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Effects of Learning Objects on the Academic Achievement of Students in Web-Based Foreign Language Learning

Web-Tabanlı Yabancı Dil Öğretiminde Öğrenme Nesnelerinin Öğrenci Başarısı Üzerindeki Etkileri

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ABSTRACT: Foreign language education in Turkey has been criticized as being not entirely functional throughout the literature. Implementing effective teaching materials into the foreign language learning environments may serve as a solution to the problem. The aim of this study is to investigate the effects of learning objects (LOs), cutting-edge materials, on the achievement of learners in web-based language learning environments. To this end, this study was conducted in English I Course at the Department of Computer Programming at a Turkish medium state university in 2010-2011 Fall Semester. Seventy LOs appropriate for a six-week long lecture program were integrated into the learning management system (LMS) of the institution. Achievement tests were administered as pre and post-test to the study groups consisted of 118 students and results were analysing using SPSS. The findings indicate that web-based language education supported by LOs has a significant effect on students' achievement scores in the experimental group and LOs can be utilized in language education settings.

Keywords: Learning objects; distance education; web-based distance education; foreign language education

ÖZ: Türkiye'deki yabancı dil eğitimi, alandaki çoğu uzman tarafından işlevsel bulunmaktadır. Uygun materyaller kullanmak bu yetersizliği gidermeye yardımcı olacak yollardan bir tanesidir. Bu çalışmanın amacı materyal geliştirmede son teknoloji materyallerden birisi olan öğrenme nesnelerinin (ÖN) web-tabanlı yabancı dil eğitimi bağlamında öğrencilerin başarısı üzerine etkilerini irdelemektir. Bu amaçla, çalışma 2010-2012 güz yarıyılında Türkiye'deki bir devlet üniversitesinde eğitim gören Bilgisayar Programcılığı bölümü öğrencilerine sunulan İngilizce I dersinde yürütülmüştür. Altı haftalık ders programına uygun olan 70 ÖN kuruma ait Öğrenme Yönetim Sistemine (ÖYS) entegre edilmiştir. 118 öğrenciden oluşan çalışma gruplarına araştırmacı tarafından geliştirilen başarı testi ön ve son-test olarak uygulanmıştır. Bulgular ÖN'lerle desteklenen web-tabanlı yabancı dil eğitiminin deney grubundaki öğrencilerin başarı puanlarında anlamlı bir etkiye sahip olduğunu ve ÖN'lerin bu tür öğrenme ortamlarında yabancı dil eğitimini geliştirmek için kullanılabileceğini göstermektedir.

Anahtar Sözcükler: Öğrenme nesneleri,uzaktan eğitim, web-tabanlı uzaktan eğitim, yabancı dil eğitimi

1. INTRODUCTION

Technological developments have made enormous strides especially in the last decade. In nearly every sphere of life including education, use of technology can clearly be seen and the field of online language education is no exception (Murday, Ushida & Chenoweth, 2008). Many researchers agree that the use of educational technology has the power to foster education (Çelik & Keser, 2010; Jonassen & Reeves, 1996; Means, 1994). According to Kartal (2005:82), "language education requires scientific innovations and technological inventions more than any other social science field". Moreover, according to Lück (2008) most experts in the field of foreign language education agree that CALL is useful in promoting foreign language skills. Therefore, the question should not be whether technology can be used in language education but how it can be exploited and how teachers guide students in utilizing technology (Paulsen, 2001).

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Knowing a foreign language is crucial in the modern world, and the number of people wishing to learn a foreign language is growing immensely. It is challenging to meet these increasing demands with traditional classrooms hence Web-based language education can be a solution. According to Holmerg, "there is no tenable reason why any language should be considered unsuitable for distance teaching and learning; rather, there is much evidence of the effectiveness of distance teaching of foreign languages" (2005: 166-167). Web-based language learning has become widespread in recent years (Godwin-Jones, 2003; Compton, 2009) and the number of institutions offering foreign language courses has been increasing at a rapid rate (Nielson & Gonzalez-Lloret, 2010). The availability of language teaching in distance education is spreading, as White (2005: 55) states:

> *The developments in new technologies, the emergence of virtual learning environments and the demand for lifelong flexible learning opportunities have given rise to a marked increase in language learning through distance education – both in terms of new providers and new participants. While at one time distance education struggled for recognition, the viability of distance environments for language learning is now well established.*

Due to the rapid advancements in the Internet technology, distance education has transformed from a laborious pursuit into a discipline using currently emerging technologies. Web-based language teaching is another manifestation of the development of technologically advanced distance education. All over the world, many educational institutions have initiated internet-based lectures (McCormick, 2000). The underlying reason for this tendency is that developments in computer and internet technologies have significantly impacted methods of learning and teaching (Kuo & Chen, 2004). Demiray and Sever (2009:49) state that "online distance learning has gained reliability in recent years". Demands for web-based language learning have increased and online technologies have contributed notably to language education (Mirici, 2009). According to Uşun and Kömür (2009) there are many types of technologies available for teaching English. Larson (1999) and Li (1999) state that the nature of the Internet and its web-based interactive structure is beneficial for language education (cited in Soon, Suan, Baniamin, & Mamat, 2004). Blake and Delforge (2004: para. 4) suggest that "online courses represent a particularly effective solution for meeting the needs of foreign language education". Therefore, language educators should consider the use of online language education for its various benefits.

In web-based language education, there have been notable changes in the opportunities that distance education affords the language learner (White, 2006), and the Internet provides a potential for the development of language education (Chun & Plass, 2000). Seljan, BanekZorica, Špiranec and Lasić-Lazić (2006) suggest that new technologies provide limitless opportunities for language education. The search for new materials for language education is a continuing process. One of these materials is the Learning Objects (LO) which are the subject of many recent studies (e.g. Gibbons, Nelson, & Richards, 2000; Wiley, 2000b; Muzio, Heins & Mundell, 2002; Baruque & Melo, 2004; Ally , 2004; Karaman, 2005; Nurmi & Jaakkola, 2006a, 2006b; Griffiths, Stubbs &Watkins, 2007; Kay & Knack, 2007; Kay & Knaack, 2007, 2008; Türel, 2008).

Despite many studies on LOs, researchers have not reached a consensus on the definition of LOs. Every researcher provides a definition contingent on his or her own studies. According to Wiley (2007: 347), "almost every article written about learning objects provides its own unique definition of the term". This lack of precision in the definition of LO actually gives rise to dispute and is one of the obstacles affecting the development and the use of LO (Moisey, Ally & Spencer, 2006). Therefore, it is important to investigate some of the definitions in the literature:

> *Learning objects are any entity, digital or non-digital, which can be used, re-used or referenced during technology supported learning (Wiley, 2000a, 2000b).*
>
> *Information pieces that can be prepared independently, reused, updated, joined and have meta-data and can be reached and used for educational purposes (Cebeci, 2003: 1).*
>
> *Any reusable digital resource that is encapsulated in a lesson or assemblage of lessons grouped in units, modules, courses, and even programmes (McGreal, 2004: 28).*
>
> *An independent and self-standing unit of learning content that is predisposed to reuse in multiple instructional contexts (Polsani, 2005: 5).*
>
> *Interactive web-based tools that support the learning of specific concepts by enhancing, amplifying, and/or guiding the cognitive processes of learners (Kay & Knaack, 2008: 269).*
>
> *Researcher have put much effort into clarifyingthe definition of a learning object. Roy (2004: 1) explains this situation as:*
>
> *You may recall from your undergraduate theology class that during the Middle Ages, theologians and philosophers spent large amounts of time debating the precise number of angels that could dance on the head of the pin. The early learning object movement has spent similarly large amounts of time debating what correct definition of a learning object should be.*

LOs are small chunks of content that are used in facilitating learning. Normally, text books include much information on a given subject related to the language. However, the aim of LOs is to present the lesson subject more effectively by parceling it into digestible pieces for learners. In a sense, they are components that can be combined together to form a complete lesson or a course. Although LOs are limited in breadth, they are stand-alone materials that aid in learning. They are suitable for personalized learning and can support flexible learning (Armitage & Bowerman, 2005) since LOs present a variety of choices to the language teachers and learners. Given their characteristics, they are reusable, sharable, accessible, durable, and searchable; they are new kind of learning material especially applicable in web-based distance education. These characteristics make LOs a unique learning material.The characteristics of learning objects may prevent wasting too much time, money, and effort in developing learning materials for language education, contributing to the careful use of invaluable sources.

Since the term "learning object" has come to the education world from a different source and has many characteristics aforementioned which researchers approach differently, finding a common definition of it will probably remain an ongoing debate. Thefore, it is preferable to focus on the commonly agreed characteristics of LOs rather than the variety in its definitions. Despite the differences in the definition of LOs, researchers are of the opinion that they are reusable, accessible, interoperable, durable (Rehak & Mason, 2003: 22), sharable, digital, modular, and discoverable (Downes, 2004).

Previous research has mostly focused on investigating the definition, nature and characteristics of LOs. Studies focused on applications of LOs are limited (Kay & Knaack, 2007, 2008). In their review of LO- related literature, Kay and Knack examined 58 studies on LOs published in 2007 and find that only eight of them were on the use of LOs (Kay, 2009: 1809-1910). More research can be found in the literature focusing on defining learning objects than the design and uses of them (Cochrane, 2007). Most of the studies have also been related to natural science such as mathematics and chemistry (e.g. Karaman, 2005; Ceylan, 2008; Türel,2008; Çakıroğlu, 2010). In addition, learning object repositories, from which learning objects can be Accessed, mainly contain objects related to the natural sciences. Therefore, this study on web-based language teaching may contribute to implementation studies on LOs and explore the use of them in web-based language education.

Materials used in web-based language learning are important for students to learn more effectively.The majority of the existing materials used in this learning environment are not dynamic with a fixed content (Galloway & Peterson-Bidoshi, 2008). In this sense "LOs are the most meaningful and effective way of creating content for e-learning" (Polsani, 2003: 10). They have special characteristics that distinguish them from the more common learning materials (Sosteric & Hesemeier, 2004). LOs strengthen their place in the education community (Harman & Koohang, 2005: 68) since they provide better learning opportunities for the learner and also for the teachers. A learning object can be any tool such as text, graphics, video, animations, games, tests and simulations and a combination of these makes it superior to other web-based sources (Hannewald, 2009). Due to the importance of the effectiveness of material used in web-based langauge education, it is vital to investigate the success of LOs in this context. The aim of this study is to investigate the effects of learning objects (LOs) on learners' achievement in web-based language-learning environments. A significant finding may have additional benefits for the practitioners of web-based education to enhance this type of educational model.

2. RESEARCH METHOD

This experimental research aims to investigate the effects of learning objects (LOs), on the achievement of learners in web-based foreign language learning. The investigation sought to answer the following research questions:

1. Is there a significant difference between the scores of pre and post-test of Control Group 1 (CG1)?
2. Is there a significant difference between the pre-test and post-test of Control Group 2 (CG2)?
3. Is there a significant difference between the scores of pre and post-test of Experimental Group (EG)?
4. Is there a significant difference between the scores post-test of Control Group 1 (CG1) and Experimental Group (EG)?
5. Is there a significant difference between the scores post-test of Control Group 1 (CG1) and Control Group 2 (CG2) Experimental Group (EG)?
6. Is there a significant difference between the scores post-test of Control Group 1 (CG1) and Experimental Group (EG)?

Seventy LOs, some of which were prepared by the researcher and some of which were converted into LOs from the existing materials, were integrated into the Learning Management System (LMS) of the Distance Education Center of Kırıkkale University (KUZEM) in 2010-2011 Fall Semester for English I lecture of Computer Technologies Department.

2.1. Participants

There were three groups, each consisting of 42 (Control Group 1), 38 (Control group 2) and 38 (Experimental Group) students which totalled 118 students. The students in these groups were undergradute students taking the English I course in the Fall semester of 2011.

Control Group 1 (CG1) : Students receiving traditional language education in the classroom.
Control Group 2 (CG2) : Students receiving traditional web-based language education.
Experimental Group (EG): Students receiving web-based language education supported with learning objects.

Groups consisted of students from the Department of Computer Programming in Distance Education of Kırıkkale University and from the Department of Computer Programming in the Vocational School of the same university. The reasons why the study group was formed from the Computer Programming Department of Distance Education of Kırıkkale University were 1) their appropriate preparedness level for a web-based environment, 2) their education was entirely structured as web-based 3) their volunteer preference for web-based education.

2.2. Procedures

All three groups completed pre and post-tests in addition to the academic achievement test, developed by the researcher with the recommendations from field experts and related literature. The pre-test was also used to provide unbiasedness between the groups since it shows that there were no significant differences between the level of students in the goups.

The implementation period of the study was six-weeks long. For this period, text-based materials were prepared and used for all three groups. In addition to these materials, 70 learning objects including audio, video, flash animations, PowerPoint presentations, tests, and quizzes were prepared and integrated into Learning Management System (LMS) of Kırıkkale University for the experimental group.

There are three ways for developing learning objects: selecting them from the object repositories, converting existing appropriate materials into learning objects, and developing them from scratch. LOs in this study were prepared both by the conversion of appropriate materials and by the researcher from scratch. The reasons for adopting such an approach was unavalibility and lack of variety of learning objects in repositories appropriate for the subjects taught in the study and ease of converting existing materials into LOs. In the development of the LOs in this study, suggestions from the literature and recommendations from the experts were taken into consideration.

Some of the LOs used in this study were converted from PowerPoint presentations prepared for the 'Basic English Grammar' book (Azar & Hagen, 2006) with the permission from the publisher. In addition, some of the LOs were prepared by the researcher. In the preparation step of LOs, studies conducted about the preparation and development of LOs in the literature were referenced. In these studies some of the principles for preparing LOs are as follows:

- LOs should be formed from a combination of audio, video, and text as much as possible.
- LOs should be prepared as simply as possible.
- Subjects should be broken down and should include small pieces that students can follow easily.

Providing Unbiasedness between Experimental and Control Groups

To provide unbiasedness, the pre-test scores of the groups were compared.

1. *Is there a significant difference between the pre-test scores of Control Group 1 (CG1) and Experimental (EG)?*
2. *Is there a significant difference between the pre-test scores of Control Group 2 (CG2) and Experimental (EG)?*
3. *Is there a significant difference between the pre-test scores of Control Group 1 (CG1) and Control Group 2 (CG2)?*

Pre-test results were compared by using one-way variance analysis. Among the variance analysis techniques, the Scheffe test was used. A significant difference was not found related to the pre-test results between the CG1, CG2 and EG depending on the variance analysis. This supports providing unbiasedness at the beginning of the study as shown in Table 1.

Table 1: Variance Analysis Results of Pre-Test Between Control Group 1, Control Group 2 and Experimental Group

Source of Variance	Sum of Squares	Degrees of Freedom	Mean squares	F	Significance Level (p)
Between Groups	876.65	2	438.482	2.214	.114
Within Groups	21982.789	111	198.043		
Total	22859.754	113			

p<0,05

Achievement Test

For this study, a 50-item academic achievement test (measuring grammer knowledge) was developed based on the expert opinions and suggestions in related literature. Standard deviation, average difficulty level, and the arithmetic mean of academic achievement test were determined as (S_x) = 12.43, (P) = 0,58 and ($\bar{x}$)=57.72 and considered ideal. However, depending on item discrimination strength of the test, the test became a 40-item test (items excluded from the test; 3rd,, 4th, 14th, 16th, 21st, 31st, 33rd, 35th, 42nd and 50th). Its item difficulty index (Pj), distinctiveness index (rjx) and standard deviation are seen in Table 1. Before the administration of the test, expert opinions were taken from 13 scholars in order to provide content validity. The academic achievement test was considered as reliable and valid. Table 2 shows the results of item analysis of this test.In the data collection period, academic achievement tests were administered to all three groups (n=118) as a pre-test. This 45-minute test was also used as a post-test after 6 weeks. Due to errors in four tests, returning 114 tests were used for data analysis.

Table 2: Item Analysis Results of Academic Achievement Test

Item	**S 1**	**S 2**	**S 3**	**S 4**	**S 5**	**S 6**	**S 7**	**S 8**	**S 9**	**S 10**	**S 11**	**S 12**	**S 13**
Pj	0,47	0,70	0,66	0,64	0,59	0,57	0,71	0,69	0,60	0,56	0,43	0,59	0,66
rjx	0,19	0,25	0,02	0,13	0,41	0,23	0,29	0,35	0,18	0,21	0,29	0,27	0,26
Sx	0,50	0,46	0,48	0,48	0,49	0,50	0,45	0,47	0,49	0,50	0,50	0,49	0,48
Item	**S 14**	**S 15**	**S 16**	**S 17**	**S 18**	**S 19**	**S 20**	**S 21**	**S 22**	**S 23**	**S 24**	**S 25**	
Pj	0,55	0,67	0,72	0,43	0,53	0,48	0,71	0,47	0,52	0,51	0,47	0,58	
rjx	-0,12	0,27	0,05	0,35	0,30	0,21	0,38	0,09	0,51	0,44	0,32	0,42	
Sx	0,50	0,47	0,45	0,50	0,50	0,50	0,45	0,50	0,50	0,50	0,50	0,50	
Item	**S 26**	**S 27**	**S 28**	**S 29**	**S 30**	**S 31**	**S 32**	**S 33**	**S 34**	**S 35**	**S 36**	**S 37**	**S 38**
Pj	0,57	0,58	0,46	0,70	0,53	0,69	0,65	0,65	0,51	0,66	0,51	0,43	0,61
rjx	0,21	0,48	0,44	0,16	0,57	0,12	0,36	-0,01	0,39	0,02	0,20	0,38	0,41
Sx	0,50	0,50	0,50	0,46	0,50	0,46	0,48	0,48	0,50	0,48	0,50	0,50	0,49
Item	**S 39**	**S 40**	**S 41**	**S 42**	**S 43**	**S 44**	**S 45**	**S 46**	**S 47**	**S 48**	**S 49**	**S 50**	
Pj	0,64	0,43	0,59	0,60	0,50	0,65	0,60	0,61	0,56	0,62	0,55	0,43	
rjx	0,22	0,31	0,27	0,08	0,23	0,18	0,26	0,28	0,23	0,17	0,25	0,11	
Sx	0,48	0,50	0,49	0,49	0,50	0,48	0,49	0,49	0,50	0,49	0,50	0,50	

The data obtained from the academic achievement test was analyzed with SPSS. For data related to the academic achievement test, dependent groups' t-test was administered. Moreover, in situations where three variables are in question, a one-way Anova test analysis was performed. After pre-implementation of the academic test, the significance of the difference was tested with t-test. Cronbach's alpha coefficient was calculated for reliability. The reliability interval in statistical analysis was determined as .05.

3. FINDINGS

3.1. Findings related to the 1th Research Question of the Study

Is there a significant difference between the pre and post-test scores of Control Group 1 (CG1)?

The difference between pre and post-test results of control group 1 was significant at a level of p<0,05.The pre-test scores of Control Group 1 consisting of students receiving traditional language education was determined as $\bar{x}$=55,8684 and post test scores as $\bar{x}$=60,1316 (Table 3).

Table 3: T-Test Scores of Achievement Test of Control Group 1

				***t* Test**		
	N	$\bar{x}$	SS	*t*	*sd*	*p*
Pre-Test	38	55,8684	15,67434	-4,289	37	.001
Post-Test	38	60,1316	13,63059			

p<0,05

3.2. Findings Related to the 2nd Research Question of the Study

Is there a significant difference between the pre and post-test scores of Control Group 2?

The difference between the pre and post-test results of Control Group 2, consisting of students in web-based language education without learning objects, was significant. However, this significance was in the opposite direction than intended. The pre-test scores of control group 2 was $\bar{x}$=62,5263 and post test result was $\bar{x}$=56,8947. This result was interesting since it showed the ineffectiveness of web-based language education including mostly texts (Table 4).

Table 4: T-Test Scores of Achievement Test of Control Group 2

				***t* Test**		
	N	$\bar{x}$	SS	*t*	*sd*	*p*
Pre-Test	38	62,5263	12,34140	5,141	37	.001
Post-Test	38	56,8947	16,32407			

p<0,05

3.3. Findings related to the 3rd Research Question of the Study

Is there a significant difference between the pre and post-test scores of Experimental Group (EG)?

The difference between the pre and post-test results of the Experimental Group, consisting of students in web-based language education supported with learning objects, was significant. The pre-test scores of Experimental Group was $\bar{x}$=58,0263 and the post-test result was $\bar{x}$=71,7368. This result showed learning objects were effective in students' understanding of the subject matter (Table 5).

Table 5: T-Test Scores of Achievement Test of Experimental Group

				***t* Test**		
	N	$\bar{x}$	SS	*t*	*sd*	*p*
Pre-Test	38	58,0263	14,00480	-9,125	37	.001
Post-Test	38	71,7368	8,97951			

p<0,05

3.4. Findings Related to the 4th, 5th and 6th Research Questions of the Study

Is there a significant difference between the score post-test of Control Group 1 (CG1) and Experimental Group (EG)?

Is there a significant difference between the score post-test of Control Group 1 (CG1) and Control Group 2 (CG2) Experimental Group (EG)?

Is there a significant difference between the score post-test of Control Group 2 (CG2) and Experimental Group (EG)?

In the variance analysis of the post test scores between groups, there was a significance at the level of p<0,05 (Table 6).

Table 6: Variance Analysis Results of Post-Test Scores between Groups

Source of Variance	Sum of Squares	Degrees of Freedom	Mean squares	F	Significance Level (p)
Between Groups	4629,000	2	2314,500	13,030	,001
Within Groups	19717,289	111	177,633		
Total	24346,289	113			

In the light of the results of variance analysis, there was a significant difference between the achievement scores of Experimental Group ($\bar{x}$=71,73) and Control Group 1($\bar{x}$=60,13). Similarly there was a significant difference between the experimental group ($\bar{x}$=71,73) and Control Group 2 ($\bar{x}$=56,89). When arithmetic means of the post-test result of the three groups were compared, the experimental group achieved the highest result, showing the effectiveness of web-based language education supported with learning objects. Control Group 1 received better results than Control Group 2, showing that traditional language teaching in classes was more effective than web-based language education without LOs (Table 7).

Table 7: One Way Anova Results Between Groups

Arithmetic Mean (x)	Groups		Significance Level (p)
60,13	CG1	CG2	,573
		EG	,001*
71,73	EG	CG1	,001*
		CG2	,000*
56,89	CG2	EG	,000*
		CG1	,573

4. DISCUSSION and CONCLUSION

The findings of the current study provide valuable insights about the effects of LOs on the achievement of students in web-based education. Although Türel (2008) did not find a significant difference in terms of student achievement in his study investigating the effects of learning environments enriched with learning objects on the achievement and attitudes of students, he states that learning objects are beneficial for students in understanding difficult subjects depending on the teachers' opinions. In the studies on LOs conducted by Ceylan (2008), Nurmi and Jaakkola (2006a) and Yarar (2010), there was no significant difference between the academic achievement scores of students; however, they found that using LOs is at least effective as traditional education. In this study, significant differences were found between all three groups (CG1, CG2 and EG). However, in CG2, the significant difference was in the opposite direction, as pre-test results were better than post-test results. This finding is important in that traditional web-based language teaching mostly consists of texts and this kind of education needs more effective and interactive materials to enable learning.

In this study, there was a significant difference between the pre- and post-tests of CG1 and EG. The significant difference was higher in EG than CG2, showing web-based language education supported with learning objects was more effective than that of education in the traditional classroom. This finding is consistent with the findings of the studies conducted by Cahill and Catanzora (1997) and Soo and Ngeow (1998) (cited in Blake & Delforge, 2004). They found that students receiving language lectures via the Internet perform better than those in traditional classes. In his study of determining the effects of learning objects prepared for mathematics on student achievement, Çakıroğlu (2010) found significant differences between the achievement scores of the groups, consistent with the results of this study.

When comparing CG2 and EG in our study, EG which received web based education supported with learning objects had better results than CG2 which received traditional web-based

education, which mostly consisted of texts. In CG2, post-test results were significantly lower than the pre-test. This shows the ineffectiveness of traditional web-based education in language teaching. On the other hand, EG which received web-based language education supported with LOs showed a significant difference between pre- and post-test. This shows that web-based language education supported with materials other than text, such as LOs, has a positive effect on increasing the understanding of the content and the scores.

In the light of the research results, some recommendations are put forward about the use of learning objects in web-based language education;

1. Integrating LOs into web-based language education is important in terms of presenting the content more effectively. Such an approach may provide a better student understanding of the subject matter.
2. LOs will probably be useful in eliminating the inadequate language education in Turkey. Moreover, they may increase the potential of web-based language education.
3. Existing repositories of learning objects mostly include learning objects related to the natural sciences. It is hard to find learning objects related to language education. In order to overcome this deficiency, a repository containing quality learning objects should be provided for the use of language learners as well as teachers.
4. The ineffectiveness of web-based language education mostly consisting of texts may be overcome with learning objects.
5. Language teachers in web-based education may be trained to use learning objects in their lectures to make lectures more engaging and effective. To this end some courses may be arranged on the use of learning objects for language teachers.
6. The use of educational technology in language education has been around quite a long time. Learning objects are one of the cutting-edge technologies for developing digital learning material. As a result faculties where language teachers are trained may include lectures on the use of learning objects in their curricula.
7. There are thousands of materials to be used in language education on the web. These materials can be converted into learning objects and may be presented for the use of language learners and teachers.
8. Language teachers, like all teachers, are actually content developers. They prepare additional materials for their lessons. Language teachers can be trained to use objects-orientated authoring tools to create their own customised teaching materials. In this way, language teachers, even those with inadequate computer skills, may develop learning objects for their lessons. With these learning-object developer programs, they can easily combine images, text, audio, and video and create learning objects for the use of their students.
9. Learning Objects in this study were developed to teach Grammar Subjects. Therefore, the effects of learning objects in other skills can be investigated for further research.

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Genişletilmiş Özet

Teknolojik gelişmeler özellikle son 10 yılda büyük bir ivme kazanmıştır. Teknoloji kullanımı, eğitim de dahil hayatın her alanında açıkça görülebilir ve web-tabanlı yabancı dil eğitimi (WTYDE) de bu alanlardan bir tanesidir. Eğitimde teknoloji kullanımı; verilen eğitimin iyileştirilmesine katkı sağlamaktadır. Yabancı Dil Eğitimi (YDE) , teknoloji kullanımına diğer sosyal bilimler alanlarından daha fazla gereksinim duymaktadır. Buna ek olarak YDE'de teknoloji kullanımının yabancı dil becerilerini geliştirmeye olan katkısı, alan yazında çeşitli çalışmaların sonuçlarıyla desteklenmektedir. Modern dünyada yabancı dil bilmenin önemli olduğu toplumun her kesiminden bireylerin ortak görüşüdür ve dolayısıyla da dünyada yabancı dil öğrenmek isteyen bireylerin sayısı da her geçen gün artmaktadır. Buna paralel olarak geleneksel eğitim ortamları artan bu talebi karşılamaktan uzaktır. Web-tabanlı yabancı dil öğretimi bu problem aşmada bir çözüm olabilir. Bu noktadan hareketle, tüm dünyada uzaktan web-tabanlı YDE veren kurum ve kuruluşların sayısında artış gözlenmektedir. Uzaktan eğitim dolayısıyla uzaktan yabancı dil eğitimi bilgi ve iletişim teknolojilerinin gelişmesiyle beraber son yıllarda daha çok web-tabanlı olmaktadır. WTYDE artık gelişen eğitim teknolojilerinin sunduğu imkanlarla daha etkili bir hal almaya başlamış ve bu da eğitim ortamında kullanılan materyallere de yansımıştır. Teknolojinin gelişimine paralel olarak WTYDE'dekullanılacak materyaller sürekli bir gelişim içerisindedirler. Bu gelişmelerden bir tanesi de üzerinde son yıllarda gittikçe artan sayıda araştırma yapılan öğrenme nesneleridir (ÖN).

Yapılan pek çok çalışmaya rağmen öğrenme nesnelerinin herkesçe kabul gören bir tanımı bulunmamaktadır. Aslında yapılan çalışmalara bağlı olarak ÖN araştırmacılar tarafından farklı farklı tanımlanmaktadır. Alan yazında ÖN; teknoloji destekli eğitimde kullanılan herhangi bir nesne; birbirinden bağımsız olarak tasarlanan, tekrar kullanılabilen, güncellenebilen üst-verilerle etiketlenmiş bilgi parçalarıdır gibi tanımlamalar mevcuttur. ÖN kavramı eğitim alanına bilgisayar dünyasından geçtiği için tanımlamalardaki bu çeşitlilik normal bir durumdur. Yapılan çalışmalar arttıkça bu tanım karmaşası giderek azalacaktır. ÖN üzerine yapılan çalışmaların çoğu öğrenme nesnelerinin tanımı, yapısı ve özelliklerine odaklanmıştır. Bunun yanısıra, yapılan az sayıdaki uygulamaya dönük çalışmaların büyük çoğunluğu da fen bilimleri alanlarına yöneliktir. Ayrıca ÖN'lerin etiketlenerek barındırıldığı nesne ambarları (NA) da genellikle fen bilimleri alanlarına yönelikliktir. Bu bakımdan sosyal bilimler alanlarında ÖN ile ilgili uygulamaya dönük araştırmalar yetersizdir. Bu çalışmanın amacı ÖN'nin öğrenci başarısına etkisini sosyal bilimlerin bir alanı olan YDE'de ve dahası web-tabanlı yabancı dil eğitiminde irdelemektir.

ÖN, öğrenmeyi kolaylaştırmak için kullanılan küçük bilgi parçalarıdır. Normalde YDE'de kullanılan materyaller tüm bir dersi ya da dönemi içine alan ders kitapları yada teknolojik yaklaşımlar olmaktadır. ÖN'de amaç ders konusunu öğrencilerin sindirebileceği parçalara bölerek öğrenmeyi kolaylaştırmaktır. ÖN'ü diğer ders materyallerinden ayıran bir takım özellikler mevcuttur: tekrar kullanılabilirlik, paylaşılabilirlik, erişilebilirlik, dayanıklılık, üstveri vb. Her yıl yabancı dil eğitiminde kullanılan ders materyallerini ayrılan emek, zaman ve finansman düşünüldüğünde, ÖN bunları ortadan kaldırabilecek potansiyele sahip bir materyal olması sebebiyle genelde eğitim, özelde yabancı dil eğitimi açısından önemlidir. WTYDE'de kullanılan materyaller öğrencilerin öğretilen konuları anlaması için gereklidir. Maalesef özellikle ülkemizde yapılan WTYDE'dekullanılan materyaler genellikle metne dayalı ve tek taraflı (etkileşimsiz) materyallerdir. Öğrenme nesnesi içerisinde; metin, grafik, ses, video, animasyonlar, oyunlar, testler ve simülasyonların ayrı ayrı kullanılabileceği gibi; bunların bir kombinasyonundan oluşan bir nesne de olabilir. Böyle bir materyal yaklaşımı, kullanılan materyali daha doyurucu hale getirebilme potansiyeline sahiptir. Dolayısıyla ÖN'lerin web-tabanlı yabancı dil eğitimindeki etkisini irdelemek oldukça önemlidir. Bu çalışmanın amacı da web-tabanlı yabancı dil eğitiminde ÖN'ün öğrenci başarısına etkisini irdelemektir.

Bu çalışmada deneysel araştırma deseni kullanılmıştır. Bu desen oluşturulan deney ve kontrol gruplarının ön ve son testler kullanılarak elde edilen başarı puanlarını karşılaştırmayı içerir. Çalışmada toplam 118 öğrencinin yer aldığı 3 grup oluşturulmuştur (42 KG 1, n=42 ; KG 2, n= 38; DG1, n= 38). KG1'i sınıflarda geleneksel yabancı dil eğitimi alan öğrenciler; KG2'yi web tabanlı yabancı dil eğitimi alan öğrenciler ve DG1'dea ÖN ile desteklenmiş web-tabanlı yabancı dil eğitimi alan öğrenciler oluşturmaktadır. Gruplardaki öğrenciler Kırıkkale Üniversitesi Uzaktan Eğitim Bilgisayar Programcılığı öğrencileri ve Kırıkkale Üniversitesi Meslek Yüksek Okulu Bilgisayar Programcılığında yer alan öğrencilerdir. Sıralanan bölümlerdeki öğrencilerden oluşan gruplar belirlenmesinin nedenleri; bu öğrencilerin web-tabanlı eğitime hazır bulunuşlukları, eğitimin web-tabanlı verilmesi ve gönüllü olarak web-tabanlı eğitimi seçmeleri olarak sıralanabilir.

Araştırmacı tarafından uzman görüşleri alınarak hazırlanan, başlangıçta 50 maddeden oluşan, daha sonra ayırıcılık analizi ışığında 40 maddeye indirilen başarı testi her üç gruba ön ve son test olarak uygulanmıştır. Ön test gruplar arası yansızlığı test etmede de kullanılmıştır. Her üç gruba uygulanan ön-testte, varyans analiz tekniklerinden Schefee testinden elde edilen sonuçlara göre gruplar arası anlamlı bir farklılığa rastlanmamış ve grupların yansız olarak oluşturulduğu sonucuna varılmıştır. Çalışmanın uygulama süresi 6 haftadır. Bu süre için, metin tabanlı içerik oluşturulmuş ve bu içerik her üç grupta da kullanılmıştır. Metin tabanlı materyale ek olarak deney grubunda kullanılmak üzere ses, video, ppt sunum, animasyonlar ve test gibi unsurları içeren araştırmacı tarafından alan yazındaki ÖN tasarım ilkeleri doğrultusunda hazırlanan 70 adet öğrenme nesnesi Öğretim Yönetim Sistemine (ÖYS) entegre edilmiştir. ÖN geliştirmede 3 yöntemden söz edilebilir: 1- nesne ambarlarından almak, 2- varolan materyalleri öğrenme nesnesine dönüştürmek, 3- sıfırdan öğrenme nesnesi oluşturmak. Bu çalışmada 2 ve 3 numaralı yöntem kullanılmıştır. Bunun nedenleri; 6 haftalık çalışmada öğretilecek konulara yönelik olarak NA'larda ÖN olmayışı, varolan materyallerin öğrenme nesnesine dönüştürülmesindeki kolaylık ve araştırmacının alan yazındaki ÖN tasarım ve geliştirme ilkelerinden yola çıkarak çalışmaya uygun ÖN hazırlama isteği olarak sıralanabilir.

Bu çalışmanın sonuçları web-tabanlı yabancı dil öğretiminde ÖN kullanımının öğrenci başarısına etkileri üzerine önemli bulgular içermektedir. Çalışmada her üç grup arasında anlamlı farklılıklar bulunmuştur. DG'nin son test başarı sonuçları KG1'inkinden anlamlı şekilde yüksektir. Bu bulgu ÖN destekli yabancı dil eğitiminin geleneksel eğitimden daha etkili olduğunun göstergesi olarak kabul edilebilir. KG2'nin son test sonuçları ön test sonuçlarından anlamlı bir şekilde düşüktür. Bu bulgu metin bazlı WTYDE'nin etkisizliğini ortaya koymaktadır. Diğer taraftan deney grubu ön ve son test arasında son test lehine anlamlı bir farklılık saptanmıştır. Bu bulgu ÖN ile desteklenen WTYDE'nin olumlu etkisini göstermesi bakımından önemlidir. Bu bulgular ışığında bazı öneriler sıralanabilir. ÖN'ü WTYDE'yeentegre etmek öğretilecek içeriğin sunumunu daha etkili hale getirebilir ve dolayısıyla da öğrenci başarısını arttırmada yararlı olabilir. YDE'de ÖN kullanımı ülkemizde yetersizliği herkesçe kabul edilen YDE'nin kalitesinin arttırılmasında katkıda bulunabilir ve dahası WTYDE'nin daha etkili bir hal almasını sağlayabilir. Buna ek olarak çalışma boyunca sürdürülen alan yazın taramasında İngilizce öğretimine yönelik öğrenme nesnelerinin azlığı ve bu nesneleri barındıran NA'ların yetersizliği dikkat çekici boyuttadır. Bu bağlamda YDE'ye yönelik ÖN'lerin ve bu nesnelerin barındırıldığı NA'ların sayısını arttırmak gerekmektedir.

Citation Information

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