



Korkmaz, S., Öz, H. (2021). Using Kahoot to improve reading comprehension of English as a foreign language learners. *International Online Journal of Education and Teaching (IOJET)*, 8(2). 1138-1150.

Received : 22.07.2020  
Revised version received : 02.12.2020  
Accepted : 12.12.2020

## USING KAHOOT TO IMPROVE READING COMPREHENSION OF ENGLISH AS A FOREIGN LANGUAGE LEARNERS

*Research Article*

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Hüseyin Öz, commemorated with respect, was an Associate Professor of Applied Linguistics and English Language Teaching at Hacettepe University in Ankara, Turkey. He passed away in 2019 at a very young age. May he rest in peace.

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### Abstract

With the advent of technology over the past decade, teachers have started to incorporate live games into second or foreign language (L2) teaching to create an active learning environment and thus keep learners engaged in learning tasks. The present study reports on the findings of an investigation into the impact of the online “Kahoot!” game on improving reading comprehension of English as a foreign language (EFL) learners. The participants of the study included a total of 38 undergraduate students studying in an English department at a major state university in Turkey. Data were collected using EFL learners’ reading quiz scores and the attitudes towards Kahoot questionnaire. Findings of the study indicated that there was a significant increase in learners’ reading scores after seven weeks of intervention incorporating reading questions. The participants’ answers to survey along with the open-ended questions also revealed that they not only had positive attitudes towards the Kahoot game but also made significant gains, particularly in vocabulary. Overall, findings suggest that Kahoot can be an effective way to motivate EFL learners, thereby enhancing their ability to comprehend various reading materials.

*Keywords:* kahoot, gamification, reading comprehension

### 1. Introduction

The changing profile of students has forced teachers to reevaluate their job description and find new teaching methods. Now many teachers are aware of the fact that their students need the 21st century skills. Technology literacy, considered as a critical skill in today’s dynamic world, requires the ability to use technology wisely. Although some teachers are still not comfortable with using technology in class, the fact remains that students are already using various technologies extensively. “These technologies provide educators many new possibilities and opportunities to enhance and transform how we connect and interact with our students and our colleagues” (Wankel & Blessinger, 2013). In today’s digital age where multiple Wi-Fi networks can be found easily, conventional practices in teaching often fail to sustain the motivation in class, mainly because old teaching and learning methods no longer appeal to technologically literate students.

Over the past decade, along with the advancements in technology, teachers have started to integrate online games into foreign language teaching to keep learners engaged, improve attention and create an active learning environment (Abrams & Walsh, 2014; Yürük, 2019; Chiang, 2020; Zou, 2020; Resmayani & Putra, 2020). Teachers have been using games as instructional tools even before writing as they are one of the most engaging and practical resources to affect students’ motivation in a positive way, allowing educators to create a meaningful learning (San Millán & Priego, 2014). In a gamified classroom, students may have

the opportunity to collaborate with their classmates in a system that is set up to pull them out of the traditional classroom setting, and instead of listening to their teachers and taking exams, they experience something that feels new, exciting, and makes them motivated to learn and practice (Hanus & Cruz, 2018).

Rapid developments in technology might cause the formation of a competitive environment, and this competitive formation can be harnessed through the use of a gamification method in the classroom (Biçen & Kocakoyun, 2018). Gamification, as the name suggests, “is using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems” (Kapp, 2012, p.10). Educational games and especially gamification can be adopted to assist the development of students’ motivational, cognitive, emotional and social perspective (Licorish, Owen, Daniel, & George, 2018). Learning through gamification motivates learners to observe their own learning progress, interaction with others in a classroom environment, and achieve their learning objectives in a highly engaging and enjoyable manner (Hung, 2017).

There is consensus among scholars regarding the effectiveness of games in facilitating learner engagement and increasing motivation. (Iaremenko, 2017; Turan & Meral, 2018; Wichadee & Pattanapichet, 2018). For instance, in their study, Fotaris, Mastoras, Leinfeller and Rosunally (2016) used Kahoot game in an entry-level Python programming course to assess gamification impact on learning. The findings of the study suggest that Kahoot offers students the opportunity to assess their own progress through a fun and interesting atmosphere, which helps them to understand new programming concepts fast. Similarly, Hung (2017) examined a game-clicker tool which was implemented through “bring your own device” (BYOD) model to gamify classroom dynamics in the spirit of question-and-answer competitions. The results showed that the use of clickers affected student learning in a positive way, regarding their achievement, perceptions and preferences. Lister’s (2015) analysis of the literature to determine to what extent gamification reinforces student achievement and motivation among university students also revealed that incorporating gamification elements such as points, badges and leader boards into higher education can motivate students and support student performance in post-secondary environments.

Kahoot game, which was used to improve learners’ reading comprehension skills in the study, has also been discussed by a great number of researchers in the literature (Zarzycka-Piskorz, 2016; Sartini, 2020; İsmail & Mohammad, 2017; Medina & Hurtado, 2017). In a recent study, Göksün and Gürsoy (2019) used Kahoot game as a formative assessment tool to examine whether the use of the gamification tool caused a difference in academic achievement and student engagement. Along with Quizizz, Kahoot game was implemented for one semester. The results showed that the activities gamified with Kahoot application had a more positive influence on academic achievement and student engagement compared to the control groups. Similar findings were also obtained by Iwamoto, Hargis, Taitano and Vuong (2017) who used Kahoot to support students in preparing for high-stakes examinations. They revealed that Kahoot has the potential to increase high-stakes examination scores at the college and university level. Moreover, students who used Kahoot felt positive about their experience. Rather than focusing on learners’ perceptions, Yapıcı and Karakoyun (2017) examined the views of pre-service teachers about the use of Kahoot in biology teaching and the effect of Kahoot use on pre-service teachers’ motivation levels. The results showed that pre-service biology teachers’ motivation levels were higher after the implementation process and their responses about the Kahoot application were mostly positive. They expressed their willingness to use the application in their future studies as well.

Although gamification trend is increasing at a staggering rate and gaining popularity, particularly among young generation, there are few shortcomings noted in the literature as well. The internet disconnection issues are the most commonly mentioned problem regarding the

use of gamification method (Bicen & Kocakoyun, 2018). Toda, Valle and Isotani (2018) also made a systematic classification of negative effects that are related to gamification in the context of education. They conducted a systematic mapping study so as to identify the drawbacks of gamification. Based on their analysis, they found four negative effects of gamification: loss of performance, indifference, undesired behavior and declining effects. Moreover, leader boards are found to be the most cited game elements which have negative effects on learners. Haaranen, Ihanntola, Hakulinen and Korhonen (2014) shared similar results concerning the use of game elements such as badges in a college course. In their study, some students expressed strongly negative feelings towards badges.

The use of online games in foreign language classes has become incredibly popular in recent years. Despite this interest, to the best of our knowledge, reading comprehension of EFL learners with respect to gamification has been overlooked. There is inadequate research into how digital games can be best employed to support the improvement of different skills in foreign language teaching. Most studies do not go beyond looking into the motivational aspect of online games, and there are still key questions and topics that have not been discussed in the literature yet. Therefore, the purpose of this study was to explore whether comprehension and vocabulary focused interactive game, Kahoot, has any impact on developing EFL learners' reading comprehension skills.

To this end, this research was conducted to address the following research questions:

- 1) Is there a statistically significant difference between EFL learners' first span reading scores and third span reading scores?
- 2) Is there a correlation between EFL learners' attitude towards Kahoot game and their reading scores?
- 3) Do EFL learners' attitude towards Kahoot game differ with respect to gender?
- 4) What are the students' beliefs concerning the use of Kahoot game in enhancing their reading skills?

## **2. Methodology**

### **2.1. Research Design**

This study was designed as quasi-experimental research design. "As language classrooms are specifically constituted to bring about learning, it is not unreasonable to collect data about what goes on there as a means of adding to our knowledge of language learning and use" (Nunan, 1992, p.91). In this research study, survey methodology was utilized, and a questionnaire along with three open-ended questions was administered to collect data.

### **2.2. Setting and Participants**

The research study was implemented during the spring semester of the 2019 academic year at a state university in Ankara, Turkey. The participants ( $N = 38$ ; female: 20, 52.63%; male: 18, 47.37%) from two intact classes were surveyed due to easy accessibility, availability at a given time and the willingness to participate (Dörnyei, 2007). Their ages ranged from 18 to 24 ( $M = 19.05$ ,  $SD = 1.33$ ). All participant students are considered to have A2 level English proficiency on the basis of the scores they achieved on the placement exam so the subjects in the study are rather homogeneous. All participating students completed a consent form before attending the sessions.

### **2.3. Data Collection and Analysis**

The survey instrument utilized in this study was an adapted version of a survey which was developed by Tan, Ganapathy and Kaur (2018). The original survey was intended to examine

the effectiveness of Kahoot in Malaysian higher education among adult learners. The adapted questionnaire was piloted on ten students in order to check the interpretation of the statements. While completing the survey, they were asked to think out loud so that the researcher could make improvements based on the feedback. The finalized survey was divided into two sections: (1) the questions related to respondents' attitudes toward Kahoot game and its use in reading lessons, (2) open-ended questions which address the strengths and weaknesses of the Kahoot game. The demographics of the learners such as age and gender were also inquired. Students were also asked whether they had ever played Kahoot game before. The Kahoot questionnaire consisted of 18 statements which participants were expected to rate their agreement on a 5-point Likert scale, ranging from 'disagree' to 'totally agree'. The first 12 items focused on students' attitudes towards the game, and the last 6 items were specifically related to its use in reading lessons. At the end of the questionnaire, they were also asked whether they had any other comments about the use of Kahoot games in English lessons. The internal consistency reliability of the scale measured by Cronbach's Alpha was  $\alpha = .75$  for both attitudes toward Kahoot game and reading variables.

Reading quizzes are administered three to five times a semester and they consist of reading comprehension and vocabulary questions. The reading quizzes used in this study were graded by two classroom teachers based on a standard answer key distributed to all classroom teachers by the testing office. In this study, students' first reading quiz scores and last reading scores were compared and analyzed.

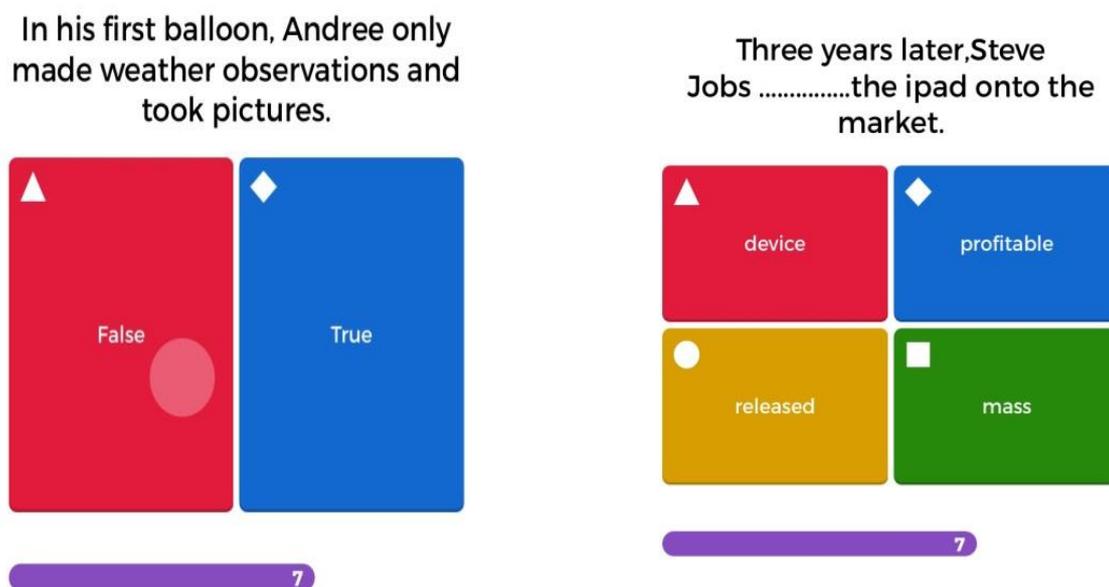


Figure 1. Sample questions used in the Kahoot game

Kahoot game which engages learners with group works was used as an online tool in this research. Kahoot is an online game platform which creates a collaborative classroom atmosphere through competitive quiz activities. In order to start the game the teacher chooses the player vs. player mode to let the whole classroom play by using their devices such as smart phone, tablet or laptop. As for the students, the only thing they need to do is to enter the pin number that appears on the screen. Students do not have to create an account to play the game, which makes Kahoot practical. "The program tracks gamers' progress after every task is completed and provides a leader board of the top five players and this adds an element of competition that students find especially motivating and fun" (Iaremenko, 2017, p. 129).

In this research, learners competed with each other on their comprehension of the reading texts while playing Kahoot. During the 7-week course period, students were assigned two reading texts each week other than their regular reading assignments. They were asked to read the texts and answer the comprehension and vocabulary questions before coming to class. Every week almost two hours were allocated for playing Kahoot game to check students' reading comprehension with different types of questions (see Figure 1).

The present study was conducted during the spring semester with thirty-eight A2 level students studying English as a foreign language at a preparatory school in Ankara. At the beginning of the semester, all students taking part in the research were given a reading quiz, including vocabulary and comprehension check questions. Data were collected using learners' reading quiz scores and Kahoot questionnaire which was originally developed to learn students' perceptions and attitudes towards Kahoot game in higher education. Reading quizzes were prepared by the instructors who specialized in testing and they were all proofread by experienced instructors at school. All reading quizzes were graded by the instructors after a standardization session. The Kahoot questionnaire, on the other hand, was administered to the students during regular class hours in their own classes. After students were informed about the nature and the aims of the study, they were asked to complete the questionnaire anonymously. All the collected data were analyzed through the Statistical Package for Social Sciences (SPSS 21). Students' responses to the open-ended questions were content analyzed. The use of qualitative as well as quantitative data provided feedback for the efficiency of Kahoot game to encourage students to become better readers.

### 3. Results

#### 3.1. Findings based on the first research question: "Is there a statistically significant difference between EFL learners' first span reading scores and third span reading scores?"

A paired-samples t-test was conducted to find out whether there is any difference between learners' first span reading scores and third span reading scores, and evaluate the impact of intervention on the participants' reading scores. The findings showed a statistically significant increase in from time 1, i.e. first span reading, ( $M = 67.89$ ,  $SD = 12.26$ ) to time 2, i.e. third span reading ( $M = 83.76$ ,  $SD = 9.93$ ),  $t(37) = -7.01$ ,  $p = .000$ . The mean increase in the span reading scores, as shown in Table 1, was  $-15.87$  (6%) with a 95% confidence interval ranging from  $-20.45$  to  $-11.28$ . The effect size measured by eta squared statistic was found to be large (.57). The effect size indices for the paired-samples t-test, according to Cohen (1988), are .01, .06, and .14 for small, moderate, and large effects, respectively. This finding demonstrates that students might have studied harder to answer the questions in the Kahoot game and performed better in the last reading quiz of the semester.

Table 1. The impact of intervention on the participants' reading scores

	Paired sample statistics			Paired differences				
	N	Mean	SD	Mean	SD	t	df	Sig.
1 <sup>st</sup> span reading	38	67.89	12.26					
3 <sup>rd</sup> span reading	38	83.76	9.93	15.87	13.95	-7.01	37	.000

#### 3.2. Findings based on the second research question: "Is there a correlation between EFL learners' attitude towards Kahoot game and their reading scores?"

A Pearson product-moment correlation coefficient was computed to assess the possible relationship between the participants' attitudes towards Kahoot game and their reading scores. The results, as represented in Table 2, revealed that there was a statistically significant positive relationship between the participants' attitudes toward Kahoot game and their reading scores,  $r(38) = .541$ ,  $p < .001$ , with a large effect size. The effect size indices for Pearson correlation coefficients are .01 for small effect, .29 for moderate effect, and .49 for large effect (Cohen, 1988). As a result, it is possible to say that students who are satisfied with the Kahoot game seem to have increased their reading performance at the end of the semester.

Table 2. *The relationship between attitudes toward Kahoot game and Reading*

		Attitudes	Reading
Attitudes	Pearson Correlation	1	.541**
	Sig. (2-tailed)		.000
	N	38	38
Reading	Pearson Correlation	.541**	1
	Sig. (2-tailed)	.000	
	N	38	38

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### 3.3. Findings based on the third research question: “Do EFL learners’ attitude towards Kahoot game differ with respect to gender?”

An independent samples t-test was also run to discover if the learners' attitude toward Kahoot game differed with respect to gender factor. The results, as shown in Table 3 indicated that there was no statistically significant difference between the learners' attitude toward Kahoot game and gender variable. The scrutiny of the results of group statistics revealed that males had higher mean score ( $M = 51.38$ ,  $SD = 4.86$ ) than females ( $M = 48.20$ ,  $SD = 5.45$ ) in attitudes toward Kahoot game. Conversely, females had higher mean score ( $M = 24.35$ ,  $SD = 3.89$ ) than males ( $M = 23.44$ ,  $SD = 4.00$ ) in reading score. However, as stated earlier, the mean differences between male and female groups did not reach to a statistically significant level.

Table 3. *The impact of Gender on Attitudes toward Kahoot game*

Variables	Gender	N	Mean	SD	t	df	Sig.
Attitudes	Female	20	48.20	5.45	-1.89	36	.066
	Male	18	51.38	4.86			
Reading	Female	20	24.35	3.89	.706	36	.485
	Male	18	23.44	4.00			

### **3.4. Findings based on the fourth research question: “What are the students’ beliefs concerning the use of Kahoot game in enhancing their reading skills?”**

In order to have a better understanding of the students’ perceptions towards Kahoot in enhancing reading comprehension, three open-ended questions were asked in the survey. The first question was related to students’ previous experience with Kahoot game, yet almost none of the students have ever played the game in their lives.

One interesting finding arising from students’ open-ended comments is that when asked to write the weaknesses of the Kahoot game, there were nearly no negative comments. More than half of the students wrote that they preferred learning English and practice their reading skills through Kahoot game. Some of the answers given by the students concerning the strengths of the game were as follows:

*“When we practice reading through Kahoot game, we improve our vocabulary knowledge”*

*“Kahoot games encourage and motivate me to read the texts because I want to answer all the questions on the screen”*

*“Each and every week one or two hours should be allocated for playing Kahoot because it is fun and we don’t get bored while learning”.*

Analysis of both surveys and students’ reading scores provides insightful findings concerning the impact of Kahoot game in a language class. At the very beginning of the semester, students reading quiz scores were relatively low. The main results of the present study indicated that after seven weeks of intervention, students’ final reading scores were significantly higher than the first reading scores. This might result from the immediate feedback students received during the lesson. While playing Kahoot, the teacher identified the areas students mostly struggled with and had the chance to work on a wide range of vocabulary with the students. Therefore, the game might not yield positive results unless teachers offer detailed explanations and provide comprehensive feedback. The result points to the positive effect Kahoot game has on students’ engagement, motivation and their overall performance as well. Returning to the research questions posed in the introduction, it is also possible to say that there is a significant correlation between learners’ attitude towards Kahoot game and their reading scores.

Another important finding to emerge from the study is that nearly all students disagreed with the idea of assessing reading comprehension skills through Kahoot game. As for formal assessment of the reading comprehension, students did not find the Kahoot game suitable. They also commented on this statement in the open-ended question section of the survey. They mentioned it would be unfair to assess students’ reading comprehension skills through Kahoot game instead of a formal reading quiz as they could forget the reading topic the following day. Based on their answers related to this assessment issue, it is apparent that as far as the formal assessment is concerned, students would rather take a formal exam than a Kahoot quiz.

## **4. Discussion and Conclusion**

Most of the research studies on the use of technology in foreign language classrooms have focused primarily on the motivational side of the interactive games. In this study, the data suggested that if used effectively, educational games like Kahoot might enliven an English lesson while simultaneously cultivating students’ ability to collaborate with each other.

Contrary to popular belief that games can only stimulate extrinsic motivation, the students’ answers to the open-ended questions showed that Kahoot, which might be initially seen as an extrinsic reward, helped the development of intrinsic motivation by changing students’

attitudes towards foreign language learning in the long run. This finding is also consistent with the earlier studies (Iarenenko, 2017; Kang & Tan, 2014; Mirici, 2015; Mawhinney, Dickinson & Taylor, 1989). The potential of interactive games in promoting language learning should not be underestimated since the source of extrinsic motivation might help students to become intrinsically motivated learners. “As first comes motivation before methodology, some classroom activities and tasks should aim at raising students’ awareness of their own learning” (Tosun, 2015).

Although interest seems high and the findings are encouraging, there are significant genuine barriers to adoption of games (Becker, 2007). Firstly, some people such as parents, administrators or even colleagues might criticize the use of interactive games in class. Therefore, teachers might feel guilty adopting games as a new teaching tool. However, students’ responses to open-ended questions as well as their performance in the reading quizzes illustrate that using game mechanics to improve foreign language reading comprehension skills of EFL learners yielded positive results. Therefore, it is essential for teachers to realize the benefits and the value of games in education so they can make informed decisions about when, how and which games might be suitable for their teaching context (Becker, 2007). As with everything else, game-based techniques or gamification, when employed in an appropriate way, has the power to engage, motivate, inform and educate (Kapp, 2012).

Yet another problem with using new technologies and game-based platforms is that some teachers might not know when and how to use them effectively. Today, internet technology is readily available in most higher education institutions. However, using technology in class properly and responsibly requires well-trained educators. It is important to note that “quality teachers are significant to the training and education of citizens who have the necessary knowledge, understanding, skills and values for the competitive and global World” (Mirici & Yangın Ekşi, 2016). Therefore, in-service training workshops should be offered to teachers to make them become familiar with the internet web-based technology, its pedagogical aspects along with its advantages and instructional potentials (Öz, 2014).

The introduction of new technologies into the classroom does not replace the ways of teaching that existed beforehand (Walker & White, 2013). Language teachers need to understand the advantages and drawbacks of different technologies and apply successful pedagogical practices in order to reinforce the learners’ language skills. Simply incorporating the technology-based tools into the syllabus might not lead students to engage more deeply or study harder. Thus, games should be regarded as a starting point for motivating students in the classroom, not the sole purpose of the lesson.

The most significant pedagogical implication of this research is that as the topics that need to be covered in class can be overwhelming at times, encouraging students to read more texts outside the class is necessary. While some students are willing to do extra readings teachers assign, others do not even attempt to read one. Rather than an issue with the attention, most issues are due to their lack of interest. Keeping students motivated is challenging and yet possible. In this study, in the open-ended questions many students commented positively on the motivational aspect of the Kahoot game, and this finding is also in line with several other studies (Hanus & Fox, 2015; Cruaud, 2018; Taylor & Reynolds, 2018; Mada & Anharudin, 2019).

The actual success of the gamification platforms cannot be understood well enough without looking into individual needs of the students. Not only the attitudes toward games but also the attitudes towards the whole foreign language learning process should be taken into consideration to be able to evaluate the language program truthfully since learners’ negative attitudes may distort the results.

## **5. Limitations**

A few limitations which affect generalization need to be acknowledged. The most obvious limitation is the small sample size. In this study, only two classes within the department of Basic English were surveyed. Thus, the findings are not applicable to every classroom setting. In addition, convenience sampling strategy was used because of the availability of the participants in the researcher's own institution. Another limitation is that one-group pretest-posttest design was used in the study which does not include a no-treatment control/comparison group; therefore, there might be other reasons why the posttest scores might have changed.

Longitudinal studies might be carried out to see the possible changes in motivation and the development in reading comprehension. Despite the limitations of this study, the findings in any case suggest that the idea of using game elements in a language class has garnered support from students. The next decade will probably witness a rapid rise in use of games in education. Hence, the interactive games like Kahoot should be geared to EFL learners' individual interests and skill development to maximize learning.

## **Acknowledgement**

I would like to pay my gratitude to my teacher and the co-author of this article, Assoc. Prof. Dr. Hüseyin Öz who unexpectedly passed away after helping me to finalize this research article. He was a dedicated Professor and researcher. I feel privileged to know him.

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