning – teaching term in 10 A and 10 Tlb.

2.3 The Illustration of The Research

The illustration of the research is the all students who have been studying in İzmir Karşıkaya Anatolian Technical and industrial high school computer department 10 A and 10 Tlb.

2.4 Data Gathering Techniques

The reasons of doing experiments of the research with students of İzmir Karşıkaya Anatolian Technical and industrial high school computer department 10 A and 10 Tlb is that in this school there is a lab which has internet and web and students are this department's students so students know how to use computer and web site. Besides, this school is in the institution area that researcher of the school can research easily. That is why this school has been chosen.
By this research it is tried to determine the effectiveness of web based computer based learning method (independent variable) so experiment and control groups are compared according to pre-test results.(Table 1).

Table 1 : Groups Distribution According To Pre Test Scores

	Arithmetical Average
Experiment Group 10 A	52.19
Control Group 10 TLB	60.17

As it is seen in table 1, it is fixed that according to pre-test average; the success of experiment group is less than the success of control group.

2.4.1- Data Gathering Materials

In order to support research's institutional dimension, it is tried to reach local and foreign resources, it is benefited from experts' thoughts on this subject.

In order to gather the data to answer the problem it is formed data based computer lesson software to be used in experiment group, and it is develop two lesson materials to measure students' success in turbo pascal lesson, named pre-test and post-test.

Web Based Computer Lesson Software

For selecting the software used in application this way is followed; the research is determined according to in which subject of Turbo Pascal it will be applied by getting opinions of teachers and the experts that are on duty at the school of applications. Pascal lesson book (Akgöbek, Ö, 2000) investigated by its content and filing subject which is found in "Turbo Pascal" lesson book is decided. Later, they tried to reach education teaching institutions which have materials or apply web based computer supported Turbo Pascal learning.

From the investigated softwares which seem suitable are presented to the opinions of expert and teacher in the school in which the application made.

Taking the teacher and expert opinions the decided content, later, is prepared as PowerPoint presentation in computer environment. Besides a web site is prepared for students to be able to reach this lesson teachings. The students become user of this side as registration to web site. Moreover, it is supplied that the students can reach PowerPoint demand which includes subject teaching about filing of Turbo Pascal. "Pascal Öğreniyorum" is a dynamic web site prepared with PHP in which subject teaching is published.

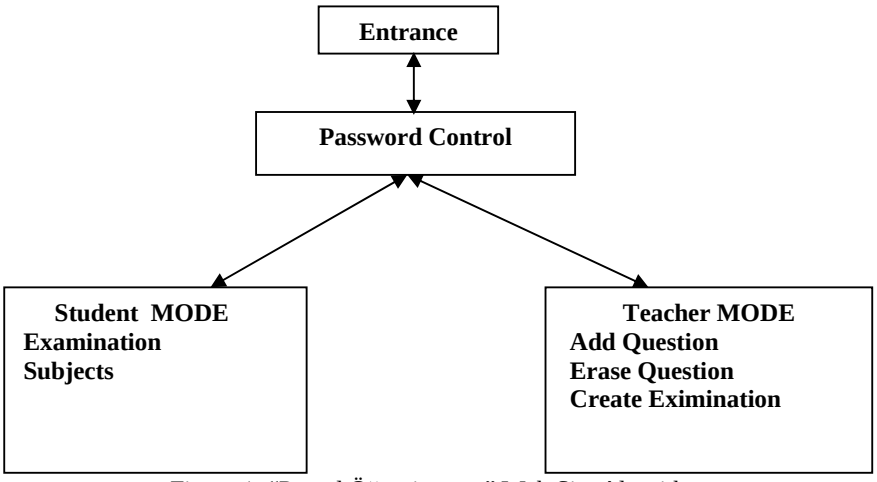

Figure 1: "Pascal Öğreniyorum" Web Site Algorithm

"Pascal Öğreniyorum" web site is consist of two different modes.

* Teacher Mode * Student Mode

Entrance Page: It is the part the users meet first and enter. In order to make entrance for users, a student should code his password and number totally. For this entrance page should be used. (Figure 2)

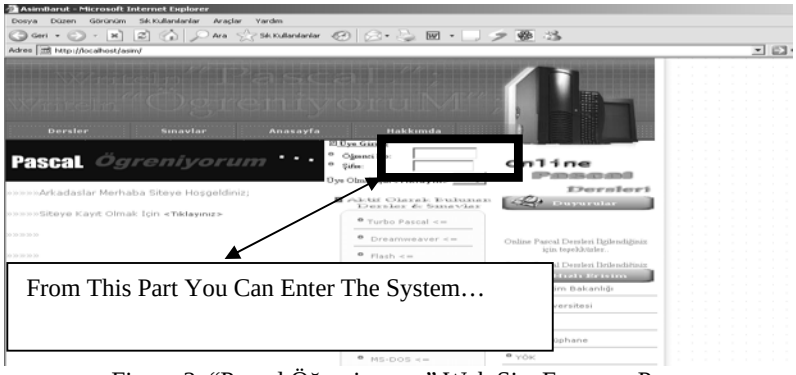

Figure 2: "Pascal Öğreniyorum" Web Site Entrance Page

- **Student Page:** It is part that students can have examination, reach lesson subject and enter with password and user name (Figure 3).

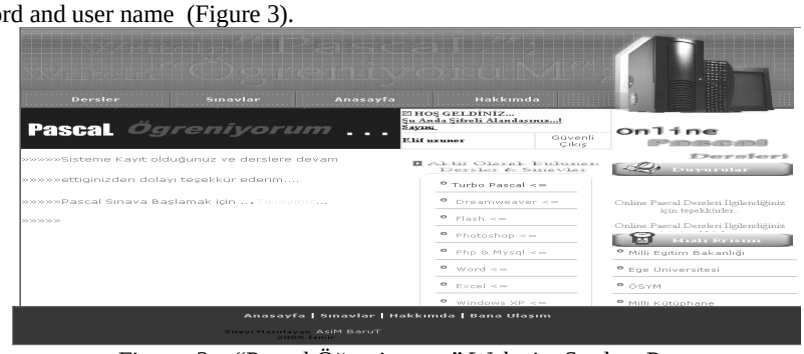

Figure 3 : "Pascal Öğreniyorum" Web site Student Page

- **Teacher Page:** It is the part that teachers prepare exams, they add and take out the subject. (Figure 4).

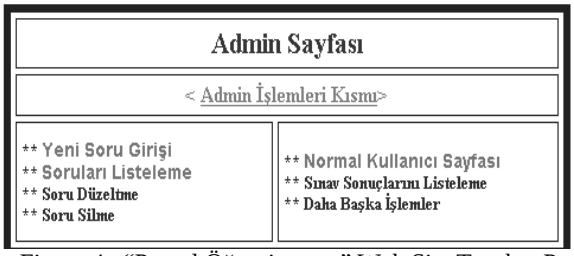

Figure 4 : "Pascal Öğreniyorum" Web Site Teacher Page

Question Entrance: It is the page that teachers enter the multiple choice questions to system.(Figure 5).

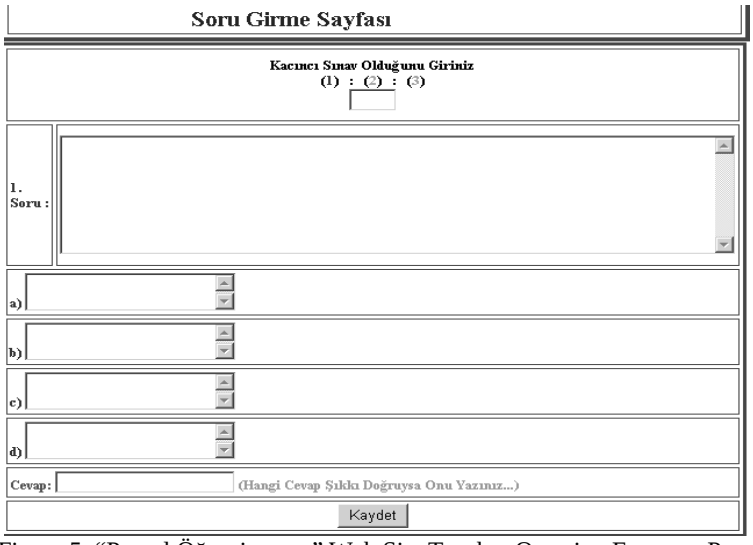

Figure 5: "Pascal Öğreniyorum" Web Site Teacher Question Entrance Page

Subject Success Test (Measure Instrument)

In this research two tests which are named pre-test and post-test are prepared. The subjects in Turbo Pascal lesson books taught in İzmir Karşıkaya Anatolian Technical and industrial high school computer department and aims are determined by taking lesson teachers' ideas. In order to measure the determined aims, a pre-test (With Indicator Table) consist of twenty five question is prepared and presented to experts' ideas. While preparing the questions, they benefit from teachers' questions and lesson books. Measure instrument is created by chosen questions which are convenient for tried' levels. Post test is prepared with the same conditions but at this time it is together with twenty – questions post test which includes filing and subprogram subjects chosen before and submitted to expert views.

Application

The web page (software) used in application is created by the investigator by taking expert's views. It has been applied for a mount to the student İzmir Karşıkaya Anatolian Technical and industrial high school computer department 10 A and 10 Tlb classes students. Before beginning to Turbo Pascal lesson which taught before, generally the pre-test which is prepared to measure Turbo Pascal levels is applied to both groups. So, groups entrance levels are determined after pre-test is applied, the control group is taught with traditional method, experiment group is taught with web based and computer assisted method. After finishing the subject, multiple chose post test which includes the subject is applied.

Turbo Pascal's filing subject is taught by the teachers to the students in control group. During the works about the subject, the teacher uses lesson book and bored. The teacher is set free about the works but, they should be according to determined aims. Two lesson hour in a week, after twelve-hour lessons in total, the post test is applied to the students. Turbo Pascal's filling subject prepared with web based computer software has been done by internet to the student in experiment group. It is seen that the students in experiment group participate in works more willingly and they like the software. Generally, when they are compared with the control group students, they do the works more quickly and they work more. The post test is applied to control group with classical method and for experiment group, it is applied by internet as a multiple choice test.

The Solution of Datum

After experiment and control group take points related to pre test and post test, the students' group numbers in each group are less then thirty. It is tested by applying "2 related Samples" from nonparametric tests if there is a significant difference about arithmetic average of the pre test and post test points of the students in each group. The reason of using this test is to take healthy datum and numbers of the groups are less then thirty. Following this, between groups, by using "2 independent T" test from nonparametric test, and it is tested if difference of arithmetic averages of pre test and post test points are significant or not. The statistical process and analysis in the solution of datum is come true with SPSS analysis program.

3. EVIDENCES AND INTERPRETATION

The school of İzmir Karşıkaya Anatolian Technical and industrial high school computer department 10 A and 10 Tlb classes fifty four students are applied pre test, then post test is applied. According to the purpose of the research, in order to answer the problem in the second section as it is explained with the method after gathering the data as a result of statistical result, it gives place to evidences and the interpretations of the evidences. The results pre test of experiment and control groups are given in table 2.

Table 2 : Experiment and Control Groups Pre Test Result

	GROUP	N	Average Level	Total Level
PRE TEST	Experiment Group 10 A	31	23.29	722.00
	Control Group 10 TLB	23	33.17	763.00
	Total	54		

While comparing pre test, as element scores are smaller then thirty, it is used "2 Independent T" test which is one of nonparametric tests. This test is used to get correct data and the table above is obtained as a result of students' marks analysis. According to this test the average of experiment group's pre test is 23.29; the average of control group's pre test is 33.17. Significant difference of test analysis is seen in table 2.1.

Table 2.1. Significant Difference Of " 2 independent T" Test Analysis According To Pre Test Results.

	PRE TEST
Mann-Whitney U	226.000
Wilcoxon W	722.000
Z	-2.296
Importance Control	p=.022 p<0.05 **Importance of difference**

The degree of p is found as 0.022 according to the result of analysis and as degree is $p<0.05$, the difference is significant. It occurs a significant difference between experiment and control groups of Turbo Pascal info. The post test results of experiment and control groups are given in table 3.

Table 3 : The Results Of Post Test Of Experiment And Control Groups

	GROUP	N	Average Level	Total Level
POST TEST	Experiment Group 10 A	31	29.68	920.00
	Control Group 10 TLB	23	24.57	565.00
	Total	54		

The average of post test of experiment group is 29.68; the average of post test of control group is 24.57. According to the average of pre test of experiment group it is obtained as significant increase but it is realized decrease in control group. The reason of this increase is that "Pascal Öğreniyorum" program affects students in positive way to get the subject and have positive attitudes. The significant difference of test analysis is seen in table 3.1.

Table 3.1. Significant Difference of Test Analysis of "2 Independent T", One Of nonparametric test, according to post test results of groups.

	POSTTEST
Mann-Whitney U	289.000
Wilcoxon W	565.000
Z	-1.208
Importance Control	p=.227 p>0.05 Unimportant Difference

After the result of analysis the degree of p is found as 0.227 and as the degree is $p>0.05$, the difference is insignificant. But when it is looked at the average of experiment and control groups, it is deduced that web-based education that is applied to experiment group is more effective than the classic education that is a applied to control group.

Table 4 : Comparison Of Pre Test and Post Test Results Of Control Group

		N	Average Level	Total Level
POST TEST – PRE TEST	POST TEST < PRE TEST	10	10.70	107.00
	POST TEST > PRE TEST	12	12.17	146.00
	PRE TEST = POST TEST	1		
	Total	23		

While comparing the results of pre test and post test control group it is used "2 Related Samples" test which is used for comparing different to features of the same group and which is the equivalent of nonparametric tests of Paired Samples. The results of analysis is given in table 4.1.

Table 4.1 : Test Analysis significant difference of "2 Related Samples", One Of Nonparametric Tests, According To Pre Test And Post Test Results.

	POSTTEST – PRETEST
Z	-.634
Importance Control	.526 p>0.05 Unimportant Difference

There is no significant difference between pre test points and post test points of control group. The comparison of results of pre test and post test of experiment group is given in table 5.

Table 5 : The comparison of the results of pre test and post test of experiment.

		N	Average Level	Total Level
POSTTEST - ÖNTEST	POSTTEST < PRETEST	6	10.50	63.00
	POSTTEST > PRETEST	24	16.75	402.00
	PRETEST = POSTTEST	1		
	Total	31		

As a result of comparing experiment group pre test with post test the number of the members who take high point in pre test and take low point in post test are 6. The number of the members who take low in pre test and high in post test are 24. Only one member takes the same points in both pre test and post test. It is seen in table 5 that there is a significant difference between pre test and post test points of experiment group.

Table 5.1 : Significant Difference of test analysis of "2 Related Samples", one of nonparametric tests, According to pre test post test result

	POSTTEST- PRETEST
Z	-3.488
Importance Control	.000 p<0,05 Difference is Important

As a result of analysis p degree comes out 0,000 and since it is p<0,05, it means there is a significant difference. This difference is indicator for that "Pascal Öğreniyorum" web based education is effective for the experiment group student.

4. DISCUSSION AND RESULTS

İzmir Karşıkaya Anatolian Technical and Industrial High School computer department 10 A and 10 Tlb is determined as a control group, class 10 A is determined as experiment group. In the class of experiment group 10A it is applied web based education program named "Pascal Öğreniyorum" in the class of control group 10 Tlb it is applied classic education.

As a result of analyses in control group it is determined that there is no improvement between pre test and post test, but in experiment group which is applied web based education program named "Pascal Öğreniyorum" it is observed that comparing to pre test, in post test the success increases so it can be said easily that web based education is more effective than classic education.

If the technology is used with its all sides it can enhance learning at two points. It can direct students' personal choices and it can supply rich learning which help students to use different methods. Therefore students can benefit from a richer environment in web based learning environments. With the fact producing such materials requires time, there is like no other way to make environments more effective. Hence, it must be done necessary arrangements to create rich various environments (Renshaw, C. E, & Taylor, H. A 2000).

The results of the research shows that in order to use that web based environments more effective it can be benefited from its technical features and the knowledge should be presented in different forms. In addition to visual supports the content should be given as a digest or it should be given in an easy way while reading on the screen. As a visual image every web page should be represented with minimal knowledge in it. With all these opportunities it should be presented some opportunities to help students to make self-evaluation, motivation, and also interaction plays an important role. As different authors explain, interaction is the key of success in a web based environment(Hacker, R. G, & Sova, B. 1998). As the user is alone in computer atmosphere, it enhances the learning, motivation and interaction by using different techniques.

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