

The Impact of Classroom Games on the Acquisition of Second Language Grammar

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Abstract

While games are a common classroom activity, not much empirical evidence supports the use of games in L2 grammar classrooms for late teens and adults. This intervention study focused on 34 Turkish learners of English as a second language. The intervention group was exposed to three class period of games, while the comparison group had three class periods of traditional instruction (e.g. worksheets and whiteboard explanations). A pre-test, a post-test, and a delayed post-test were given. T-tests were performed on the scores from each test and a mixed (with-subject and between group) ANOVA was conducted. Additionally a survey was conducted to determine the experience of the students. Results of the statistical analyses were not significant, but the students reported being motivated by the games. It is recommended that teachers use games in their grammar classrooms about once a week.

1. Introduction

Games are common in the foreign language grammar classroom. In fact, one would be hard pressed to find a practicing teacher who has never used a game while teaching grammar. What is much harder to find is empirical evidence that such games are effective as teaching tools. Because so many teachers use games on such a regular basis, it is important to determine the effectiveness of using games in the classroom to teach grammar. Surprisingly little research has been done on this very common teaching technique. This study seeks to address that issue and contribute to second

language acquisition research by conducting a systematic inquiry into the effectiveness of games as a tool for learning grammar.

First, the meaning of the term “game” should be clarified. Gibbs (1987, cited in Milatovic, 2012), described a game as “An activity carried out by cooperating or competing decision makers, seeking to achieve, within a set of rules, their objectives.” However, this definition is broad and may apply to activities that are not generally considered games (such as marriage or business). Additionally, it is not clear what distinguishes a sport from a game. In fact the Oxford Online dictionary gives the following definition for the word game, “A form of competitive activity or sport played according to rules” (Oxforddictionaries.com, 2014). Interestingly, a great deal of debate has gone on over whether or not golf is a game or a sport. One of the distinguishing features of a sport is the level of physical activity it requires.

In the realm of education, a game has been described as “an instructional method requiring the learner to participate in a competitive activity with preset rules” (Fitzgerald, 1997). Although this definition states that educational games are “an instructional method,” it lacks a specific reference to educational objectives. For the purposes of this paper, an educational game for teaching grammar shall be defined as “An interactive competitive classroom activity designed to practice or elicit production of specific grammatical patterns.” Please note that this definition fits classroom based games and that certain electronic games may not be interactive.

The effectiveness of electronic games has been fairly well documented (Van Eck, 2006; Constantinescu, 2012; Gresham & Gibson-Langford, 2012). The term digital game-based learning (DGBL) comes from the seminal work of Marc Prensky (2001). Since that time, a large number of studies have been done on the topic. Part of the reason there is so much interest in this topic is that the production of educational games can be quite profitable. Although this study is not about electronic games, classroom games are effective for the same basic reason; they are engaging. Additionally, games provide a meaningful context (to the game, at least) for learning (Johnson, 2006).

A large body of research is available on games as a general educational tool for children (e.g. Chambers, Cheung, Slavin, Smith, & Laurenzano, 2010). There is also not a shortage of research on games in second language classrooms for children. Research in this area has been conducted for grammar learning (Yolageldili & Arikan, 2011) and vocabulary learning (Chou, 2012). A study done on secondary students in

Iran showed greater gains in listening and speaking abilities for the students who played games (Azarmi, 2011). Taken as a whole, the research claims that games are effective learning tools, but that many EFL teachers don't use them as much as they would like, especially at the secondary levels (Webster & Mavies, 2011; Chou, 2012). The area where only a few studies could be found was the area of classroom games for the teaching of grammar to late adolescents and adults (Vazirabad, 2013; Chanseawrassamee, 2012). These studies report positive results in both language gains and students' attitudes. These studies encouraged more teachers to use games in the language classroom. However, as previously mentioned, teachers may value games, but not use them. This is often because of classroom management concerns, strict test-based curriculums, administrators who do not allow such activities, or other reasons. More research is needed in this area so that teachers can either overcome these obstacles or realize that games are not an effective tool for teaching grammar to adults.

In spite of the lack of empirical evidence on the effectiveness of classroom based grammar games, there is no shortage of games available online and in books. Games have widespread appeal to teachers of grammar. Although some teachers use games to pass the time, anecdotal evidence indicates that many teachers feel they are effective learning tools. Based on these factors and the literature reviewed, which indicates that electronic games are effective learning tools, the following hypotheses were developed:

1. The intervention group would outperform the comparison group on the post-test.
2. The intervention group would outperform the comparison group on the delayed post-test.
3. The students would respond favorably to games and indicate feeling motivated by the games.

2. Method

2.1 Setting

The study took place in a private Anatolian High School in Istanbul, Turkey. An "Anatolian High School" (*Anadolu Lisesi* in Turkish) is a type of school that focuses on foreign language instruction. The school is located in the district of Kartal. Although Istanbul is a large metropolitan city with a large number of foreign residents,

Kartal is towards the outskirts of the city. Most students don't regularly come into contact with native speakers of English.

2.2 Participants

The study included 34 students, all of whom are either 14 or 15 years old. Nine of the students were male and twenty-five students were female. They were all tenth grade students. Upon entering the tenth grade, students are required to select one of four majors: math, science, foreign languages, or social studies. The students were selected from one of the two tenth grade foreign language classes at the high school. All of the tenth grades foreign language students participated, either in the intervention group or the comparison group.

The sampling method was both convenient and purposeful. The students were purposefully selected from the tenth grade foreign languages classes because those students have 12 hours of English lessons per week. The other majors have only four hours of English per week. Therefore, time was available for the intervention. The sampling was also convenient because all the students wanted to be in the intervention group. It was decided to take 9 students from one class and 8 from the other to create the intervention group. The remaining 17 students made up the comparison group. There was no randomization process. The first nine students from one class and the first eight students from the second class were selected.

2.3 Procedure

This study uses a quasi-experimental design and may properly be referred to as an intervention study. The grammatical structure used in this study is the present perfect. This particular grammar point was selected because Turkish doesn't have that structure. It is notoriously difficult for Turkish learners. Additionally, the learners were at the beginning stages of their foreign language study. Therefore, the structure was probably not completely known to the students. This situation was desirable because measurable learning could take place.

Prior to the intervention a test was given to all 34 of the participants. The test consisted of 26 items, 22 multiple choice and 4 find-the-mistake items. The test was designed to take about 20 minutes to administer. The test topic was present perfect including "for" and "since" as well as "already" and "yet". The test was administered

to both classes at the same time and precautions were taken to prevent copying. The pre-test was administered on a Friday afternoon.

The next Monday morning the intervention started. This intervention consisted of three class hour of games. The comparison group received traditional instruction using worksheets and examples written on the board by a teacher. The intervention played three games during two 40-minute class hours on Monday and one game during a 40-minute class hour on Tuesday. The games were designed by the researcher to assist in classroom instruction. They were not designed specifically for this research project, but had been used before in other classes with perceived positive results. They are similar to, and adapted from, other classroom games used for grammar learning.

For the first game played the students were put into groups of three or four and given a sheet with irregular verbs on it (see appendix). Next to each verb was a blank. The students had to fill in the blanks with the past participle of each verb. The team that wrote the most correct verbs won the game. The winners were given pieces of chocolate. This game took about ten minutes. Each game had an educational objective. The purpose of this game was to warm-up the class, get them used to working in groups, and review the past participles.

The next game was a bingo-type game. Each student was given a piece of paper with a four by four grid on it. In each square of the grid the root form of one irregular verb was written. The researcher called out the past participle of the verb and students marked that off on their paper. The first student who got four verbs in a row had to write four sentences in present perfect using the verbs. If the sentences were correct, the student won a piece of chocolate. The purpose of this game was to further work with irregular verbs, but this time the students were given the past participle and had to find the root form. At the end of the game, a few sentences were generated. This benefitted the student creating the sentences, but also the other students were critically examining the sentences to see if the player had actually won the game.

The final game of Monday was a game called “sentence racing”. The class was divided into groups of four. Each group selected a “runner”. The runner’s starting position was at the front of the classroom touching the board. Each runner was given a different colored marker. Each team was given a blank piece of A4 size paper. The researcher selected an irregular verb and wrote it on the board in the root form. The teams had to create and write a present perfect sentence, ten words or longer,

incorporating the target word. When the teams were done writing the sentence, they would hold up the paper. The runner would run to get the paper and write the sentence on the board. The teams were not allowed to communicate to the runner in any other way than passing the paper. The first runner done writing would get their sentence checked. If it was correct they won, if not, the next team's sentence would be checked. Runners were all encouraged to write sentences and sometimes the last sentence completed was the winner because the others were incorrect.

Grammaticality judgments were occasionally difficult to make. For example, "Alsi and his father have gone to see the cinema" seems to be incorrect because Asli is a girl's name. The correct form would be "Alsi and her father...". Additionally one doesn't "see the cinema", one sees a movie or a film at the cinema. However, if one imagines a context where Asli's boyfriend worked in construction and his firm was building a cinema, the sentence may make sense. The researcher, who is a native English speaker, would leave it up to the team to defend the grammaticality of the sentence. In this way, the students actively discussed meanings and grammar. Each person on the winning team was given a piece of chocolate for each round. Each round the runners were also changed so that all the students could practice creating sentences.

The final class hour of games took place on the following Tuesday during the period before lunch. The game that was played was adapted from a game called "kings" that can be found on the internet (Kings - a grammar game, 2013). Essentially, the students pick cards from a regular playing deck and perform activities according to a legend (see appendix). For example, a person who picked a two would have to tell about an experience they had in a sentence using the present perfect. A student who picked a six would have to make a question in the present perfect tense. This game included sentence production with the present perfect and present perfect progressive tenses. Some fun activities were included to make it interesting. For example a person who drew a seven had to go to the front of the room and dance for one minute. The purpose of this game was to give a final review of the various aspects of present perfect and present perfect progressive.

A post-test was administered the following day (Wednesday) to both groups. The post-test consisted of 22 items, seven fill-in-the-blanks with "since" or "for", 8 multiple choice, and seven identify-the-mistake. Although the format was slightly different from the pre-test, the content was similar.

During the next week, the comparison group played similar games. The grammar topic of these games was comparatives and superlatives. No tests were given and learning gains were not measured. These games served two purposes. The first was that the comparison group felt discriminated against and wanted to play games. They could hear the other class laughing and having fun and felt left out. The other was to give the class some experience in playing games so that an opinion survey could be conducted later.

One week after the intervention was conducted, the classes took a grammar examination that covered several grammar points including present perfect, comparatives, and superlatives. Eight days later, 22 days after the original pre-test was given the exact same test as the pre-test was given as a delayed post-test. Around the same time the survey of attitudes of games was given to the students.

3. Results

The data of eight students was removed from the study. Six of the students were not present on all three of the testing days. The other two received almost perfect scores on the tests and were identified as outliers. The data from the intervention group included eleven students and fifteen students produced the data for the comparison group. Two types of statistical analyses were conducted. T-tests were done for each instance of the test administration and a mixed ANOVA was conducted. The mixed ANOVA measured the within-subject variance as well as the between group variance. Descriptive statistics can be seen in table 1 below.

Table 1

Descriptive statistics

	Mean Scores			Standard Deviations		
	Intervention	Comparison	Total	Intervention	Comparison	Total
Pre-Test	60.36	55.67	57.65	10.51	15.09	13.31
Post-Test	59.27	57.07	58.00	13.58	22.18	18.72
Delayed Test	63.45	60.07	61.50	12.53	18.86	16.28

Intervention N=11, Comparison N=15, Total N=26

The data were analyzed to ensure they conformed to the assumptions for T-tests and ANOVA. The assumption of sphericity was met according to Mauchly's test ($p=.179$). Two outliers were found by analyzing the boxplots of the data. These two

subjects were removed from the study as reported earlier. Test scores were normally distributed for both groups in all three of the tests as assessed by Shapiro-Wilk's test. Homogeneity of variances was established by Levene's test ($p > .05$). Covariances were found to be homogeneous by Box's test of equality of covariance matrices ($p = .637$). The results of the T-tests can be seen in table 2.

Table 2

Independent samples T-Tests

	t	df	Sig.(2-tailed)	Mean Difference
Pretest	.885	24	.385	4.70
Post-test	.291	24	.773	2.21
Delayed Post-test	.517	24	.610	3.39

The results of the T-tests were not found to be significant. Although the mean scores of the intervention group are higher than the comparison group, this cannot be positively attributed to the intervention and is likely to be caused by individual variation. Therefore, hypotheses one and two cannot be supported.

These results are also reflected in the ANOVA as seen in table 3 below. No significant interaction between the intervention and the repeated iterations of the tests $F(2, 48) = .10$, $p = .905$, partial $\eta^2 = .004$. Additionally, no main effect was found for games on discrete-point grammar tests $(2, 48) = 1.153$, $p = .324$, $\eta^2 = .046$. Because of these results, pairwise comparisons were not analyzed. The Bonferroni correction was included in the data analysis, but was not necessary in light of the low significance findings.

Table 3

Mixed ANOVA

Tests of Within-Subjects Effects							
		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Tests	Sphericity Assumed	228.013	2	114.006	1.153	.324	.046
Tests * group	Sphericity Assumed	19.705	2	9.852	.100	.905	.004

The results of the tests were summarized graphically into the chart below.

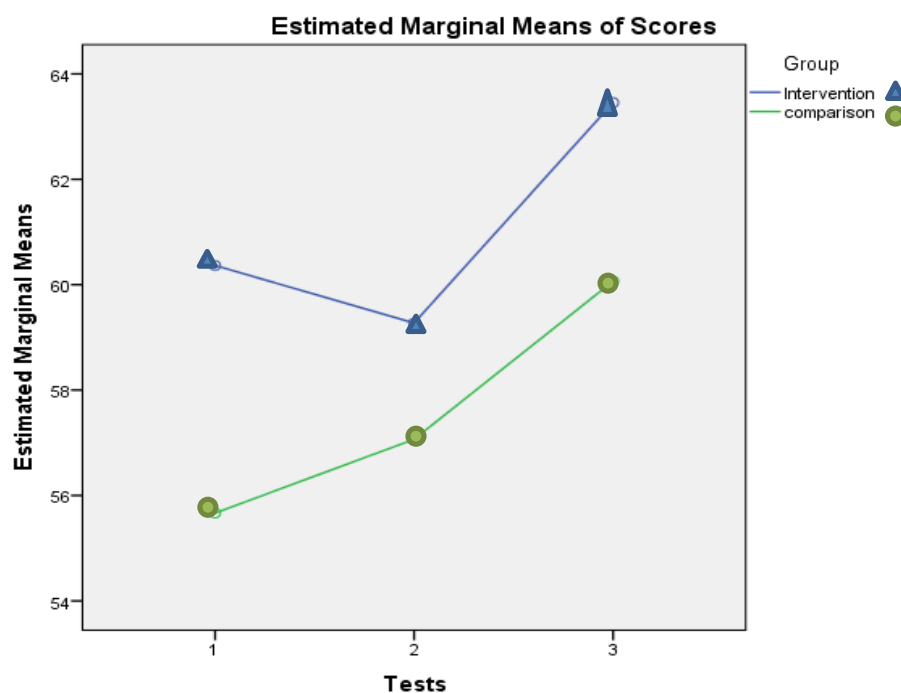


Figure 1 – Comparison of means

After the intervention was performed and the tests were administered, the students were asked to reflect on their experiences in a survey. The results of the survey are compiled in table 4.

Table 4

Motivation survey responses

1= strongly disagree, 2= disagree, 3= somewhat disagree 4= somewhat agree, 5=agree, 6= strongly agree

N=31	MEAN	SD
The games were fun.	5.00	1.39
Games are a good way to learn grammar.	4.33	1.42
I prefer working from the book and worksheets.	3.19	1.90
Games are motivating to me. I want to study to win.	4.97	1.23
Games are not helpful for learning grammar.	2.77	1.91
I was thinking about grammar when we played the games.	4.13	1.57
The games are not fair.	1.97	1.38
We should play once a week.	4.90	1.51
We should play more than once a week.	4.32	1.83
We should NOT play at all.	1.74	1.39
Games are relaxing.	4.74	1.63

Both of the groups completed the survey (N=31) because both groups played games. Data for the impact of games on learning comparatives and superlatives was not collected for the comparison group due to time constraints. Based on the results of the survey, hypothesis three is supported.

4. Discussion

It appears that three class periods of games do not have a significant impact on the acquisition of present perfect as reflected in the scores of a short test. In fact, the intervention group showed a decline in scores for the post-test. This is in line with the results of other studies that found that direct and explicit grammar instruction facilitates discrete point test scores (Macaro & Masterman, 2006). This would support the idea that the comparison group would perform better on the post-test than the intervention, but it does not explain why the scores of the intervention group declined.

Interestingly, the intervention group recovered for the delayed post-test. Although explicit instruction has been found to have positive effects for discrete point grammar tests, it is not conclusive that explicit teaching leads to successful internalization of grammar rules (Macaro & Masterman, 2006). It may be that the

intervention group needed some time to internalize the rules being used in the games before they could display explicit knowledge as required by a test. In fact, when one looks at the descriptive statistics in table 1, it becomes apparent that the intervention group made greater gains (4.18) than the comparison group (3.00) from the initial post-test to the delayed post-test. Because it is not significant these gains cannot be attributed to the intervention. However, the intervention group clearly did not suffer any disadvantage from missing three hours of explicit instruction.

The survey results suggest that students appreciate games and that games have a motivating effect. An interesting finding in the survey data is that students indicated that once a week ($M=4.9$, $SD=1.51$) is an appropriate amount of game play. Although the students value games, they do not seem to feel that games should replace traditional learning. When the fact that the students were not placed at a long term disadvantage is coupled with the levels of motivation indicated in the survey, it seems fair to make a recommendation that teachers include purposeful classroom games as a supplement to other educational techniques. However, the use of games as a review technique before a test is not recommended.

4.1 Limitations

This study has several limitations. It was pointed out to the researcher that three hours of the intervention may not be sufficient. Longer exposure to games could yield different results. Additionally, it was noted by the researcher that the students were becoming more used to playing games at the end of the intervention. The occurrences of poor sportsmanship (e.g. bad losers) were declining and the focus on the grammar was increasing. Therefore, the games may have been more effective if the study was conducted over a longer period. Unfortunately, the syllabus and curriculum is fairly tight and concerns were raised that even three hours of games could have a negative effect on students who were missing traditional lessons.

An additional limitation is that the sample size is small. Also, the pre-test showed that the intervention group had a greater knowledge of the target structure. Although this was not significant, a group of similar abilities would provide better results. Finally, the participants are homogeneous in language background. All the participants are native speakers of Turkish and results may not be generalizable outside of that population.

The end result is that games were shown to be motivating. Even if they were not shown to raise test scores more than traditional classroom activities, they cause no long term damage. Teachers are encouraged to add a purposeful classroom game to their regular lessons about once a week.

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