Achievement in Language Learning: Effects of Various Computer Assisted Activıties and Computer Literacy[1]

Yabancı Dilde Başarıyı Etkileyen Faktörler: Bilgisayar Destekli Faaliyetler ve Bilgisayar Okuryazarlığı

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ABSTRACT: The purpose of the study is to determine the factors affecting the student gain in achievement in English classes and to determine the factors that are related with the student scores on English classes by using a computer assisted language-learning (CALL) software, called DynEd. More than 600 grade 4 to grade 7 students from 10 secondary schools were invited to take part in a pre-test, a post-test, and a student survey between fall 2009 and spring 2011. Two separate regression analyses were run to probe the research questions. It was found that being a student of grade 6 and grade 7 significantly matters in terms of achievement in English scores as well as possessing MS Word and MS Excel skills. Moreover, the DynEd-related activities had no impact on achievement scores at all. However, students who felt themselves comfortable in Excel performed worse in achievement.

Keywords: Achievement in English, computer use, gender, grade level, computer literacy, CALL

ÖZ: Bu çalışmanın amacı öğrencilerin İngilizce dersi başarısını etkileyen faktörleri belirlemek ve DynEd isimli bilgisayar destekli dil eğitimi yazılımının öğrencilerin İngilizce başarısına etkisini belirlemektir. 2009 Bahar ve 2011 Güz süresince 10 ilköğretim okulunda bulunan 4. sınıf ve 7. sınıf arasındaki yaklaşık 600 öğrenciye ön-test, son-test ve anket uygulanmıştır. Problem durumunu irdeleyebilmek için iki farklı regresyon analizi yapılmıştır. Çalışma sonuçlarına göre, öğrencinin hangi sınıfta olduğunun (6. ve 7. sınıflar için) yanı sıra MS Word ve MS Excel becerisinin de İngilizce başarısına anlamlı etkisinin olduğu tespit edilmiştir. Fakat DynEd yazılımının başarıyı etkilediğine dair bir bulguya rastlanmamıştır. Bununla birlikte, MS Excel bilgisi iyi olan öğrencilerin İngilizce performanslarının düşük olduğu gözlenmiştir.

Anahtar sözcükler: Sözcükler: İngilizce başarısı, bilgisayar kullanımı, cinsiyet, sınıf düzeyi, bilgisayar okuryazarlığı, CALL

1. INTRODUCTION

The European Union aims to become the most competitive and dynamic knowledge-based economy in the world. To achieve this, the Lisbon European Council (March 2000) decided to adapt Europe's education and training systems to the demands of the knowledge society. The Council established a European framework that should cover ICT, technological culture, foreign languages, entrepreneurship and social skills, defining 'the new basic skills' to be provided through lifelong learning. After that, the Barcelona Council (February 2002) paid attention to digital literacy and foreign languages to improve the mastery of basic skills and to strengthen the European dimension in education. In order to follow these policies, some of the European Union members have made foreign language especially learning English compulsory (Neri, Mich, Gerosa & Giuliani, 2008).

Language education should be developed by using technology, especially by using the development of Internet technologies (Education &Training 2010, p.14). In the 9th 5-year development plan (2006) Turkish Ministry of Development announced that school programs should be adapted in accordance with the requirements of modern technology and policy.

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Moreover, traditional methods for every level of education should be terminated to adapt to the lifelong learning. Hence, to achieve this, Ministry of National Education made use of DynEd, the English Language Education System, compulsory in ESL courses in order to increase the teaching effectiveness (MEB, 2007).

Past research has explored the correlation that exists between achievement in English courses and a variety of other factors, including computer use, gender, and experience with Computer Assisted Language Learning (CALL). Recent research on computer use and academic achievement experiences revealed diverse results. For example, Ravitz, Mergendoller and Rush (2002) investigated the relationships between student computer use and academic achievement and found both positive and negative relationships. It was documented that students who score better on standardized achievement tests are those who use computers more often at home, and they found a negative effect between uses of computers by students at school and school achievement. It can be stated that having better computer literacy helps one use a computer efficiently for any purpose. A reverse connection has also been documented. High-achieved students in English spend more time in front of the screen and they have more access to computers (Taylor, Kirsch, Jamieson & Eignor, 1999; Rahimi & Yadollahi, 2011). In addition to that, doing schoolwork and seeking information systematically by using computers increase the performance in English (Naedval, 2007).

In addition, the gender difference in computer use has been a major anxiety among educators (Colley & Comber, 2001; Imhof, Vollmeyer & Beierlein, 2007). It is important to study whether there is difference in achievement in English between genders with respect to computer usage as CALL materials used as a supplementary material. Even though, boys use computers more frequently than girls (Taylor, Kirsch, Jamieson, & Eignor, 1999; Naedval, 2007), girls benefit more in English course achievement while both use computers for two hours or more (Naedval, 2007).

Another factor affecting achievement in English courses is both students' and teachers' experience with CALL software. Bataineh and Hani (2011) examine the potential effect of a computerized instructional program on Jordanian sixth-grade students' achievement in English. Four instruments were utilized: a pre-post achievement test, a student opinionnaire, a teacher opinionnaire, and an observation checklist. The findings reveal a statistically significant difference in student achievement in favor of the experimental group that teachers and students have positive attitudes towards computer use, and that teachers are committed to computer use in language teaching. Moreover, Kennedy and Levy (2009) claimed that the CALL project's success stems from the skills and attitude of individuals. Olibie (2010), in her research with 2080 students, found that there was a significant difference in achievement gain between students who used CALL software and who did not. But as Kennedy and Levy (2009) stated that it takes time for both students and teachers to get used to use CALL applications and gain achievement in their courses. Lai and Gu (2011) stated that the language learners using technology out-of-class could have opportunity to get different experiences to regulate their language skills.

In this study DynEd is being researched as CALL software, used as out-of-class activity in secondary schools. The word DynEd is composed of the words Dynamic and Education. It aims to move from the ability of "understanding" to "becoming automatic" and so the language skills will remain in the long-term memory. DynEd helps students memorize in long term including various processors such as the visual, auditory, conceptual, phonological and orthographic via well-designed activities. DynEd System is envisioned to be a useful tool for the students in order to learn English online. DynEd runs on a server that has been set up in the Ministry of National Education. The software provides an opportunity for the students to study at schools or home in front of the computer, the teachers can monitor the students' practices and guide them. Students' practices are being recorded into the server.

1.1. DynEd User Interface

DynEd is a modular system. It is composed of two levels, and each level includes 8 chapters. The teacher can allow access to each level manually or making students to attend proficiency test. According to the percentage of completion of chapters, the teacher can allow access to next chapter.

Each module is composed of listening, dialogs, vocabulary, grammar, letters & numbers. Learning new vocabularies has an important factor in improving language learning (Gorjian, Moosavinia, Kavari, Asgari & Hydarei, 2011). Recent studies indicated that vocabularies could also be thought and/or learned by using CALL activities. After listening the desired topics, some questions (3 or 4 questions depending on the level or topic taught) are asked by the system. Depending on the false answer percentage, the system warns to repeat to study the same topic. It includes translation button to translate to native language. In addition to that, the system also includes voice recording and listening to it (Figure 1). As Chiu, Liou, and Yeh, (2007) indicated that using speech recording may enhance the language learning. So, the user can practice without fear in making mistake in pronunciation. The system also includes a fixed item dictionary.
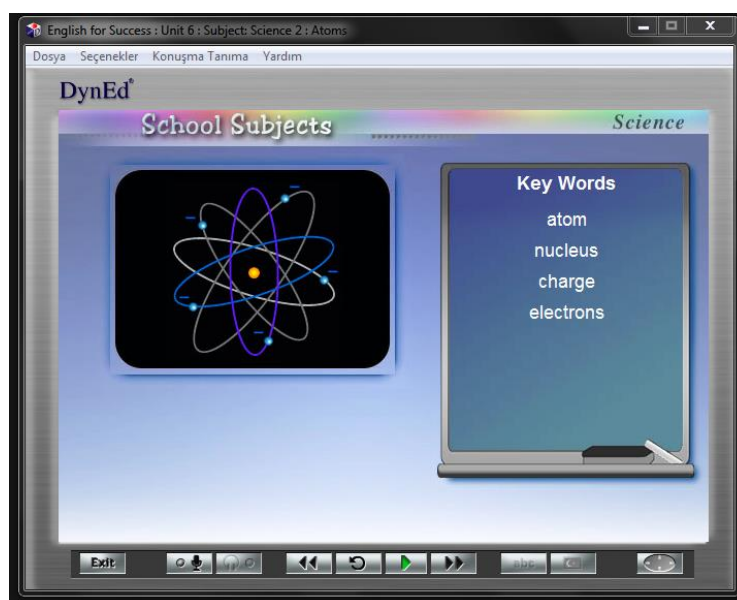

Figure 1. DynEd: active page and user interface

The teacher can let students to attend quizzes after the students completed the 80 % (this percentage can be adjusted by the teacher) of the chapter. The teacher and the student can always monitor the children's work and progress. It was stated that language learning performance could be enhanced incase a chance to communicate with teacher was given (Yang, 2011). In CALL applications, students and teachers can communicate each other synchronously or asynchronously for effective language learning. The DynEd system was designed to communicate asynchronously, so that students and teachers can send e-mail massages to each other, but students cannot communicate with each other.

The purpose of this study is, thus, to investigate the factors affecting the student gain in achievement in English classes and the factors that are related with the student scores on English classes through the use of DynEd as out-of-class activity in secondary schools.

1.2. Research Questions

In this study, the following research questions were sought through the DynEd system:

1) What factors affect the student gain in achievement in English classes?

2) What factors are related with the student scores on English classes? Do students who are more successful in English language skills have a different profile than the students who are less successful?

2. METHOD

2.1. Research Design

This study utilizes Causal-Comparative research design. "In Causal-Comparative research, investigators attempt to determine cause *or* consequences of differences that *already exist* between or among groups of individuals" (Frankel & Wallen, 2003, p. 368). It is also referred to as ex post facto research design. Causal-comparative research "refers to those studies which investigate possible cause-and-effect relationships by observing an existing condition or state of affairs and searching back in time for plausible causal factors" (Cohen, Manion, & Morrison, 2000, p. 205). "A researcher might observe, for example, that two groups of individuals differ on some variable … and then attempt to determine the *reason* for, or the *results* of, this difference. The difference between the groups, however, has *already occurred* (Frankel & Wallen, 2003, p. 368).

2.2. Instruments

This study incorporated three different instruments as means of data collection. Table 1 presents the descriptions of the dependent and independent variables, and the sources of the variables that were utilized in the analyses in this paper. A total of 600 students from 10 secondary schools were invited to take part in a pre-test, a post-test, and a student survey between fall 2009 and spring 2011. Participation was voluntary. Participation rates changed from instrument to instrument. The number of participant can be seen inTable 2.

The pre-test and the post-test were the same in terms of the items measuring students' English language skills as a second language. The pre and post-tests were administered each semester, about four months apart from each other. Therefore the data were collected separate times, through six semesters. Students from each grade took a different test. Each test contained 40 multiple-choice questions, selected from various English textbooks provided by English teachers who teach in public schools. Three English teachers checked the tests to ensure internal consistency and validity. The post-test also included items inquiring statistics about students' use of the DynEd system and the technological logistics about how students connect to and use the DynEd system at home and at school. This study utilized four of those latter questions: DY_LESSON, DY_PROB_SOLV, DY_LISTENING, and DY_SPEECH (see Table 1). These are perceived frequency of DynEd activities. The items were with four-point Likert scale where 0 = not at all, 1 = sometimes, 2 = often, and 3 = very often.

The survey was administered at the end of each semester to learn about students' perceived computer skills. It consisted of 63 questions. Out of those questions, 11 were about the resources of students regarding the computer and Internet use. Items included questions like "Do you share your computer with someone at home?" The remaining 52 questions were about competences regarding information and communication technologies. An example item is "I can change the alignment of text in M.S. Word."

Three of the independent variables were pulled from the 11 questions explained above: student grade level (GRADE: 4 through 7); Internet connection at home (INTERNET: 0 = does

not have, and 1 = have); and frequency of daily computer use (DAILY_COMP_USE: 0 = less than 15 mints, 1 = 16 to 30 mints, 2 = 31 to 60 mints, and 3 = 61 to 120 mints, 4 = More than 120 mints).

The survey items about the information and communication competencies (52 questions) were grouped under six categories. This study utilized four of those categories as scales (SKILL_WORD, SKILL_EXCEL, SKILL_INTERNET, and SKILL_EMAIL). The questions consisted of items with three-point Likert scale where 0 = no (not knowledgeable), 1 = maybe (somewhat knowledgeable), and 2 = yes (knowledgeable). Items for the four scales were derived from the work of Duvel and Pate (2004).

2.4. Data Analysis

Two separate regression analyses were run to determine the research questions. ACHIEVEMENT was the dependent variable of the first analysis. It is the student gain in achievement, that was calculated by subtracting the student mean post-test score from the mean pre-test score. This score would range from 0 (zero) to 100. POST_SCORE was the dependent variable of the second analysis. POST_SCORE was observed through students' mean post-test scores. Coefficient alpha reliabilities for the pre and post-test scores for 4th, 5th, 6th, and 7th grade ranged through .98, .99, .98, and .96 respectively (Cronbach, 1951).

All other variables were entered into the analyses as independent variables. Grade level (GRADE) and daily computer use (DAILY_COMP_USE or DCU) were obtained as categorical values. Then, these items were converted into dichotomous variables as seen in Table 1. GRADE4 and DCU_00-15 were purposefully excluded from the analyses to provide base points for the converted dichotomous variables. The coefficient alpha reliabilities for the scales of SKILL_WORD, SKILL_EXCEL, SKILL_INTERNET, and SKILL_EMAIL were .93, .95, .87, and .92, respectively (Cronbach, 1951).

Table 1. Variables that were Utilized in the Study.

Variable Name	Source	Definition	Type and Values*			
ACHIEVEMENT	Pre & Post	Difference between mean post-test and pre-test scores	S	0 100	= =	Fails Succeeds
POST_SCORE	Post	Mean post-test score	S	0 100	= =	Fails Succeeds
GENDER	Post	Student gender	C	0 1	= =	Male Female
GRADE GRADE4 GRADE5 GRADE6 GRADE7	Post	Grade level 4th grade 5th grade 6th grade 7th grade	C	0 1	= =	Not member of Member of
INTERNET	Post	Student has Internet connection at home	C	0 1	= =	Does not have Has
DAILY_COMP_USE DCU_00-15 DCU_16-30 DCU_31-60 DCU_61-120 DCU_121+	Survey	Daily computer use 0 to 15 minutes 16 to 30 minutes 31 to 60 minutes 61 to 120 minutes More than 120 minutes	C	0 1	= =	Not member of Member of
DY_LESSON	Post	Attended lesson presentation activities at DynEd	S	1 4	= =	Not at all Very much
DY_PROB_SOLV	Post	Attended problem solving activities at DynEd	S	1 4	= =	Not at all Very much
DY_LISTENING	Post	Attended listening activities at DynEd	S	1 4	= =	Not at all Very much
DY_SPEECH	Post	Attended speech practice activities at DynEd	S	1 4	= =	Not at all Very often
SKILL_WORD	Survey	Perceived MS Word skills	S	0 2	= =	Does not know Knows well
SKILL_EXCEL	Survey	Perceived MS Excel skills	S	0 2	= =	Does not know Knows well
SKILL_INTERNET	Survey	Perceived Internet skills	S	0 2	= =	Does not know Knows well
SKILL_EMAIL	Survey	Perceived e-mail skills	S	0 2	= =	Does not know Knows well

* Type of the variable: S = Scale; C = Categorical.

3. FINDINGS

The study incorporated students from 4th to 7th grade. As seen from Table 2, there were a total of 72 students participating in all the activities (pre-test, post-test, and survey) necessary for the purposes of the first research question. These 72 students were from only two schools. Out of the whole dataset, 194 students attended both the post-test and the survey, which sets the stage for the second research question.

The male to female ratio was balanced across the grade levels, an ideal condition to meaningfully interpret the student tendencies based on gender. Overall about 57% of the participants who attended all activities were male.

Consistently across the grades, majority of the students had Internet access at home. This fact enables most students to be able to use the DynEd system at home along with the fact that DynEd is free of charge. But, this fact does not necessarily mean the students with Internet access actually use the DynEd system at home.

The last chunk of information (DAILY_COMP_USE) in Table 2 talks about how often the students use computer at home daily. The numbers that name the variables correspond to the time ranges. Therefore, the least frequently used timeframe indicates 0 to 15 minute daily use of computer. The greater minute ranges would have to be interpreted as inclusive of (or accumulated over) the smaller ranges. A 31 to 60 minute use would include 0 to 15 minutes use plus 16 to 30 minute use. So the DAILY_COMP_USE would have to be interpreted in this perspective.

When the descriptive statistics are investigated alone, there is no visible major difference but it seems the percentage of 7th grade students spending more time in front computer for the 16 to 30 min range is smaller than the other grades. 6th grade students also have a similar tendency up to the 30-minute range.

Table 2. The Characteristics of the Participants (Descriptive Statistics on Categorical Variables)

	Attended Pre-test, Post-test, & Survey					Attended Post-test, & Survey				
	4	**5**	**6**	**7**	**Total**	**4**	**5**	**6**	**7**	**Total**
N	22	14	15	21	72	27	54	67	46	194
GENDER										
Male	59.1%	64.3%	40.0%	61.9%	56.9%	55.6%	57.4%	44.8%	45.7%	50.0%
Female	40.9%	35.7%	60.0%	38.1%	43.1%	44.4%	42.6%	55.2%	54.3%	50.0%
INTERNET										
Yes	59.1%	71.4%	86.7%	71.4%	70.8%	66.7%	64.8%	71.6%	63.0%	67.0%
No	40.9%	28.6%	13.3%	28.6%	29.2%	33.3%	35.2%	28.4%	37.0%	33.0%
DAILY_COMP_USE*										
DCU_00-15	9.1%	7.1%	13.3%	23.8%	13.9%	22.2%	14.8%	11.9%	19.6%	16.0%
DCU_16-30	31.8%	35.7%	13.3%	9.5%	22.2%	29.6%	25.9%	9.0%	8.7%	16.5%
DCU_31-60	22.7%	21.4%	20.0%	23.8%	22.2%	18.5%	24.1%	22.4%	26.1%	23.2%
DCU_61-120	13.6%	14.3%	46.7%	23.8%	23.6%	11.1%	16.7%	28.4%	17.4%	20.1%
DCU_121+	9.1%	21.4%	6.7%	19.0%	13.9%	7.4%	9.3%	13.4%	10.9%	10.8%

* The percentages should add up to 100% column-wise. The missing percentages result from unmarked items.

Table 3 presents the descriptive information about the scale variables that were used in the analyses. ACHIEVEMENT scores were given only for the first four column of the table because the other columns represent only the corresponding post-test and survey responses, and the gain scores cannot be calculated without the pre-test scores. As seen in the table, one of the most interesting points is that there is at least one student who scored about 30 point below the

minimum possible gain score (ACHIEVEMENT score). And, the maximum gain the students made during a year through the English class was about 51.

Table 3. Descriptive Statistics about the Utilized Scale Variables.

	Attended Pre-test, Post-test, & Survey (N=72)				Attended Post-test, & Survey (N=194)			
	Mean	SD	Min	Max	Mean	SD	Min	Max
ACHIEVEMENT	12.35	18.14	-30.77	51.28	n/a	n/a	n/a	n/a
POST_SCORE	50.97	17.33	20.00	79.49	56.87	21.95	12.82	95.00
DY_LESSON	1.63	.88	1.00	4.00	1.77	.89	1.00	4.00
DY_PROB_SOLV	1.69	.96	1.00	4.00	2.02	1.08	1.00	4.00
DY_LISTENING	1.51	.88	1.00	4.00	1.87	1.05	1.00	4.00
DY_SPEECH	1.27	.64	1.00	4.00	1.49	.86	1.00	4.00
SKILL_WORD	1.78	.52	.00	2.00	1.81	.37	.00	2.00
SKILL_EXCEL	1.66	.61	.00	2.00	1.66	.54	.00	2.00
SKILL_INTERNET	1.82	.45	.00	2.00	1.84	.34	.00	2.00
SKILL_EMAIL	1.74	.52	.00	2.00	1.79	.43	.00	2.00

Another interesting point is that students had very low level of participation in the DynEd-related activities. Considering that "1 = never" and "4 = very often", the frequency of students participation on DY_LESSON, DY_PROB_SOLV, DY_LISTENING, and DY_SPEECH would fall between the range of "never" and "sometimes."

Students, on the other hand, reported very high levels of perceived information and communication technology knowledge. On a scale of "0 = does not know well" to "2 = knows well" most students marked 2 on all skill related constructs (SKILL_WORD, SKILL_EXCEL, SKILL_INTERNET, and SKILL_EMAIL). This resulted in high mean scores.

The first research question was concerned about the factors that impacted the student gain scores, namely ACHIEVEMENT, in the DynEd supported English learning environments. In order to predict the ACHIEVEMENT scores, all variables – except the POST_SCORE – were entered into a regression analysis. The results show that ACHIEVEMENT scores can significantly be predicted from a number independent variables, $F (17, 69) = 2.982$, $p = .001$. The observed R-value turned out to be .703, which translated into an R^2 value of .494.

Glancing through Table 4 reveals that being a student in attending Grade 6 and Grade 7 significantly matters in terms of achievement in English scores as well as possessing MS Word and MS Excel skills. It was found that 6th and 7th grade students performed worse in the English course in comparison to the 4th grade students. Their scores were well below the 4th graders'. Namely, the students from the 6th grade scored on average 26.286 points below the students from the 4th grade. Similarly, 7th graders' scores were about 12 points lesser than the 4th graders. These scores were calculated out of 100 points.

Perceived Word skills positively impacted ACHIEVEMENT. A one-point increase in student's perceived Word Skills (SKILL_WORD) meant a 28.525-point increase in the ACHIEVEMENT score. So this is a quite powerful effect on the student outcomes. But, intriguingly, the perceived Excel skills negatively influenced ACHIEVEMENT. A one-point increase in the perceived SKILL_EXCEL score translated into about a 13-point decrease in ACHIEVEMENT.

The DynEd related activities had no impact on ACHIEVEMENT scores at all. None of the independent variables in this category returned significant results in the analysis.

Table 4. Regression Model and the Results Predicting ACHIEVEMENT

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	7.039	11.524		.611	.544
GENDER	4.740	4.171	.128	1.137	.261
GRADE5	7.039	6.171	.150	1.141	.259
GRADE6	-26.286	6.808	-.592	-3.861	.000
GRADE7	-11.869	5.292	-.294	-2.243	.029
CONNECTION	3.174	5.318	.079	.597	.553
DCU_16-30	.588	7.099	.014	.083	.934
DCU_31-60	-2.071	6.717	-.048	-.308	.759
DCU_61-120	-4.005	6.521	-.094	-.614	.542
DCU_121+	-1.169	7.762	-.021	-.151	.881
DY_LESSON	-.899	4.519	-.043	-.199	.843
DY_PROB_SOLV	2.782	3.753	.145	.741	.462
DY_LISTENING	1.451	3.477	.070	.417	.678
DY_SPEECH	2.089	4.212	.072	.496	.622
SKILL_WORD	28.525	12.836	.822	2.222	.031
SKILL_EXCEL	-13.326	6.208	-.442	-2.147	.037
SKILL_INTERNET	-6.796	10.343	-.169	-.657	.514
SKILL_EMAIL	-8.026	10.862	-.214	-.739	.463

The second research question had to do with the actual scores of the students on the English language exam. The hypothesis is that perhaps students who are more successful in English language skills have a different profile regarding information and communication technologies than the students who are less successful. For the purposes of this research question, the post-test scores were coded as POST_SCORE and were predicted from the independent variables that were also entered into the previous analysis.

The results indicate that POST_SCORE can also significantly be predicted from a number of independent variables, $F(17, 169) = 5.943$, $p = .000$. The observed R-value was calculated to be .632, which ended up with an R^2 value of .399.

Table 5. Regression Model and the Results Predicting POST_SCORE.

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	36.802	8.812		4.176	.000
GENDER	2.947	2.812	.071	1.048	.296
GRADE5	24.283	4.577	.494	5.305	.000
GRADE6	3.238	4.500	.075	.720	.473
GRADE7	-8.874	4.565	-.185	-1.944	.054
CONNECTION	3.069	3.364	.069	.912	.363
DCU_16-30	.954	4.607	.017	.207	.836
DCU_31-60	-.175	3.892	-.004	-.045	.964
DCU_61-120	.427	4.226	.008	.101	.920
DCU_121+	-5.198	5.303	-.077	-.980	.329
DY_LESSON	.903	2.435	.039	.371	.711
DY_PROB_SOLV	1.383	1.952	.071	.709	.480
DY_LISTENING	.829	1.978	.042	.419	.676
DY_SPEECH	-3.371	2.158	-.139	-1.562	.120
SKILL_WORD	14.525	8.487	.259	1.711	.089
SKILL_EXCEL	-7.626	3.446	-.202	-2.213	.028
SKILL_INTERNET	7.461	8.604	.121	.867	.387
SKILL_EMAIL	-9.727	6.044	-.195	-1.610	.110

The results presented in Table 5 again point out the difference among the contribution of grade factor on POST_SCORE, similar to the effect on ACHIEVEMENT. Being a student in grade 5 and grade 7 had significant consequences on POST_SCORE. Attending the 7th grade,

again, negatively affected the predicted score, which meant an 8-point decrease in POST_SCORE. Other than the grade, the only significant impact was of SKILL_EXCEL. SKILL_EXCEL's influence was similar to its influence on ACHIEVEMENT. That is, students who felt themselves comfortable in Excel performed less in the English language exam.

No other factors were related to POST_SCORE. Especially considering the main interest in this paper, DynEd related activities, contribution can be identified towards POST_SCORE.

4. DISCUSSION and RESULTS

The factors affecting student achievement and gain in English courses are one of most frequently investigated topics in the debate on the effectiveness of CALL. In this research, the questions were developed in line with software, DynEd, that is used. The research described in this paper aimed at revealing the factors affecting students' gain and achievement in English courses assisted by DynEd.

It was intended to gather information from a large number of students from at least 10 different secondary schools. During the study however, although the number of students participating each test or the survey was very high, the students taking post-test and the survey were a total of 194, while only 72 attended pre-test, post-test and the survey. This can be seen as a limitation of the study.

The negative difference in terms of achievement gain could be resulting from the fact that students were allowed to make up (choose) the options with no penalties. Students might have correctly guessed the answers of the pre-test questions that they did not know the answer of. Therefore, the unusual result might be the consequence of random error. The information gathered through tracking and logging data would possibly give a more detailed view of influences of factors affecting students' achievement (Vandewaetere & Desmet, 2009) but the researchers did not have adequate resources for this purpose as it is too demanding. In addition, students' perceived computer knowledge is found to be very high. Students may be overconfident in what they think they know.

The results of the study showed that DynEd usage is very low, so attributing any change in the achievement scores to DynEd is practically not meaningful. Reports in research suggest that the job of the teacher is harder in the early stages of new technology implementations. Positive changes from the new technology happen as teachers become more experienced and lead their students to use this new technology more effectively (Weiss, 1994). In the line our study, Kennedy and Levy (2009) also found that teachers should not be deterred to use CALL applications in their instruction because of slow diffusion of these technologies in the school environment. Since DynEd is being used in secondary schools relatively recently and teachers are facing installation and implementation problems, it may affect the use and achievement level. It would be meaningful to repeat the study later when both teachers and students have more experience and confidence with DynEd, especially after all the problems are eliminated. Bataineh and Hani (2011) show that students who used CALL software in their English courses have gained achievement more than the ones who did not. On the contrary, Dündar (2005) claims that computers cannot guarantee achievement in language classes if the teacher is not qualified enough in using relevant materials to support his teaching. Although there are advantages of CALL, current technology still has its limitations. It is up to teachers to eliminate the obstacles and incorporate CALL software into their teaching according to their students' needs (Karakas, 2011). The results of the current research tend to concur with this conclusion.

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Uzun Özet

Türkiye'nin de entegre olmaya çalıştığı Avrupa Birliği, dünyadaki en rekabetçi ve dinamik bilgi tabanlı ekonomi haline gelmeyi hedeflemektedir. Bu hedefe ulaşabilmek için Mart 2000'de Lizbon Avrupa Konseyi, hayat boyu öğrenme yoluyla sağlanacak "Yeni temel beceriler" olarak tanımlanan Bilişim Teknolojileri, teknolojik kültür, yabancı dil, girişimcilik ve sosyal becerileri kapsaması gereken bir Avrupa çerçevesi oluşturup Avrupa'nın eğitim ve öğretim sistemlerini bilgi toplumunun taleplerine göre uyarlama kararı almıştır. Konsey İlerleyen süreçte, Barselona Konseyi (Şubat 2002) temel becerileri geliştirmek ve eğitimde Avrupa boyutunu güçlendirmek için dijital okuryazarlık ve yabancı dillere, özellikle de İngilizce öğrenimine dikkat çekmiştir. Hatta bazı Avrupa Birliği üyeleri İngilizce eğitimini zorunlu hale getirmiştir (Neri, Mich, Gerosa & Giuliani, 2008).

Dil eğitimi, teknoloji destekli olarak, bilhassa internet teknolojileri kullanılarak geliştirilmelidir (Education and Training 2010, p.14). Dokuzuncu beş yıllık kalkınma planında Türkiye Kalkınma Bakanlığı (2006) okul programlarının modern teknoloji ve politikalara uyarlanması gerektiğini açıklamıştır. Bu hedeflere ulaşabilmek amacı ile 2007 yılında Türk Milli Eğitim Bakanlığı, İngilizce derslerindeki öğretimin etkililiğini artırmak için İngilizce Eğitim Sistemi olan DynEd isimli programı kullanmayı mecburi hale getirmiştir.

Son zamanlarda yapılan birçok araştırma İngilizce dersindeki başarı ile bilgisayar kullanımı, cinsiyet, Bilgisayar Destekli Dil Eğitimindeki (BDDE) tecrübe gibi çeşitli faktörler arasındaki ilişkileri incelemektedir. Bilgisayar kullanımı ve akademik başarı arasındaki ilişkiler incelendiğinde farklı sonuçların elde edildiği gözlenmiştir. Ravitz, Mergendoller ve Rush (2002) incelemeler sonucunda hem pozitif hem de negatif ilişkiler tespit etmişlerdir. Evinde bilgisayarı olan öğrencilerin başarıları yüksek bulunurken, sadece okulda kullananlar için olumsuz bir etki tespit edilmiştir. Ayrıca, bilgisayarı daha fazla kullananların İngilizce dersindeki başarılarının da yüksek olduğu tespit edilmiştir (Taylor, Kirsch, Jamieson & Eignor, 1999; Rahimi & Yadollahi, 2011).

Eğitimcilerin büyük bir kısmına göre bilgisayar kullanımının başarıya etkisindeki önemli faktörlerden biri de cinsiyet farklılığıdır. Erkeklerin bilgisayar kullanımı kızlardan fazla olmasına (Taylor, et. al., 1999; Naedval, 2007) rağmen kızların İngilizce dersindeki başarıları daha fazla olmuştur (Naedval, 2007).

Bilgisayar dersindeki başarıyı etkileyen faktörlerden bir diğeri ise öğrencilerin ve öğretmenlerin BDDE'deki tecrübeleridir. Yapılan araştırmalarda hem öğrenciler açısından hem de öğretmenler açısından bilgisayar destekli dil öğretiminde bilgisayar desteği arttıkça başarının da arttığı tespit edilmiştir (Bataineh ve Hani 2011; Kennedy ve Levy (2009). Ayrıca, teknolojiyi sınıf dışında kullanmanın öğrencilere farklı tecrübeler ve fırsatlar sağlayarak dil becerilerini artıracağı öngörülmektedir (Lai ve Gu, 2011).

Bu çalışmanın amacı, ortaokul öğrencilerinin İngilizce dersindeki başarılarını etkileyen faktörleri belirlemek ve İngilizce ders dışı aktivite olarak kullanılan DynEd programının etkilerini incelemektir. Çalışmada üç farklı veri toplama aracı kullanılmıştır. 2009 güz ve 2011 bahar dönemleri arasında 10 farklı okuldan toplam 600 öğrenci ön-test, son-test ve ankete davet edilmiştir. İngilizceyi ikinci dil olarak öğrenen öğrencilerin becerilerini ölçmek için kullanılan ön-test ve son-test dört ay arayla her dönem uygulanmıştır. Dolayısı ile veriler altı farklı dönemde toplanmıştır. 4. sınıftan 7. sınıfa kadar olan tüm seviyedeki öğrencilere 40 adet çoktan seçmeli sorudan oluşan farklı testler uygulanmıştır. Sorular farklı devlet okullarında çalışan öğretmenlerin önermiş olduğu çeşitli kitaplardan seçilmiştir. İç tutarlılık ve geçerliliği test etmek için üç İngilizce öğretmeninden yardım alınmıştır. Son-testte ek olarak öğrencilerin DynEd'i kullanma oranları, kullanma şekilleri, sisteme bağlanma yollarını içeren sorular da eklenmiştir. Her bir dönemin sonunda uygulanan 63 soruluk anketin 11 sorusu öğrencilerin bilgisayar ve internet kaynakları hakkındaki bilgilerini sorgularken diğerleri bilgi ve iletişim teknolojileri hakkındaki bilgilerini sorgulamıştır. Anketteki 52 soru toplam 6 kategoriye ayrılmış olup, MS Word becerisi, MS Excel becerisi, internet becerisi ve elektronik posta becerilerini ilgilendiren dört kategori incelenmiştir. Anket sorularında

hayır = 0 (bilgili değil), belki = 1 ve evet = 2 (bilgili) seçenekleri ile üçlü Likert ölçeği kullanılmıştır. Bu dört kategorideki maddeler, Duvel ve Pate'nin (2004) çalışmalarından uyarlanmıştır.

Araştırma sorularına cevap bulabilmek için iki ayrı regresyon analizi yapılmıştır. İlk analizin bağımlı değişkeni olarak *başarı* seçilmiştir. Öğrencinin başarı kazanımı, öğrencinin son-test puanından ön-test puanı çıkarılarak elde edilmiştir. Bu işlem sonucunda 0 ile 100 arasında değişen puanlar elde edilmiştir. *Son test sonuçları* ikinci analizin bağımlı değişkenidir. 4. ,5., 6. ve 7. sınıfların test alfa güvenirliği katsayıları sırasıyla .98, .99, .98 ve .96 olarak hesaplanmıştır (Cronbach, 1951). Diğer tüm değerler bağımsız değişken olarak girilmiştir. Sınıf düzeyi ve günlük bilgisayar kullanımı değişkenleri kategorik olarak elde edilmiştir. Sonra bu değişkenler dichomous (iki seçenekli) değişkenlere dönüştürülmüştür. Referans noktası sağlamak amacıyla GRADE4 ve DCU_00-15 kasıtlı olarak analiz dışı bırakılmıştır. SKILL_WORD, SKILL_EXCEL, SKILL_INTERNET, ve SKILL_EMAIL değişkenleri için alfa güvenirliği katsayıları sırasıyla .93, .95, .87, ve .92, olarak hesaplanmıştır (Cronbach, 1951).

Tüm aktivitelere katılan 72 öğrencinin verileri birinci araştırma sorusuna cevap aramak için kullanılırken son-test ve ankete katılan 194 öğrencinin verileri yalnız ikinci araştırma sorusu için kullanılmıştır. Analizler incelendiğinde, sınıf düzeyleri arasında cinsiyet oranlarının dengeli olduğu ve öğrencilerin büyük bir kısmının evinde internet bağlantısına sahip olduğu tespit edilmiştir. DynEd sisteminin ücretsiz olması ve evlerde kullanılması potansiyelini artırabilir; ancak, evde internet erişimi olan öğrencilerin DynEd'i otomatikman evlerinde kullandıkları anlamına gelmez. Betimsel istatistik sonuçları incelendiğinde farklı sınıflardan öğrencilerin bilgisayarı kullanma süreleri arasında büyük farklılıklar görülmemektedir. Analizde elde edilen ilginç sonuçlardan biri de öğrencilerin bilgi ve iletişim teknolojileri ile ilgili bilgilerinin yüksek olmasına rağmen DynEd ile ilgili aktiviteleri çok fazla kullanmamış olmalarıdır.

Analiz sonuçları *başarı* sonuçlarının bazı bağımsız değişkenler tarafından tahmin edilebilir olduğunu göstermektedir [F (17, 69) = 2.982, p = .001]. Öğrencinin 6. veya 7. sınıfta olmasının ve MS Word ile MS Excel becerisinin İngilizce başarısına anlamlı etkenler oldukları gözlenmiştir. 6. ve 7. sınıf öğrencileri 4. sınıf öğrencilerinden daha düşük sonuçlar aldıkları görülmüştür.

Araştırma'nın ikinci probleminde İngilizce dilinde daha fazla başarılı olan öğrencilerin daha az başarılı öğrencilere göre bilgi ve iletişim teknolojileri il ilgili olarak farklı profile sahip olup olmadığı araştırılmıştır. Analiz sonuçları son test sonuçlarının (POST_SCORE) bazı bağımsız değişkenler tarafından tahmin edilebilir olduğunu göstermektedir [F (17, 169) = 5.943, p = .000]. Öğrencinin 5. veya 7. sınıfta olmasının ve MS Excel becerisinin İngilizce başarısına anlamlı etkenler oldukları gözlenmiştir. MS Excel'de kendini yeterli gören öğrencilerin İngilizce dili sınav sonuçlarının düşük sonuçlar aldığı görülmüştür.

Sonuçlar öğrenciler tarafından DynEd kullanımının düşük olduğunu göstermektedir. Dolayısıyla İngilizce dersinin başarısında gözlemlenen değişimlerin DynEd'den kaynaklandığını söylemek anlamlı olmayacaktır. İncelenen araştırmalardan anlaşıldığı üzere yeni teknolojilere geçiş aşamasında öğretmenin işi oldukça zordur. Öğretmenin tecrübesi arttıkça ve öğrencilerini daha etkili bir şekilde yönlendirdikçe pozitif değişimleri gözlemlemek mümkün olmaktadır (Weiss, 1994). Kennedy ve Levy'nin (2009) iddia ettiği ve bu çalışmada da gözlemlendiği gibi, okul ortamında yeni teknolojilerin kullanımı yavaş ilerlemektedir; her şeye rağmen öğretmenlerin BDDE uygulamalarından yılmamaları gerekmektedir. DynEd uygulamasının ortaokullarda henüz yeni bir çalışma olması, öğretmenlerin sistemi kurma ile ilgili tecrübe eksiklikleri ve uygulamada yaşadıkları problemlerin, sistemin kullanımını ve başarı düzeyini etkilediği düşünülmektedir. Öğretmen ve öğrencilerin deneyimleri arttıktan sonra ve kurulum problemleri giderildikten sonra çalışmanın tekrarlanması daha pozitif bir tablonun gözlemlenmesini sağlayabilir. BDDE'nin avantajları olmakla birlikte, mevcut hiçbir teknoloji henüz kusursuz değildir. Sistemin başarılı olması öğretmenlerin olası problemli durumları çözmedeki isteğine ve öğretimi desteklemek için kullanacağı materyaldeki yeterliliğine bağlı olacaktır (Dündar, 2005; Karakas, 2011).

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