Investigating the Impact of Kahoot! on EFL Grammar Learning

Jonathan Y. CHIN* & **Ben CHANG**
Graduate Institute of Learning and Instruction, National Central University, Taiwan
*jchin@lc.ncu.edu.tw

Abstract: English grammar can be viewed as a tiresome subject for English as a foreign language learning; therefore to spark the engagement of the learners, this study proposes to integrate game-based platform (Kahoot!) into the classroom. 287 students from 7 different grammar class taught by the same instructor were involved in the study for 18 weeks. The class was organized into groups of 6 students and in the groups the students were then paired up. The pairs took turns being the group leader to enrich grammar learning by creating game-based activities. The quantitative result confirms, game-based learning can increase students' grammar proficiently and students whom experience beyond medium joyfulness had more significant increase in grammar understanding compared to students with less joyfulness.

Keywords: EFL grammar learning, Game-based grammar learning, Kahoot!, joyful learning

1. Introduction

English as the lingua franca, much emphasis has been place on being fluent in the language at all ages. Language learners need to develop listening, speaking, reading, writing, phonetics, syntax, vocabulary. Each element of language learning and instruction strategy has been extensively researched in the past few decades to suit the needs of students. Naturally for English as a Second Language (ESL) students, not only do they learn the language formally but they are also able to acquire the language as they are immersed in the environment; certainly, acquisition would come more nature for ESL students at a young age (Chomsky, 1965). On the contrary, English as a Foreign Language (EFL) students, at all ages are learning the language formally in an environment where English is not the national language and would have more difficulties in acquiring English as a second language. Language educators have an understanding of the benefits for students to acquire a language but due to geographic limitation, most EFL instructions tend to be more focus on learning or even memorizing the language through rote learning. However, being in the 21st century, traditional classroom are incorporating technology to help EFL students find a balance between learning and acquisition.

While students are gaining proficiency in English, students in foreign countries may reach a ceiling when learning English grammar due to the traditional formula like memorization of each grammar rule. Indeed, for novice learners, often time grammar is neglected and vocabulary building is the emphasis; however, grammar competence will become very important to communicate (speaking or writing) accurately. Nevertheless, in EFL grammar classrooms, English grammar is usually taught through teacher centered instruction and repetitive testing of separate grammar rules. Certainly, some grammar rules could be memorized and understood, but English grammar is very complex and at times ambiguous. Therefore, with the incorporation of technology, students can utilize game-based platforms such as Kahoot! (https://kahoot.com) or Blooket (https://www.blooket.com) to increase understanding of the grammar rules by self-creating examples and content.

Learning English grammar by using game-based platforms allows students to gamify learning grammar rules. While the textbook has many sample sentences and worksheets, to enhance understand, more examples should be presented; especially examples or questions created by the students. Therefore, the aim of this study is to understand whether students

can understanding English grammar rules by gamifying grammar learning and by creating personalized questions. Therefore, this approach was executed to answer the following two research questions:

1. Do students benefit from integrating Kahoot! in an EFL grammar class?
2. What is the effect of joyfulness level in relations to the outcome of grammar learning?

2. Literature Review

2.1 Gamification in Grammar Learning

As technology advances, gamification in learning is becoming more prevalent. In the past, incorporating games can be more limited as the classrooms need to have relevant materials or props; however, with almost all students having either a smart phone, tablet or computer, technology transforms the physical items into virtual items allowing students to have all the necessary components to create a game anytime and anywhere. Having technology easily assessable encourages the rise of gamification in language learning.

Learning grammar does not have to be dry and mundane, it could be joyful (Hashim, Rafiqah M. Rafiq, & Md. Yunus, 2019) through student engagement and gamifying the rote-to-learning tasks. Gamification allows students to turn the classroom to be more active and engaging (Livingstone, 2015). Students exposed to gamified approach of learning become more excited and motivated (Bicen & Kocakoyun, 2018; Zhang & Yu, 2021; Dehghanzadeh, Fardanesh, Hatami, Talaee, & Noroozi, 2019) which could lead to a better experience learning grammar. The incorporation of game-based learning, allows students to feel less stress to learn English grammar (Zarzycka-Piskorz, 2016). Not only so, students will be more engaged as there is more meaning than the traditional rote-to-learning as students will be more communicatively active attempting to achieve a game goal. The focus of grammar learning shifts from passively receiving content towards participating and engaging in a game or competition.

2.2 Kahoot!

As mentioned, game-based learning has various benefits in language learning and the most popular platform used across the world for language learning is Kahoot! (Wang & Tahir, 2020). The ease of use may be the reason for its popularity. Kahoot! is a free platform that allows students and teachers to have access through smart phone, tablet, and computers by signing up for an account through https://kahoot.com. Once logged in, the teacher/student can see various free resources. If one does not want to choose from the pre-existing activities, the benefit of Kahoot! is the ability to customize the games in relations to the materials taught. The user has complete control of the questions, the answers, the time limit, etc. Not only so, all responses by the students can be save for later assessment by the teacher or student(s) and the feedback can be customized to be immediate or at another appropriate time (Zhang & Yu, 2021; Zarzycka-Piskorz, 2016) allowing for clarification when necessary. Even though the platform may seem like an electronic quiz, but the element of peer competition encourages social interaction. The quiz is no longer a personal assessment, rather it becomes a group competition to become the winner which allows the students to forget that the core of the activity is simply a quiz (Wang, 2015; Kaur & Nadarajan, 2020).

3. Methods

3.1 Participants

In this study, a total of 287 participants were chosen from 6 English grammar elective class at a prestigious university in Taiwan taught by the same instructor. Choosing university level

students from was motivated due to the lack of grammar competency amongst college students; even being exposed to English since elementary school. Besides, university elective courses have more flexibility in the curriculum and students are more open-minded to having a diverse curriculum. Also, formal classes in k12 does not have a course dedicated solely for grammar; only at the university is there a dedicated grammar class for students to take. Most grammar taught in k12 is in a small part of an existing English class that is focused on increasing students test taking skills. To conduct the study, we did not want the participants to have the pressure of learning English grammar to pass a college entrance exams, rather, the study aims to re-ignite university student's passion towards improving his/her English grammar proficiency.

3.2 Procedure

The elective courses spanned across 18 weeks, with 2 hours of instruction each week. The participants would conduct group learning through the use of game-based platform. Though the class was not limited to using Kahoot! as the activity platform, all students chose to use Kahoot! and at times also included platforms such as Blooket, quizzizz, etc. To start the course, the students were arranged into a group of six and further divided into three pairs. The group members are fixed for the whole semester. Each week, a pair will be tasked to be the group leader by giving lecture of a given chapter from the grammar textbook, and the group leader pairs were required to engage the group members through game-based activities at the appropriate time(s). The items in the game-based platform cannot be examples or questions from the textbook which means that the leaders are required to create personalized sentences related to the weekly chapter. This encourages students to have more exposure to more sentences and examples while allowing the group leader to have a deeper understanding of the material.

3.3 Date Collection

This study placed game-based platform into a university level English grammar elective course to explore whether students can have an increased understanding of English grammar. Also, the study is interested to see whether joyfulness within groups effected the outcome of grammar learning.

The data collected for this study were participants' pre-test score scores and post-test scores, and a joyfulness score given by the instructor. The pre- and post-test were created by expert English grammar instructor and the questions were only related to grammar comprehension in the style of most standardized test. To achieve the research goal of the study, the pre- and post-test scores were compared to see the effect of English grammar comprehension through the integration of game-based platform. Secondly, groups' joyfulness score was compared to the individual post-test average to determine the effect of having fun in relations to learning English grammar. The joyfulness score is given by the instructor based on observation of the enjoyment and engagement level of the groups throughout the whole session.

4. Evaluation and Results

This study was conducted to evaluate whether game-based platform can contribute to students grammar knowledge building. Two evaluations were conducted. The first is to assess the effect of grammar comprehension through the implementation of Kahoot! in the classroom by analyzing individual student's pre- and post-test scores. The second evaluation is to understand how individual grammar comprehension can be affect by the groups' level of enjoyment or joyfulness. This was achieve by comparing joyfulness level to post-test score and taking pre-test scores as a covariant.

4.1 Evaluation 1: Impact of Kahoot! in Grammar Comprehension

Evaluation 1 was conducted to assess whether students' understanding of grammar increased by integrating game-based platform into the classroom. To achieve our goal, we administered a pre-test and post-test. The statistical null hypothesis is there is no correlation or difference between a student's individual pre-test score and post-test score. In other words, the research hypothesis is that the result will show a positive correlation and significance difference between student pre-test and post-test.

The results of a paired sample t test (conducted using IBM SPSS) indicated a significant improvement ($t(303) = 32.048$, $p \leq .000$) in the understanding of grammar among the participants as indicated by a difference between pre-test scores (M = 52.20, SD = 10.28) and post-test scores (M = 73.57, SD = 11.86). On average, the participants improved by 21.37 percent on the post-test. Also, the scatter plot chart (figure 1) illustrates a positive correlation of pre-test vs. post-test for the participants, as represented by the following linear line equation: =46.1+0.53x+error. Finally, through Pearson correlation, a positive correlation coefficient of .456 suggests a moderate positive relationship. Overall, the results suggest that students gained grammar proficiency after being exposed to Kahoot! in the course.
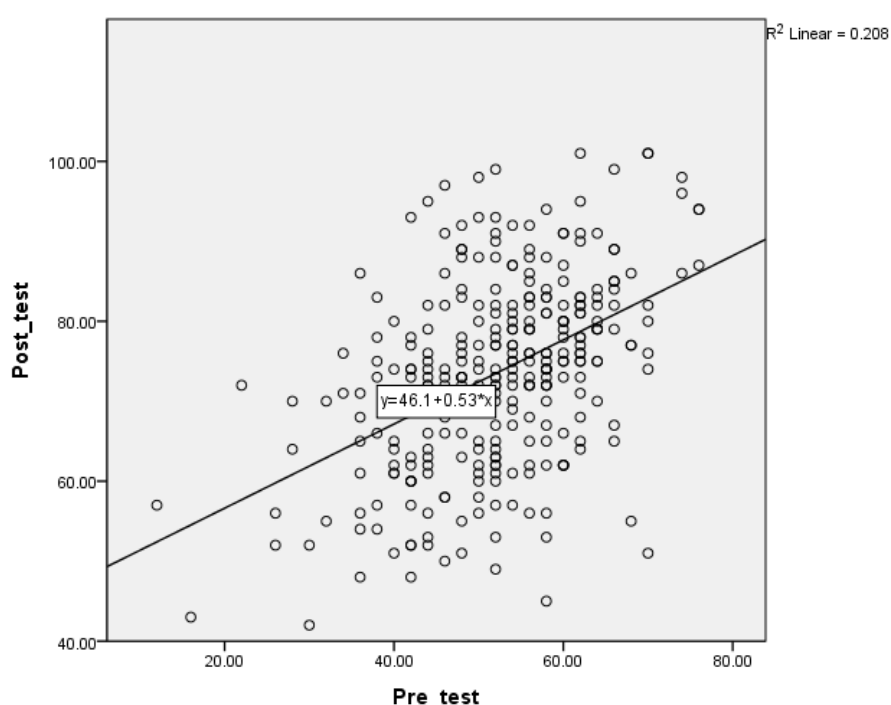

Figure 1. Grammar pre-test vs. post-test

4.2 Evaluation 2: Effect of Joyfulness in Grammar Comprehension

After confirming a significant improvement in grammar comprehension of students being exposed to Kahoot!, evaluation 2 was conducted to have further insight on how each individual's joyfulness level (categorized into three levels: low, medium, and high) is related to grammar comprehension. To answer research questions 2, we compared joyfulness level to the post-test scores and the pre-test scores were used as a covariate to assess the assumption of homogeneity. The statistical null hypothesis is there is no correlation or difference between joyfulness levels to post-test score.

After conducting an analysis using ANCOVA, Levene's Test and Pairwise comparisons to identify which specific levels of joy had the most significant effect on post-test scores. The Levene's Test indicates an assumption of homogeneity (p-value of 0.484) suggesting that the variances in post-test scores were approximately equal. After confirming for homogeneity, the ANCOVA revealed that the level of joy significantly influenced the post-test scores ($F(2, 300)$

= 11.115, p < .001, Partial Eta Squared = .069). Moreover, as seen in table 1, participants with a low level of joy scored significantly lower on the post-test compared to those with a medium level of joy (mean difference of -4.786, p = .002) and lower than those with a high level of joy (mean difference of -6.355, p < .001). Furthermore, there was no significant difference in post-test scores between participants with medium and high levels of joy (mean difference of -1.569, p = .887).

Table 1. *Pairwise Comparison for Joyfulness vs. Post-test Scores*

Joyful Level	Mean Difference	Significance
Low level vs. Medium Level	-4.786	.002
Low Level vs. High Level	-6.355	.000
Medium Level vs. High Level	-1.569	.887

5. Discussion

The purpose of this study is to understand whether including game-based platform (Kahoot!) into a university level EFL grammar class can assist students in learning English grammar rules. In addition, the study is interested in understanding whether the joyfulness level of students can have an effect on grammar learning. After conducting the study, the results of evaluation 1 confirms that the additional use of Kahoot! can benefit students' to have increase understanding of grammar. The students gained significant proficiency in grammar after the course. Furthermore, evaluation 2 demonstrates that the level of joy significantly affects the amount of improvement in grammar learning. From the analysis, higher level of joy compared to lower level of joy is a strong indicator of grammar comprehension success. Conversely, the results indicates an insignificance difference between medium and high level of joy which suggests that a threshold is present. The finding insinuates that moving from a low to a medium level of joy significantly increases students learning; however, further increasing the joy will not significantly yield additional gains. Therefore, providing students with a right amount of positive emotional state, such as joy and excitement through game-based platform, can enhance learning outcomes and improve grammar comprehension.

6. Conclusion

After conducting the study, the authors agree that an emphasis should be placed on the emotional states of students when applying game-based platform to learning English grammar in an EFL setting. From the results, it is evident that including a form of game-based platform can assist the educator in designing lesson to allow learner to have at least a medium amount of joy in the learning environment which would significantly impact the learners experience and outcome. It was surprising that high joyfulness did not make a significant impact in the learning outcome compared to medium joyfulness, but it could be that having too much entertainment actually drew students away from the task of learning. Hence having a good balance between fun and serious learning seems to be the most ideal conditions.

Nevertheless, future research could conduct a motivation survey using ARCS to understand how student's motivation status can affect students learning outcome. In addition to joy, future studies could also explore other game-based platforms. Also, it would be interesting to see whether just bringing up the joyfulness level without course content could also increase the grammar learning experience and comprehension.

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