



## Implementing Innovative Lean Educational Method to Enhance English Language Achievement\*

Filiz YALCIN TILFARLIOGLU<sup>1</sup>, Vasif KARAGUCUK<sup>2</sup>

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### ABSTRACT

**Purpose:** To our knowledge, the present study is the first experimental example of the application of innovative Lean Educational Method (LEM) in middle school English classes in Turkey. How to learn and teach foreign languages has become the preoccupation of teachers, researchers, educational authorities, parents, and students. All of the stakeholders in the education processes want to satisfy the learning needs of the students ideally. As a result of the relevant efforts, many teaching methods emerged in the field of English Language Teaching (ELT). In this regard, this study primarily aims to introduce LEM and present its efficiency through an experiment.

**Methods:** To question the effects of LEM in English lessons, this experimental study was conducted. A control group (40 students), and an experimental group (40 students) were chosen through random cluster sampling in a public middle school. The experimentation process continued for 19 weeks. Statistical analyses of the collected data were conducted using descriptive statistics and the variance analyses carried out using one-way ANOVA.

**Findings:** The findings showed that there was a statistically significant difference between the experimental and control groups (control group's pre-test mean=8.9, sd=3.801 / post-test mean=8.775, sd=4.293; experimental group's pre-test mean=8.45, sd=4.437 / post-test mean=13.375, sd=3.998). Variance analyses of the pre-test and the post-test showed a statistically significant difference in the dependent variable ( $F=27.197, p<.05$ ).

**Implications for Research and Practice:** The results showed that the implementation of LEM in middle school contexts is quite possible. LEM has the potential to bring many innovations to ELT and it also increases the foreign language achievement in nation-wide public exams. LEM can be applied in other educational contexts such as; primary schools, high schools and universities.

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<sup>1</sup> English Language Teaching Dept., Gaziantep University, TURKEY, fyalcin@gantep.edu.tr

ORCID: <https://orcid.org/0000-0002-0683-6218>

<sup>2</sup> Munire Kemal Kinoglu Middle School, Sahinbey-Gaziantep, TURKEY, vasf\_krgck@hotmail.com

ORCID: <https://orcid.org/0000-0002-1532-8450>

## Introduction

From the educational perspective, Lean can be described as a systematic approach that removes the wastes from educational processes and adds value to the educational processes (Ziskovsky & Ziskovsky, 2010). Lean aims to extract all of the factors which can be considered as waste in any job and purpose by adding value to the educational processes. In addition, Lean can be described as an organizational development program that strengthens the performance and job satisfaction of everybody in an educational institution starting from students to school administrators. Lean adds value to the processes by identifying and eliminating the steps which create redundancy, which is not needed, which adds no value, and which even prevents the work being completed (Ziskovsky & Ziskovsky, 2010). By applying LEM, schools can become more competent in their organizations; teachers can increase learning performance of all students to highest levels, as a result an atmosphere that contains eternal achievement and satisfaction can be created (Balzer, 2010).

To understand LEM, the techniques and tools, which are used in educational processes, should be investigated closely, and the first tool of LEM is load leveling. Load leveling can be described as a Lean tool that balances the curriculum, and this curriculum needs to be delivered to the students in an educational year. Due to various reasons, in each level, the curriculum cannot be delivered to the students effectively, and through their educational life, these unfinished curricula have devastating effects on students because students have difficulties in understanding the new information in the next steps of the curriculum (Ziskovsky & Ziskovsky, 2010). In this context, the main aim of LEM is to complete the curriculum effectively, and in this process some other Lean tools are also being used.

In a load-leveling plan, the process is needed to be separated into steps. The first step is the identification of the current situation, and then, an external environment analysis is carried out. After that, the purposes of the educational institution are determined, and the next critical success factors are specified. In the next step, the comparison between the school's current educational strategies with the needs of today is being addressed. Next, some predictions of the school's future are provided. After that, the school's new mission and vision are determined, and yearly targets are prepared in line with the new mission and vision. In the end, a final education and training plan is completed in line with the aims (Ziskovsky & Ziskovsky, 2010). The process of the load-leveling plan is a demanding job, and all of the possible missing time should be considered. Thus, two weeks of capture-time for the delivery of the curriculum should be decided in case of any problems.

When preparing a load-leveling plan, brain and learning theories should be taken into consideration to ensure that the students have been thoroughly trained in the given curriculum. Brain theory primarily deals with how the brain stores information in memory. According to brain theory studies, the findings showed that the brain absorbs more knowledge if the information is provided in small quantities continuously. In other words, students should not be provided with a hoard of unknown information in a short time, and they also should be provided with

processing time, and these time periods are generally sleeping periods (Jenkins, 2013). In addition, according to the studies which were conducted in the advertising sector, to hold information in the short term memory, four different repetitions are needed, and to transfer the information from short term memory to long term memory, ten different repetitions are needed (Connell, 2005). In other words, to achieve full acquisition of the curriculum by students, educators should repeat the knowledge by taking students' learning styles into consideration, and by doing this, they can easily achieve ten differentiated repetitions of the knowledge. Moreover, the time which is required to provide ten impressions is named ideal learning time (takt time). In LEM, it is appropriate to restrict this time period in a week, so ten different repetitions of the newly learned knowledge should be done within a week.

Since LEM mainly aims to eliminate wastes in educational institutions, there is a need to find out the wastes in schools. According to LEM, the biggest waste is using the school people's capacities below their ability. In the essence of LEM, the most important wealth is human resources, so there is a need for effective use of human resources. There are lots of wastes in educational institutions, and they are listed as follows (Eaker & DuFour, 2015):

- 1) Students who cannot meet the required success and need to re-study the curriculum.
- 2) Students who do not have the perspective of life-long learning, and the students who are taking courses just for graduating from an educational institution.
- 3) Activities that do not add any value to education, and the activities which are not relevant to real life.
- 4) Unnecessary staff and material movements due to the wrong organization of the workplace, and the effort of the staff to solve these problems.
- 5) Mistakes in the delivery of the curriculum, and the decrease in the quality and the increase in the costs due to mistakes in the delivery of the curriculum.
- 6) Taking more students than the optimum number, and giving education to them.
- 7) Teachers' inability to use their full potential when transferring knowledge.
- 8) 8 - Unused and unnecessary teaching materials that are waiting to be used in the schools.

As reported before, there are some wastes in schools, and these wastes should be avoided. In LEM, 5S tool (sort, set in order, shine, standardize, sustain) can be used to remove wastes and increase the quality of education. In the sort step of the 5S tool, educational materials, which are needed in language learning and teaching process, are separated from unnecessary materials, and the removal of the useless materials from the educational institutions is carried out. Next, in the step of set in order, learning places and materials are organized with a logical order. In the step of shine,

the educational materials are improved and placed appropriately in line with work-flow. In the step of standardizing, standards that favor the activities in the shine step are established. In the last step of 5S; sustain, the discipline to flow the first 4S is set up for all times (Dahlggaard & Østergaard, 2000).

The five basic principles of LEM have the main focus in the formation of load-leveling plan too. These principles are as follows; definition of value, value stream, continuous flow, pull system and perfection. First, in the principle of defining value, activities that can add value to teaching and learning of the foreign language are determined, and how and when these activities will be used specified in detail with the help of decision matrixes. Next, in the principle of the value stream, continuous learning of all school components (such as students, teachers, directors, supportive staffs and parents) is tried to be achieved. In other words, the curriculum is needed to be updated and developed in line with the needs of the students. Additionally, in the principle of continuous flow, the activities, which aim to maintain continuous learning, are ordered logically without any decrease in the quality of the language education. In the principle of pull, nothing is done unless there is a need for it. In other words, since every student has individual learning characteristics, the activities in the curriculum are shaped according to students' needs. Students also have a voice in the development process of the curriculum, and they can make suggestions for it, so more innovative ideas can also be put to the curriculum. In the last principle of LEM (perfection), the first four principles are tried to be maintained in harmony. In other words, perfection principle primarily deals with the improvement of the language learning and teaching process. Therefore, it brings continuous research, development and excellence (Jenkins, 2003).

Kaizen, in LEM, is an innovative activity, which tries to find sustainable ways for continuous improvement activities (Zimmerman, 1991). Kaizen activities can be described as team workshops, in which every school component comes together to generate new ideas, and these innovations are tested with another tool of LEM, namely PDCA (plan, do, check, act) to foster a continuous atmosphere of language lessons with innovations. In the first step (plan), which parts of the curriculum and language instruction need change are decided, and the probable results of this change in the curriculum are planned. In the second step (do), the details of the plan of the curriculum change are fixed, and in the third step, check is being applied. In check, the plan is being applied to a smaller scale, and it is repeated until the desired outcome (improvement in language learning) is achieved. Finally, in the step of act, the innovation which has shown a satisfactory result is applied all of the school processes (Stecher, Kirby, Barney, Pearson, & Chow, 2004). In short, PDCA is a scientific method that helps in deciding the effectiveness of innovations in language learning and teaching.

While preparing load-leveling plans, there is a need for using the same teaching procedures since students need patterns that they are used to. In other words, language lessons should be formed in a way that students are familiarized with because people generally need a specified framework for the acquisition of the foreign language (Fitzgerald, 2006). With the help of specified teaching design, students will

have less difficulty in newly taught material, and they will also easily do their homework and execute their other responsibilities since every classroom routine is specified beforehand.

Exams are an indispensable component of all teaching processes since exams provide information about how much the language instruction in educational institutions is successful. In LEM, small weekly exams are advised together with long term achievement tests or public exams. With the help of small weekly exams, the errors and mistakes in the language learning and teaching process can be diagnosed on the spot, and they can be treated immediately, so the possibility of future learning problems can be prevented. In LEM, after the small weekly exams, it is advised to carry out Pareto analysis to find out the most problematic parts in the language learning process. According to the rules of Pareto analysis, 80% of the problems are brought by 20% of the most problematic parts (Akin, 2005). In other words, in the process of Pareto analysis, 20% of the most wrongly answered questions are determined in small weekly exams, and then these problems are treated with Kaizen events, PDCA tool and if it is needed re-teaching of the materials. Moreover, to prevent the mistakes in the language learning process rubrics, control schedules and family signatures can also be used together with Pareto analysis of small weekly exams. All of these innovative ideas that LEM brings to the language education can facilitate instant intervention and resolution to the problems, and they can even provide real-time performance information to teachers, students, school administrations and parents (Ziskovsky & Ziskovsky, 2010). In short, one of the main aims of LEM is to reach perfection through exams.

LEM targets achieving the ideal situation in schools, and for many educational institutions, the ideal situation means the complete learning of the language curriculum within an academic year. This ambitious aim can be made real by developing Lean culture and Lean thinking in all of the processes of an educational institution. With the help of Lean thinking, all of the wastes in the processes of the schools can be eliminated, and with the help of Lean culture, an atmosphere, which is respect-based, can be developed in schools. Lean culture encourages everybody in the school process to become a problem-solver, and all of the problems can be easily solved with the involvement of the people in the school processes. In addition, the biggest problem in educational institutions, which is blaming others for students' failure in public examinations, can be solved since LEM requires mutual respect and effort (Flinchbaugh & Carlino, 2006).

LEM can offer unlimited opportunities for improvement in language learning and teaching. LEM aims to fix problems by investigating the roots of the problems in the processes. Therefore, LEM can be extremely helpful for students who are suffering from problems in the current educational system. Actually, LEM is not a prescriptive method; instead, it is an organizational learning journey that aims to bring continuous improvements to language learning and teaching (Flumerfelt, 2008). Thanks to the innovations that LEM can possibly bring to the field of ELT, the language learning problems and high failure rates in public exams can be solved easily since language education requires continuous improvement.

### *Statement of the Problem*

According to the observation of the researcher, there are many reasons behind the failure of the students in the TEOG English examination. For example, there are just four hours of lessons available for both English instruction and exam preparation for TEOG per week, and within the limits of this time period, it is almost impossible to conduct lessons with traditional methods and make students ready for this very first public examination. Secondly, the students seem to have problems with the activities in the course books. In other words, the activities in the course books sometimes are not sufficient enough to provide successful acquisition of English and train students for TEOG English examination. At this point, there is a need to consolidate the curriculum with supportive learning activities, and re-order the teaching materials in a logical way. According to the observation of the researcher, another problematic part of English classes is the habit of rote learning. In other words, in English classes there is a tendency to learn the language, especially vocabulary items and grammatical usages, just by memorizing them, and this memorization experience leads to monotony in language classes. As a result, the students develop “save the day” attitude towards English lessons, and they cannot foster a lifelong learning approach to the language. This problem could be solved by respecting students, taking students’ considerations in the lessons, and using the creativity of the students in language classes. Moreover, there are problems in the quality of English instruction in the middle school context, and this problem stems from the lack of enough testing materials and lack of teaching activities which provide more lasting learning, especially for vocabulary lessons. At this point, the learners are needed to be treated with weekly short exams, which provide diagnostic data to the learning problems of them, and in the teaching process of vocabulary items, activities which appeal the learners must be developed in line with the students’ preferences.

### *Significance of this Study and Research Questions*

Although some educational uses of Lean are present in higher educational institutions, there is almost no implementation of Lean in middle school contexts to increase general achievement in public examinations. In fact, a theoretical framework for implementing LEM to education has been formed. However, many of its assumptions, or at least those related to eight grade students’ achievement in TEOG English exam have not been experimentally tested. Therefore, trying to find out whether or not LEM in eight grade English lessons have a positive effect upon answering all type of questions in the TEOG is the main aim of the present study.

Research Question # 1 To what extent does LEM increase students’ general achievement in TEOG English exam?

Research Question # 2 To what extent is using LEM in English lessons of eight grade students effective in answering:

- a. grammar questions in the TEOG English exam?
- b. vocabulary questions in the TEOG English exam?
- c. reading comprehension questions in the TEOG English exam?

## Method

### Research Design

This current study is based on experimental research design. In this study, two groups of students were chosen as experimental groups, and they were subjected to the treatment in line with the requirements of LEM, and two groups of students were chosen as control groups to compare the results with the experiment groups because the researcher was giving English lessons just for these four classes due to arrangement of the course load in this educational institution. All of the groups were tested with the first TEOG English examination as a pre-test, after that the treatment based on LEM was provided to the experimental groups of the study. When the treatment sessions were over, all of the groups were subjected to the second TEOG English examination as the post-test. Experimental groups were treated with a load-leveling plan of the curriculum (Table 1.) and other innovations that LEM brought to the field of language teaching. This alteration in the experimental groups was analyzed and compared with the control groups. Finally, the grades obtained from the pre-test and post-test were analyzed using one-way ANOVA to find out whether or not English instruction in line with LEM has a positive effect upon students' achievement in TEOG English examination.

**Table 1.**

#### Summary of the Load-leveling Plan

Unit	Allocated Time	Communicative Functions	Procedure
4-Communication	4 weeks	-Expressing concern and sympathy -Handling Phone conversations -Making simple inquiries -Talking about plans	-Application of 5S.  -Presentation of the subject ( e.g. PPTs, videos, songs, worksheets, vocabulary games, extra reading materials, home works, rubrics were used depending on the topic).
5- The Internet	4 weeks	-Accepting and refusing -Giving explanations/reasons -Making excuses -Making simple requests -Making simple inquiries -Talking about plans -Telling the time, days and dates	-10 different repetition of the newly learnt material (notes, memos, messages, phone conversations, SMS,

			communicative tasks, guessing the word meaning from the context, reading comprehension questions, real life tasks, role-play and simulations were used depending on the topic). -Kaizen events and PDCA. -Small weekly exams and Pareto analysis. -Family visits (after lessons).
6- Adventures	4 weeks	-Expressing preferences -Giving explanations/reasons -Making simple comparisons -Making simple inquiries -Stating personal opinions -Talking about what people do regularly -Talking about past events	
7- Tourism	4 weeks	-Describing places -Describing the weather -Expressing preferences -Giving explanations/reasons -Making simple comparisons -Stating personal opinions -Talking about past events	
8- Chores	3 weeks	-Expressing feelings -Expressing likes and dislikes -Expressing obligation -Giving explanations/reasons -Making simple inquiries -Making simple suggestions	



### *Research Context and Sample*

The participants who attended this study were 8th-grade students of Münire Kemal Kınoğlu Middle School, Gaziantep, Turkey in 2016-2017 education year. The ages of the participants varied between 13-14 and there were 42 female and 38 male students. In this study, the researcher used cluster random sampling for the purpose of minimizing the population. In addition, the students were placed in the classes heterogeneously. In other words, no placement tests were used in the formulation of the classes by the school administration, and students' English level differentiates in each class but it can be said that the general profile of each classroom is almost similar. This situation is the same in almost every public school because MEB strictly forbids the formulation of special classes due to reasons of equality in education.

### *Research Instruments and Procedures*

In this study, the first TEOG English examination in 2016-2017 education year was used as the pre-test, and the second TEOG English examination was used as the post-test with the aim of collecting data. In each TEOG English examination, there were twenty multiple-choice questions with four options, which were designed to assess the students' grammar and vocabulary knowledge, and also reading comprehension skills. In the first TEOG English exam, the students were required to answer questions from the first three units of the coursebook (Upturn in English), and in the second TEOG English exam, the learners were required to answer questions from the first eight units of the coursebook. In this context, the main aim of TEOG exams was to evaluate the students' English knowledge in a long period of time with many topics, not determining the students' performance in a short notice with a single topic. Since these exams question the topics, which were included in the coursebook and the curriculum, they can be considered valid exams, and these two examinations were developed by the nation-wide educational authority (MEB) to place students to secondary education institutions, so the data collected with them can be considered reliable as well.

### *Data Collection and Analysis Procedure*

The results of the pre-test were analyzed using independent samples t-test, then the treatment was started to be applied on two experimental groups, while the two control groups followed the standard 8th grade English curriculum prepared by MEB. There were nineteen weeks between the pre-test and the post-test, and each week there were four 40 minute English lessons, so the treatment of LEM lasted 76-course hours. After the treatment process, the post-test (second TEOG English examination) was administrated to both control and experiment groups. The results obtained from both pre-test and post-test were analyzed using one-way ANOVA to find out whether the application of LEM has a positive effect on grammar, vocabulary and reading performance of the eighth-grade students. The f values were analyzed at .05 sig. level (p) and the data analysis was carried out with the help of SPSS 20.

## Results

### *The Effects of LEM upon English Language Learning*

In this study, the control groups and the experimental groups were needed to be at the same level of English language proficiency before the implementation of LEM in eighth grade English lessons in the purpose of reaching reliable conclusions. In fact, it is not an obligation for pre-test and post-test experimental research designs because the statistical comparison of both groups are still possible even though experimental and control groups have different levels of English language proficiency. However, the level of students' English language proficiency can become one of the factors, which can affect the results, so it was taken one of the variables. In fact, LEM can provide better results with more proficient learners or high school and university students than with middle school and primary school students and vice versa. The current study is based on whether or not implementing LEM to eighth grade English lessons has a positive effect on English language learning, so it is a need to see that both the experimental groups and control groups have nearly the same level of proficiency.

**Table 2.**

*Pre-test Mean Scores, Standard Deviation, t and p-values for the Control Group and the Experimental Group*

	<i>Experimental or control</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SEM</i>
PRE.TOTAL	<i>Control</i>	40	8,9000	3,80148	,60107
	<i>Experimental</i>	40	8,7750	4,29363	,67888
POST.TOTAL	<i>Control</i>	40	8,4500	4,43731	,70160
	<i>Experimental</i>	40	13,3750	3,99800	,63214

*M: Mean, SD: Standard Deviation, SE: Standard Error Mean*

From this table, it can be seen that the analyses of the data gathered from the pre-test showed that there was no statistically significant difference between the experimental group and the control group before this study ( $t=.138$ ;  $p>.05$ ). This result shows that both groups were almost at the same level of proficiency. The experimental group was suitable to treat with LEM.

**Table 3.**

*Levene's Test for Mean Grades*

		Levene's Test for Equality of Variances	
		F	Sig.
PRE.TOTAL	Equal variances assumed	1,242	,269
	Equal variances not assumed		
POST.TOTAL	Equal variances assumed	,013	,910
	Equal variances not assumed		

Whether the data were suitable for the experimental research design, Levene's test was applied. Levene's test for equality of variances showed that an *F* value .013 and significant value .910. This value is greater than .05. In other words, both of the groups showed similar variance, which means these two groups are independent of each other, that is independent samples t-test and one-way ANOVA are appropriate for the research design of the study. Additionally, in Table 4 below, it can be clearly seen that the post-test mean score of the experimental group has relatively increased when it is compared to its pre-test mean score and it is relatively higher than the control group's post-test mean scores as a result of implementing LEM in English lessons.

**Table 4.**

*Pre-test and Post-test Mean Scores and the Standard Deviation for the Control Group and the Experimental Group*

t-test for Equality of Means						
t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
					Lower	Upper
,138	78	,891	,12500	,90673	-1,68017	1,93017
,138	76,872	,891	,12500	,90673	-1,68058	1,93058
-5,215	78	,000	-4,92500	,94437	-6,80510	-3,04490
-5,215	77,167	,000	-4,92500	,94437	-6,80542	-3,04458

In Table 5, it can be seen that there is a statistically significant difference between the post-test mean score of the experimental group and the control group. In other words, there is an increase in the experimental group's achievement level in TEOG

English examination. This result showed the implementation of LEM to eighth grade English curriculum is quite possible.

**Table 5.**

*Variance Analysis of Pre-test and Post-test Mean Scores of the Control Group and the Experimental Group*

		Sum of Squares	df	Mean Square	F	Sig.
PRE.TOTAL	Between Groups	,313	1	,313	,019	,891
	Within Groups	1282,575	78	16,443		
	Total	1282,887	79			
POST.TOTAL	Between Groups	485,113	1	485,113	27,197	,000
	Within Groups	1391,275	78	17,837		
	Total	1876,387	79			

In table 5, variance analysis of the mean scores shows that there has been a statistically significant positive change in the dependent variable (English language achievement). The F value and the p value shows a difference between the mean scores ( $F = 27.197$ ;  $p < .05$ ). It has been verified that the implementation of LEM in eighth grade English lessons has a positive effect on TEOG English examination achievement.

*The Effects of LEM upon Vocabulary, Grammar and Reading Comprehension*

Up to now, it has been demonstrated that implementing LEM in eighth grade English curriculum has a positive contribution upon English language learning in general. Additionally, this study aims to find out whether or not the application of LEM in English language lessons has a positive effect upon vocabulary, grammar and reading comprehension skills. The related findings were showed in Table 6.

**Table 6.**

*Mean Scores and Standard Deviation of Pre-test and Post-test Scores for Vocabulary, Grammar and Reading Comprehension Sections of the Test*

	<i>Experimental or control</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SEM</i>
PRE.VOCAB	<i>Control</i>	40	2,2250	1,16548	,18428
	<i>Experimental</i>	40	1,7750	1,02501	,16207
POST.VOCAB	<i>Control</i>	40	2,3250	1,09515	,17316
	<i>Experimental</i>	40	3,1000	,70892	,11209
PRE.GRAM	<i>Control</i>	40	1,8250	1,10680	,17500
	<i>Experimental</i>	40	2,0250	1,09749	,17353
POST.GRAM	<i>Control</i>	40	1,7000	1,34355	,21243
	<i>Experimental</i>	40	2,8250	1,03497	,16364
PRE.READ	<i>Control</i>	40	4,8500	2,37022	,37476
	<i>Experimental</i>	40	4,9500	2,85505	,45142
POST.READ	<i>Control</i>	40	4,5000	2,69853	,42667
	<i>Experimental</i>	40	7,4250	2,89905	,45838

It can be seen in Table 6 that the treatment (application of LEM) has a positive effect on vocabulary, grammar and reading achievement. The experimental group's pre-test mean score was 1.775 in vocabulary, 2.025 in grammar, 4.950 in reading; whereas in the post-test the mean scores increased to 3.1 in vocabulary, 2.825 in grammar, 7.425 in reading. Therefore, this situation shows a positive change in vocabulary, grammar and reading achievement. Moreover, the mean scores and the standard deviation values are the highest in reading section, and it demonstrated that the application of LEM led to a greater increase in reading comprehension. This could be a result of the load-leveling plan and PDCA tool of LEM in English lessons.

**Table 7.***Variance Analysis of the Mean Scores for the Vocabulary Part of the Test.*

		Sum of Squares	df	Mean Square	F	Sig.
PRE.VOCAB	Between Groups	4,050	1	4,050	3,362	,071
	Within Groups	93,950	78	1,204		
	Total	98,000	79			
POST.VOCAB	Between Groups	12,012	1	12,012	14,116	,000
	Within Groups	66,375	78	,851		
	Total	78,388	79			

When Table 7 is examined, it can be seen that in vocabulary acquisition there is a positive change on behalf of the experimental group. The values in the table show that there is a statistically significant difference between the post-test and pre-test mean scores. ( $F = 14.116$ ;  $p < .05$ ). It can be concluded that the application of LEM in vocabulary sessions was successful.

**Table 8.***Variance Analysis of the Mean Scores for the Grammar Part of the Test*

		Sum of Squares	df	Mean Square	F	Sig.
PRE.GRAM	Between Groups	,800	1	,800	,659	,420
	Within Groups	94,750	78	1,215		
	Total	95,550	79			
POST.GRAM	Between Groups	25,313	1	25,313	17,601	,000
	Within Groups	112,175	78	1,438		
	Total	137,487	79			

Another aim of this study was to see whether there is a positive change in grammar achievement. When the experimental group's pre-test and post-test mean scores are compared, it can be easily observed that the students have increased their achievement in the post-test, and they gained better results in the post-test compared to the pre-test. When Table 8 is examined closely, it can be observed that the application of LEM in grammar sessions has positively contributed to learners' test scores in grammar questions ( $F = 17.601$ ;  $p < .05$ ). Additionally, the results related to the positive effects of LEM on learning grammar structures of the English language showed the characteristics, and there is a significant increase in the mean scores of the grammar part of the test, as well.

**Table 9.**

*Variance Analysis of the Mean Scores for the Reading Comprehension Part of the Test.*

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
PRE.READ	Between Groups	,200	1	,200	,029	,865
	Within Groups	537,000	78	6,885		
	Total	537,200	79			
POST.READ	Between Groups	171,112	1	171,112	21,816	,000
	Within Groups	611,775	78	7,843		
	Total	782,888	79			

When Table 9 is examined, it can be observed that the application of LEM in eighth grade English lessons has a positive effect upon learning the reading comprehension skills ( $F = 21.816$ ;  $p < .05$ ). Additionally, the mean score of the post-test in this section is relatively higher than the pre-test. This finding shows that the treatment has caused a greater positive change in the reading comprehension skills of the learners.

### Discussion, Conclusion and Recommendations

In this study, it has been concluded that the application of Lean to the field of English language teaching is quite possible, and LEM has a positive effect upon foreign language in general. Actually, Lean is not just a prescriptive method; instead it is an organizational learning journey, which aims to bring continuous improvement to the field. Thanks to the innovations that Lean can possibly bring to the education of the

English language, the problems in this field can be easily solved since education requires continuous development. Moreover, LEM has a positive effect upon vocabulary, grammar and reading comprehension learning. The variance analyses of the post-test results of the experimental group showed that there is a statistically significant improvement on behalf of the experimental group. The analyses of the collected data for each part of the test, which is grammar, vocabulary, and reading, were also conducted with the same statistical procedures and it has been seen that the implementation of LEM can approximate the language learning and teaching processes. In other words, LEM can offer unlimited opportunities for improvement in language learning and teaching (Flumerfelt, 2008). Because of these features in its nature, Lean is totally suitable for Turkish educational contexts, since most of the language teachers in this country rely on or forced to use course books to provide language learning activities but with the help of LEM, course content can be sorted easily and innovation can take place in the classrooms.

As a result of this present study, the experimental groups showed better scores in the post-test. Thanks to this emergent improvement in the average grades of the students, the researcher has been given a certificate of achievement by MEB. When the teachers are recognized by the educational authorities due to their efforts in the teaching processes, their motivation to implement educational innovations can survive, and the teachers can create a better sense of professional character and self-confidence (Gonzales, 2015). In other words, thanks to the promising results that LEM has brought to eighth grade English lessons, the researcher has been recognized by the educational authorities and he is eager to carry out LEM in his future lessons.

Lean primarily deals with the identification and elimination of the wastes in the institutions, and there are lots of wastes in the processes of any school. Firstly, Lean gets rid of the wastes, cleans the learning environment (5S), modifies the curriculum (load-leveling), and finally, sustains the innovation through perfecting it (kaizen events, PDCA procedure), and at the same time reducing the costs (Womack & Jones, 2010). From the findings of this study, it has been seen that LEM has achieved more fruitful language learning in middle school contexts and made the education system more successful in the institution.

Applying LEM in language classes can be considered as exploratory practice since Lean promotes the idea of ongoing research rather than a short-term trial and error process, so the benefits of LEM are indefinitely sustainable, and at the same time, LEM minimizes the efforts for the innovation in the language classrooms. In other words, Lean is just not appropriate for the business operations, it is also a good fit for the field of language education, and with this study, and it has been proved. In fact, some applications of Lean can be seen in higher education institutions (see Antony, 2014; Carvalho, Lopes, Ramos, Ávila, Bastos, Fonseca, & Martens, 2013; Comm & Mathaisel, 2005; Gadre, Cudney, & Corns, 2011; Heinemeier, 2014; Ranky, Kalaba, & Zheng, 2012; Thirkell & Ashman, 2014; Van Til, Sengupta, Flidner, Tracey, & Yamada, 2005). However, we should note that, to our knowledge, this study is the first study that was conducted in Turkish middle school contexts and resulted in satisfactory conditions both for the teacher and the students.



LEM aims to fix the problems by investigating the roots of them in the processes; it does not aim to fix the students. It can be said that one of the major problems in the Turkish educational context is “out-of-field teachers”. These teachers were hired by MEB because there was an enormous need for the English teachers. To consolidate English language teaching in this country, these teachers should be informed with LEM since it can be easily applied to the problem-solving and pragmatic nature of the teachers’ job.

As Balzer (2010) states Lean means doing more with existing resources. Every year millions of Euros are spent on English course books and most of them are exported from foreign countries, so this situation leads to a serious loss of national wealth. If LEM was used in a country scale project, there would be a decrease in the cost of education, and this national wealth could be used for the next generations. In this study, no extra-course books were forced to be bought by the teacher, the researcher himself created a load-leveling plan and additional language learning materials (such as PPTs, worksheets, vocabulary exercises, videos, weekly small exams). In other words, the findings suggest that with less money and existing resources, an increase can be achieved in public exams with the help of LEM.

Last but not least, Lean can be very useful for students, teachers, parents and school administrators who are suffering from problems in the current educational system. Moreover, by adopting LEM, educational institutions may allocate and utilize precious resources to main competencies. LEM may become widespread in this country, and it can produce a ripple effect in Turkish educational contexts.

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## Yenilikçi Yalın Eğitim Yönteminin İngiliz Dili Başarısının Yükseltilmesi İçin Uygulanması

### Atf:

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### Özet

*Problem Durumu:* Söz konusu bilimsel çalışma yenilikçi Yalın Eğitim Yönteminin Türkiye'deki ortaokul İngilizce derslerinde uygulanmasının ilk deneysel örneğidir. Yabancı dil öğrenmek ve öğretmek, öğretmenlerin, araştırmacıların, eğitim otoritelerinin, ebeveynlerin ve öğrencilerin endişe kaynağı haline gelmiştir. Eğitim sürecindeki tüm paydaşlar, öğrencilerin öğrenme ihtiyaçlarını en iyi şekilde karşılamak istemektedir. Söz konusu çabaların sonucu olarak İngiliz Dili ve Eğitimi alanında birçok öğretim yöntemi ortaya çıkmıştır. Başka bir deyişle, ilgili yöntem ve teknikler İngilizce öğretilmesi ve öğrenilmesi konusunda sayısız değişikliğe neden olmuştur; ancak hemen hemen hepsi eğitim sürecine katılan paydaşların ihtiyaçlarını karşılayamamıştır. Günümüzde, özellikle de Türkiye'de İngiliz Dili ve Eğitimi bağlamında büyük ölçekli standartlaştırılmış testler (örneğin; TOEFL, IELTS, PET, KET, FCE, CAE, CPE, PTE, SAT, LYS, TEOG vb.) önemli bir rol oynamaktadır. Sınavlar, tüm öğretim süreçlerinin vazgeçilmez bir parçasıdır; çünkü sınavlar eğitim kurumlarındaki dil öğretiminin ne kadar başarılı olduğu hakkında bilgi sağlar.

*Araştırmanın Amacı:* İlköğretim sürecinin ikinci kademesi olan ortaokul bağlamlarında, öğrenciler sekizinci sınıf seviyesine geldiğinde Milli Eğitim Bakanlığı öğrencileri TEOG (Temel Eğitimden Ortaöğretime Geçiş) sınavına tabii tutarak onları ortaöğretim kurumlarına (liselere) yerleştirir. TEOG İngilizce sınavlarında, sorularla sadece anlama seviyesini değil, aynı zamanda daha doğru okuma, mantıklı çıkarımlar yapma ve öğrencilerin kelime bilgileri de ölçülmektedir. Bunun yanı sıra, her sorunun yapısı, anlaşılabilir bir bağlamda ve genellikle de sorunun kalitesini artıran bir soru-cevap formundadır. Ancak, TEOG İngilizce sınavlarından alınan sonuçlar istenilen düzeyde değildir (2016-2017 eğitim öğretim yılı ortalaması 57.315). İngiliz Dili ve Eğitimi alanında yöntembilimsel bir yenilik olan Yalın Eğitim Yöntemi (YEY), bu soruna bir çözüm önermektedir. Yalın Eğitim Yöntemi'nde ölçme ve değerlendirme süreci haftalık küçük sınavlar (quizler), aylık testlerle tamamlanır. Haftalık küçük sınavların aracılığıyla, dil öğrenimi ve öğretimi sürecindeki hatalar ve yanlışlar yerinde tespit edilebilir ve hemen gerekli önlemler alınabilir, böylelikle öğrencilerin gelecekte öğrenme problemleriyle karşılaşma olasılığı önlenir. Yalın Eğitim Yöntemi'nde temel amaç tüm öğrenme-öğretme süreçlerinde üretkenliği ve verimliliği, israfları ortadan kaldırarak artırmaktır. Bu çalışmada Yalın Eğitim Yöntemi'nin sekizinci sınıf öğrencilerinin İngilizce dersindeki kelime bilgisi, dil bilgisi ve okuma edinişi üzerine etkisi araştırılmıştır.

*Araştırmanın Yöntemi:* İngilizce derslerinde, Yalın Eğitim Yöntemi'nin etkisini sorgulamak için deneysel bir çalışma yapılmıştır. Rastlantısal grup örnekleme ile 40 öğrenci içeren bir deney grubu ve 40 öğrenci içeren bir kontrol grubu bir devlet ortaokulunda oluşturulmuştur. Deney grubu Yalın Eğitim Yöntemi'ne göre uyarlanan yabancı dil eğitimini almış ve kontrol grubu standart yabancı dil eğitimini almıştır. Analizler ortaokul bağlamında toplam 80 öğrenci üzerinde yürütülmüştür. Deney süreci 19 hafta devam etmiş ve ilgili deney sürecinden önce hem deney hem de kontrol grupları ön teste tabi tutulmuştur, deney sürecinden sonra iki grup Yalın Eğitim Yöntemi'nin yabancı dil başarısına etkisini araştırmak için bir son teste tabi tutulmuştur. Toplanan verilerin istatistiksel analizleri betimsel istatistikler ve varyans analizleri de tek yönlü ANOVA ile gerçekleştirilmiştir.

*Araştırmanın Bulguları:* Deney ve kontrol grupları arasında ön test ve son testteki puanlar açısından istatistiksel olarak anlamlı bir farklılık olduğu bulunmuştur (kontrol grubunun ön test ortalaması=8.9, SS=3.801 / son test ortalaması=8.775, SS=4.293, deney grubunun ön test ortalaması=8.45, SS=4.437 / son test ortalaması=13.375, SS=3.998). Son testte deney grubunun ölçme değerlendirme süreci sonunda ortalama başarısının 4.925 yaklaşık olarak %60 oranında artırmış olduğu; kontrol grubunun ise ortalama başarısının .125 yaklaşık olarak %2 oranında düştüğü saptanmıştır. Ön test ve son testin varyans analizi, bağımlı değişken üzerinde istatistiksel olarak anlamlı bir değişiklik göstermiştir ( $F=27.197$ ,  $p<.05$ ).

*Araştırmanın Sonuçları ve Önerileri:* Yalın'ın temelinde eğitim süreçlerindeki israfların tanımlanması ve ilgili israfların süreçlerden kaldırılması hedeflenir ve herhangi bir eğitim kurumunun işlemlerinde de önemli miktarda israf ile karşılaşılabılır. Organizasyonel bir değişim planı olan Yalın çerçevesinde; israflardan arındırılma amaçlanır, eğitim öğretim ortamları temizlenir (5S), müfredat dengelenir ve geliştirilir (yük dengeleme) ve eğitim-öğretim ortamlarına getirilen yenilikler (PUKÖ döngüsü ve kaizen etkinlikleri) mükemmelleştirilerek sürdürülür ve ayrıca maliyetler en aza indirgenir. Yalın Eğitim Yönteminin ortaokul İngilizce derslerinde daha etkili bir yabancı dil öğrenimi sağladığı ve eğitim-öğretim süreçlerini uygulanan kurumda daha başarılı bir hale getirebileceği görülmüştür. İlgili çalışmada, Yalın uygulamalarının İngilizce öğretiminde mümkün olduğu ve Yalın Eğitim Yönteminin genel olarak olumlu bir etkisinin olduğu gözlemlenmiştir. Yalın, sadece neyin nasıl yapılması gerektiğini emreden bir yöntem değildir; bunun yerine eğitim-öğretim süreçlerinde sürekli iyileştirmeyi hedefleyen bir öğrenme yolculuğudur. Yalın'ın dil öğretimine getirebileceği potansiyel yenilikler sayesinde, süreçlerdeki problemler kolaylıkla çözülebilir. Yalın Eğitim Yönteminin kelime bilgisi, dil bilgisi ve okuduğunu anlama öğrenimi üzerinde olumlu bir etkiye sahip olduğu gözlemlenmiştir. Deney gruplarının son-test sonuçlarının kontrol gruplarının sonuçlarıyla karşılaştırılmasıyla Yalın Eğitim Yönteminin İngilizce derslerinde uygulanmasının deney grupları lehine istatistiksel olarak anlamlı bir iyileşmenin gerçekleştiği görülmüştür. Başka bir değişle, Yalın, yabancı dil öğretiminde sınırsız fırsatlar sunabilir. Doğasındaki bu özellikler sayesinde Yalın Eğitim Yöntemi Türk eğitim bağlamları için elverişlidir, çünkü ülkemizdeki yabancı dil öğretiminde, öğretmenler genellikle ders kitaplarına bağlı kalmak zorundadır ve dolayısıyla dil

öğretiminin ihtiyaç duyduğu yenilikleri hayata geçirmekte güçlük çekmektedir. Yalın Eğitim Yöntemi öğretmenlerimize tanıtılarak yabancı dil öğretimindeki sınırlılıklar kolaylıkla kaldırılabilir ve eğitim sisteminin ihtiyaç duyduğu yenilikler ve sürekli gelişim faaliyetleri gerçekleştirilebilir. Özetle, söz konusu sonuçlar ortaokul düzeyinde Yalın Eğitim Yöntemi'nin uygulanmasının oldukça mümkün olduğunu göstermiştir. Yalın Eğitim Yöntemi'nin ülke çapındaki genel İngilizce sınavlarında yabancı dil başarısını artırdığı bulunmuştur.

**Anahtar Kelimeler:** Yalın, Yalın eğitim yöntemi, İngiliz dili eğitimi, Yabancı dil başarısı.