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Teh Hong Siok, Choong Pow Yean, Nur Anisah Tan Abdullah, Laura Christ Dass

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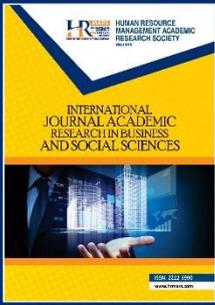
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## Engaging Students in a Flipped Language Classroom via Kahoot

Teh Hong Siok, Choong Pow Yean, Nur Anisah Tan Abdullah,  
Laura Christ Dass (*corresponding author*)

Akademi Pengajian Bahasa, Universiti Teknologi MARA, 40450 Shah Alam, Selangor,  
Malaysia

Email: [hsteh@uitm.edu.my](mailto:hsteh@uitm.edu.my), [choon322@uitm.edu.my](mailto:choon322@uitm.edu.my), [anistan@uitm.edu.my](mailto:anistan@uitm.edu.my),  
[laura404@uitm.edu.my](mailto:laura404@uitm.edu.my)

### Abstract

Previous studies show that one of the challenges in a flipped classroom is to ensure students study or revise the given content before the actual class. Gamified learning is one of the most effective approaches to motivate and engage students in learning. Thus, a game-based learning tool, Kahoot quiz is employed in this study. The objective of this study is to investigate students' perception of the use of Kahoot vocabulary quiz in a flipped Mandarin classroom. In this quantitative study, data was collected through a survey. Survey forms were given to 197 undergraduate students in a public university in Malaysia. The result indicates that the Kahoot vocabulary quiz motivates students to learn before the actual class in a flipped Mandarin classroom. Kahoot vocabulary quiz was found to improve language learning because it helps students to master the vocabulary, improve weaknesses in vocabulary learning, understand the lesson better and increases students' interest and confidence in learning. Besides, the findings also reveal that the Kahoot game is a great platform for creating a conducive learning environment. Its interactive and competitive feature provides a fun and entertaining platform that helps capture and sustain students' attention in class and allows students to share knowledge among friends.

**Keywords:** Flipped Classroom, Gamification Tool, Kahoot, Motivation, Mandarin Vocabulary

### Introduction

In this 21<sup>st</sup> century, students at institutions of higher education are of the millennial generation or called as the Z generation. They are digital natives and tech savvy. Technology is a part of their lives. The integral role of digital technology in all disciplines of education is indisputable and has become a trend in teaching and learning for more than a decade. The use of real and virtual environment for learning is expanding. Language teaching and learning to experience this profound change in education. In language learning, teachers including foreign, second and third language teachers need to play an important role, which is to blend the teaching and learning in an effective technological environment (Godwin-Jones, 2015). As a result, the flipped classroom approach has gained attention in accordance to the rapid development in the era of educational technology. The main part of this flipped classroom

approach is the delivery of the content. The content in the form of knowledge or concepts are introduced prior to the time of the lesson and optimized during class time for an in depth understanding via activities (Sharples, Adams, Ferguson, et.al., 2014). This has become the challenge in the flipped classroom approach. One of the major problems in flipped classroom is the disengagement of students in the out-of-class learning or students skipping the pre-class activities (Lo & Hew, 2017), and it is a challenge for the teacher to ensure that the students have previewed the video (Chao, Chen & Chuang, 2015) and actively participate in class. Therefore, motivating students to study prior to class time and getting them involved actively in class is crucial for the success of a flipped classroom. According to Gardner (2006), students with higher levels of motivation will do better in the process of learning than those with lower levels of motivation. Attali and Arieli-Attali (2015) stated that if technology is involved in the educational activity, students will more likely maintain a high level of engagement in the process of learning. Gamification tools provide excellent platforms to all educators to inspire students and increase their engagement during class (Rafidah, Sabrina & Umami, 2018).

In second language acquisition, interactions and intensive practices are essential to reach certain proficiency goals (Blake, 2008). The Mandarin subject for this study is taught to undergraduate students who are non-native Mandarin speakers at a public university in Malaysia. Mandarin is taught as a third language with 2 credits hours. The Mandarin syllabus focuses on communicative skills in real life at the university of this study (Department of Asian & European Languages, 2017). The instructional hours allocated for second or third language is insufficient to reach the proficiency goals (Teh, 2015). This insufficient time for teaching and learning can be overcome through the use of technology using the flipped instructional approach. The flipped instructional approach integrates video-based learning out-of-class and optimising the classroom time for interactive group learning activities (Lo & Hew, 2017). The success of a flipped classroom very much depends on students' initiative to study the given contents, or the new concepts in advance before attending class. Wang (2015) suggests that teachers can provide online exercises for evaluation on the materials given out-of-class. A quiz at the beginning of class will be able to motivate students to study the out-of-class contents as well (Prefume, 2015).

Therefore, a game-based quiz, namely, Kahoot vocabulary quiz is employed to motivate students to study out-of-class in a flipped Mandarin classroom and actively engage in learning during class time. In order to be able to communicate or interact amongst students in a language class, mastery of a certain quantity of vocabulary is crucial. Wilkins (1972) stated that "...without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (p.111), and "lexis is the core or heart of language" (Lewis, 1993: 89) obviously supports Wilkin's statement. As for communicative competency especially in second language learning, "...lexical knowledge is central to communicative competence and to the acquisition of a second language" (Schmitt, 2000, p.55). Lu (2000) points out that it is important for non-native Mandarin speakers to master a set of Mandarin vocabulary at the beginning. Interactive-based activity in the Mandarin classroom depends on the quantity of the vocabulary within the topic mastered by the students. Hence, in order to help the students increase their vocabulary beyond the two hours of actual class in a week, the flipped Mandarin classroom is employed in this study. In the research, students are informed to study before the actual class the vocabulary that related to the topic to be taught in class. Mastery

of vocabulary before the actual class is crucial to engage students in interactive activities during class.

### **Statement of Problem**

One of the main challenges in a flipped classroom approach is the disengagement of students in the out-of-class learning or students skipping the pre-class activities (Lo & Hew, 2017), and the teacher needs to find a way to ensure that the students have previewed the video (Chao, Chen & Chuang, 2015). Gamification tools provide excellent platforms to all educators, especially for those who are not good in creating game-based activities to inspire students' motivation and increase students' engagement during class (Rafidah, Sabrina & Umami, 2018). Hence, a user-friendly game-based learning tool, namely Kahoot is employed in the present study. In language learning at the beginning stage, mastery vocabulary is key to acquire the basic language skill (Lu, 2000). The Kahoot vocabulary quiz is created in this study and the use of the Kahoot vocabulary quiz as perceived by the students in the flipped Mandarin classroom is investigated.

### **Objectives and Research Questions**

This study seeks to obtain data which will help to address the use of Kahoot vocabulary quiz in the flipped Mandarin classroom as perceived by the students at the tertiary level. The present study will investigate the use of the Kahoot vocabulary quiz from three aspects: motivate students to study before class; improve students' language learning and create a conducive learning environment in the flipped Mandarin classroom. The three research objectives for this study are listed as below:

1. To examine the extent to which Kahoot vocabulary quiz motivates students to study before class.
2. To study the extent to which Kahoot vocabulary quiz improves students' language learning.
3. To study the extent to which Kahoot vocabulary quiz creates a conducive learning environment.

### **Literature Review**

#### **Game-based Learning Tool**

Game-based learning has been practiced in teaching and learning over the years and has shown positive outcomes. The elements in the game that support teaching and learning context, such as the recognition of results via points for keeping track of the progress has motivated students to sustain their level concentration and focus on the activity to achieve the goal. Students found that it is easier to remember the content or information when it is presented in a gamified manner (Huseyin & Senay, 2018). The competition amongst students like winning badges have made students feel important and increase their desire to improve themselves. Besides, immediate feedback allows students to share and acquire knowledge and skills on the spot (Huseyin & Senay, 2018; Pesare, Roselli, Corriero & Rossano, 2016). According to Jamil, Rosle, Baharuddin, Ibrahim and Kasim (2019), there is an improvement in the score when students use game-based teaching and learning tool that matches their interests.

### **Kahoot as game-based Learning Tool**

The elements in game-based tool are in line with the needs of the tech savvy students at tertiary institutions. There are many online game-based or student response systems tools; Mentimeter, Kahoot and Socrative are examples of the common and free to use online game-based tools, although there are limits. Thus, the Kahoot gamified tool has gained more attention recently. Kahoot game provides a platform that allows teachers and students to interact through a competitive knowledge game and transform the classroom into a game-based environment (Wang, 2015). Kahoot is an easy and user friendly game (Huseyin & Senay, 2018). It is simple and easy for educators to create a game-based quiz and students just have to sign up a game pin before the game starts. At the end of the game, points are calculated for all questions answered correctly for each student and the winner would be announced (Wang, 2015). It can easily be used to increase vitality, student engagement and meta-cognitive support to higher education classrooms with limited instructor or student training (Carolyn, & Julia, 2017). Furthermore, Kahoot game is easily used in all fields and motivate students to study before class (Huseyin & Senay, 2018; Pede, 2017; Wang, 2015). It has conclusively been shown that the Kahoot game has enriched the quality of student learning in the classroom, especially on classroom dynamics, engagement, motivation and improve students learning experience (Hazwani, Afifah, Azura, & Adlina, 2018; Huseyin & Senay, 2018; Sherlock, Helen, Ben & Jade, 2018; Thuy & Takashi, 2019). Besides greater engagement, Kahoot game is more enjoyable (Ismail & Mohammad, 2017; Kim & Lee, 2015; Pede 2017; Raj & Veerappan, 2019).

There have been studies to show that students believe that the reward system in Kahoot has increased their motivation to learn (Huseyin & Senay, 2018; Raj & Veerappan, 2019; Thuy & Takashi, 2019), especially in motivated students to do more regular review and revision after class in order to join Kahoot during class (Thuy & Takashi, 2019). Those findings manage to ease the challenge in flipped classroom that students are reluctant to study before actual class time. The students felt that the Kahoot game has encouraged collaboration, supported and helped each other in learning (Huseyin & Senay, 2018; Thuy & Takashi, 2019). Kahoot as a gamification tool incorporated in blended learning approach has helped students to better understand the lesson (Huseyin & Senay, 2018). Hazwani, et al. (2018) state that Kahoot is proven to be useful in initiating and fostering students' engagement in language learning activity and at the same time enhancing their language skills. It creates communication among the students, especially when played in groups. Others positive effects of Kahoot quiz include class time saving, effectiveness in memorizing knowledge, competitiveness for hard work and relaxation (Thuy & Takashi, 2019). All these have shown that the classroom engagement through discussions, animated expressions, and active participation can be accomplished while playing technology based- game likes Kahoot. As a result, games such as the Kahoot is a perfect choice for education (Huseyin & Senay, 2018).

### **Methodology**

A quantitative method is used to investigate students' perception of the use of Kahoot vocabulary quiz in the flipped Mandarin classroom in this study. The study was conducted over a semester.

### Participants and Setting

A total of 197 undergraduates involving 4 faculties and 8 classes of three levels of Mandarin language for non-native speakers at a public university in Malaysia participated in this study. Table 1 presents the total number of students by gender who took Mandarin courses during the semester. The faculties involved are the Faculty of Art & Design (AD), Faculty of Education (ED), Faculty of Chemical Engineering (EH) and Faculty of Health Science (HS). From the total enrolment of 1141 students for Mandarin courses, 20.4% were male students and 79.6% female students as shown in Table 1. Female students outnumbered male students by 59.2%. Among the total of 1141 students, 197 or 17.3% of the students from the four faculties mentioned above participated in this study. The respondents for the study were from the researcher's own classes, where Kahoot vocabulary quiz was played during the Mandarin class. The respondents were chosen in accordance to their experience and the interest in the study (Creswell, 2013).

Mandarin course is one of the university requirements for a third language (Department of Asian & European Languages, 2017). At the beginning of the semester, the students were informed about the flipped approach for the Mandarin class and the use of Kahoot vocabulary quiz during class. The Kahoot quizzes were developed according to the needs of the content. The content of the course was given prior to the actual class time. The quiz was played question by question and was opened for discussion if needed. At the end of the game, the scores obtained and the top five winners were announced. At the end of the semester, the students were required to voluntarily participate in a survey to explore their views on using the Kahoot vocabulary quiz in the flipped Mandarin classroom.

**Table 1.** Student enrolment for Mandarin courses by gender in Semester February-July 2019

Faculty	Male (N/%)	Female (N/%)	Total
Art & Design	73 (27.7%)	191 (72.3%)	264
Education	65 (22.9%)	219 (77.1%)	284
Health Science	53 (11.0%)	428 (89.0%)	481
Chemical Engineering	42 (37.5%)	70 (62.5%)	112
Total	233 (20.4%)	908 (79.6%)	1141

### Instrument and Data Analysis

A survey instrument was developed to collect data on student's perceptions on the use of Kahoot vocabulary quiz in the classroom. Items in the survey were adapted from a previous related study (Rafidah, Sabrina & Ummi, 2018; Sherlock, Helen, Ben & Jae, 2018). The survey form consisted of three sections. Section A was designed to collect data on respondents' demographic information. Items in this section included gender, faculty and hours spent for studying the Mandarin materials out-of-class. There were 10 items using the 5-point Likert-type scale in section B that explored students' perceptions of using Kahoot vocabulary quiz game in flipped Mandarin classroom. The 5-point Likert-type scale ranged from 1 (strongly disagree), 2 (disagree), 3 (slightly agree), 4 (agree) to 5 (strongly agree). The third section was an open-ended question that allowed respondents to give comments. The Cronbach's Alpha value for the reliability of this survey items were measured by SPSS analysis. The calculated Cronbach's Alpha value is 0.843. According to Pallant (2003), Cronbach's Alpha

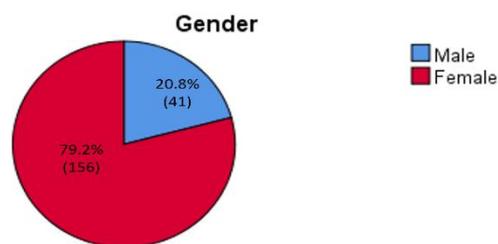
value above 0.7 is considered acceptable, and value above 0.8 are preferable. Hence, the Cronbach’s Alpha value for this study indicates good internal consistency.

The researcher shared the online survey link with respondents via Mandarin whatsapp groups. The data were collected within one week. Descriptive statistics such as frequency, percentage, mean and standard deviation were employed to analyse the demographic information and students’ perceptions in the study. In addition, from the total of 197 respondents, 67 respondents wrote their comments in the open-ended item. Thematic mapping method was administered to analyse data on the open-ended item.

## Findings and Discussion

### Demographic analysis

Data collected on demographic information consisted of 3 items, including faculty, gender and hours spent studying vocabulary before the actual class. The percentage of the respondents from the faculties in the study has been discussed in the methodology. The data for gender and hours spent studying vocabulary before the actual class will be delineated in this section. Figure 1 shows the frequency and percentage in gender for 197 respondents in this study. There were 20.8% of male students and 79.2% of female students who participated in the study. Female students were 58.4% more than the male students in this study. The imbalance in numbers between the female and the male respondents are in line with the enrolment in the faculties as shown in Table 1.



**Fig. 1** Gender by frequency and percentage

Table 2 presents the mean and standard deviation of the hours spent studying vocabulary before the actual class by gender. The total mean score is 3.01. The mean score for male respondents is 2.78 and the mean score for female respondents is 3.06. It is apparent that the female students spent longer hours than male students studying vocabulary before class. In addition, the mean for number of study hours for female students is 0.05 higher than the total mean. Whereas, the mean for male students is lower than the total mean, and it is different by 0.23. This result reveals that the female students were more hard working than the male students in this study.

**Table 2.** Mean and standard deviation of study hours by gender

Gender	Number	Mean	Std.Deviation
1 Male	41	2.78	1.681
2 Female	156	3.06	1.605
Total	197	3.01	1.621

### Analysis of Kahoot quiz as perceived by students

The analysis in this section is to answer the three research questions regarding the use of Kahoot vocabulary quiz in the flipped Mandarin classroom as perceived by the students. Table 4 illustrates the data in section B. There are ten items in this section. Data presented in Table 4 includes valid and missing number, mean, median, standard deviation, minimum and maximum statistics. The respondents perceived Kahoot vocabulary quiz tool based on the 5-point Likert-type scale, which represented by 1 (strongly disagree), 2 (disagree), 3 (slightly agree), 4 (agree) and 5 (strongly agree). The total number of respondents are 197 and there is no missing number. The range for the mean score in this section is from 4.38 to 4.58 (all the data in this study would be rounded up to two decimal places), and the median values is either 4.00 or 5.00. The standard deviation values are low, which is less than 1 (0.57 – 0.68) as shown in Table 3. This indicates that the data points are very close to the mean. Hence, it can be concluded that the consistency of the students choosing strongly agree and agree is high in this section. Nevertheless, the minimum value is 1 as shown in Table 4. This value is given by one of the respondents who gave value 1 and 2 for all the questions in this section, and only one respondent had chosen value 1 in this study. This respondent commented in open-ended question as below:

“Kahoot Vocabulary Quiz is a unique and fun way of improving students’ vocabulary. However, teachers must understand that some students cannot afford to use mobile data as they depend on the campus wifi ...”.

This explains that the respondent has a positive perception on Kahoot quiz, but not satisfied with the internet accessibility.

Table 4 provides a summary of students’ perceptions on Kahoot vocabulary quiz in the flipped Mandarin classroom by frequency and percentage. Approximately half of the respondents chose strongly agree for questions 1 to 10. Furthermore, the mean values for these 10 questions are from 4.38 to 4.58 and the median values are 4 and 5. As such, the following analysis is grouped into three categories; the data for value 5 “strongly agree” and value 4 “agree” are categorized as “agree”; value 3 is maintained as “slightly agree” and value 1 “strongly disagree” and value 2 “disagree” are categorized as “disagree” as presented in Table 4.

**Table 3.** Students’ perception of Kahoot quiz via mean, median and standard deviation

		Kahoot vocabulary quizzes motivate me to study before class	Kahoot vocabulary quizzes motivate me to study and master more vocabulary	Kahoot vocabulary quizzes allow me to see my mastery in vocabulary, and thus motivating me to improve my weakness in vocabulary learning	Kahoot vocabulary quizzes help me understand the lesson better.	Kahoot vocabulary quizzes increase my interest in the lesson	Each question I correctly answer in Kahoot vocabulary quizzes improves my self-confidence	Being placed with other students in the same classroom during Kahoot vocabulary quizzes increases the level of competitiveness.	Kahoot vocabulary quizzes trigger positive attention and focus in the classroom	Kahoot vocabulary quizzes contribute to knowledge sharing among friends	Kahoot vocabulary quizzes is fun and enjoyable
N	Valid	197	197	197	197	197	197	197	197	197	197
	Missing	0	0	0	0	0	0	0	0	0	0
	Mean	4.4467	4.4467	4.4619	4.4670	4.4772	4.4162	4.4112	4.4670	4.3756	4.5838
	Median	5.0000	5.0000	4.0000	5.0000	5.0000	4.0000	5.0000	5.0000	4.0000	5.0000
	Std. Deviation	.64163	.64953	.56679	.59348	.66680	.64629	.68398	.64300	.67083	.61390
	Minimum	1.00	1.00	3.00	3.00	1.00	2.00	1.00	1.00	2.00	1.00
	Maximum	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
	Sum	876.00	876.00	879.00	880.00	882.00	870.00	869.00	880.00	862.00	903.00

**Table 4.** Students’ perception of Kahoot quiz via frequency and percentage

		Item.1		Item.2		Item.3		Item.4		Item.5	
		Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Valid	1 Strongly disagree	1	.5	1	.5					1	.5
	2 Disagree										
	3 Slightly agree	10	5.1	11	5.6	7	3.6	10	5.1	13	6.6
	4 Agree	85	43.1	83	42.1	92	46.7	85	43.1	73	37.1
	5 Strongly agree	101	51.3	102	51.8	98	49.7	102	51.8	110	55.8
	Total	197	100.0	197	100.0	197	100.0	197	100.0	197	100.0
	Combined 1 & 2	1	.5	1	.5	0	0	0	0	1	.5
	Combined 4 & 5	186	94.0	185	93.9	190	96.4	187	94.9	183	92.9
		Item. 6		Item.7		Item.8		Item.9		Item.10	
		Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Valid	1 Strongly disagree			1	.5	1	.5			1	.5
	2 Disagree	1	.5					2	1.0		
	3 Slightly agree	14	7.1	16	8.1	10	5.1	15	7.6	7	3.6
	4 Agree	84	42.6	80	40.6	81	41.1	87	44.2	64	32.5
	5 Strongly agree	98	49.7	100	50.8	105	53.3	93	47.2	125	63.5
	Total	197	100.0	197	100.0	197	100.0	197	100.0	197	100.0
	Combined 1 & 2	1	.5	1	.5	1	.5	2	1.0	1	.5
	Combined 4 & 5	182	92.3	180	91.4	186	94.4	180	91.4	189	96.0

*freq.* frequency

**The use of Kahoot vocabulary quiz to motivate student to study before class**

Research Question 1 in this study investigates the extent to which the Kahoot vocabulary quiz motivates students to study before actual class. As shown in Table 4 (Item 1), the survey result revealed that 94% of the students agreed that the Kahoot vocabulary quiz

motivated them to study before the actual class. There were comments in open-ended item that ties well with the above finding, below is an example:

“It was really good, especially because it motivated me to study before class. That made me more prepared for the class even though before that, I used to come to class without knowing anything about the topic that is to be taught on that day...”.

This finding was in accordance with those of Thuy and Takashi (2019) that Kahoot quiz motivated students to do more regular review and revision after class. Previous research on flipped classroom stated challenges where students were reluctant to study the given materials out-of-class (Lo & Hew, 2017; Chao et al., 2015). Wang (2015) suggested using online exercises and Prefume (2015) suggested using quiz as a learning assessment tool to solve the problem. This finding leads to the conclusion that Kahoot vocabulary quiz has a positive impact on the students in the flipped Mandarin classroom that motivated students to study before actual class.

### **The use of Kahoot vocabulary quiz to improve student’s language learning**

Research Question 2 investigates the extent to which the Kahoot vocabulary quiz improves students’ language learning. Language learning at the beginning stage very much depends on the amount of vocabulary at hand (Wilkins. 1972). Result shown in Table 4 (Item 2) reveals that 93.9% of the students agreed that Kahoot vocabulary quiz motivates them to study and master the vocabulary. On the other hand, 94.6% (Item 3) of the students agree that through Kahoot vocabulary quiz, students realized the level of mastery of their vocabulary and this motivated them to improve their weaknesses in their vocabulary acquisition. These findings indicate that the Kahoot vocabulary quiz is a useful learning tool that helps student master the vocabulary.

The result in Table 4 (Item 4) shows that 94.7% of the students agree that Kahoot vocabulary quiz helped to understand the lesson better. One of the students comment “When I know the vocab beforehand, it was easier for me to understand what *laoshi* taught during the lesson.”. The finding is consonantly with that of Huseyin & Senay (2018). Further data shown in Table 4 (Item 5) indicates that 92.9% of the students agreed that Kahoot vocabulary quiz increased their interest in the lesson. Thus, it can be inferred that through Kahoot vocabulary quiz, students have acquired more vocabulary and increased their interest in the related topic. Mastery vocabulary is very important in learning a new language at the beginning stage (Lu, 2000) because without vocabulary nothing can be conveyed (Wilkins. 1972). These findings reveal that Kahoot vocabulary quiz is not only for the mastery of vocabulary per se, it has also improved student understanding of the lesson in the actual class, and increased their interest in the lesson as well. Employing Kahoot vocabulary quiz has motivated students to devote more time in learning Mandarin; “more hard working in learning Mandarin” as reported by data from the open-ended item. As depicted in Table 4 (Item 6), 92.3% of the students agreed that answering questions correctly during Kahoot vocabulary quiz improved their self-confidence. Taken together, these findings answer the second question that Kahoot vocabulary quiz has improved language learning because it helps students to master vocabulary, improve weakness in vocabulary learning, understand the lesson better and increase students’ interest and confidence in learning.

### **The use of Kahoot vocabulary quiz to create a conducive learning environment**

Research Question 3 investigates the extent to which Kahoot vocabulary quiz creates a conducive learning environment. The data analysis in Table 4 (Item 7) shows that 91.4% of the students agreed that being placed with other students in the same classroom during Kahoot vocabulary quiz increased the level of competitiveness amongst students. This finding is consistent with that of Burguillo (2010) who pointed out the importance of competition-based learning to achieve stronger motivation and to increase students' performance. The competition ambient has triggered students' concentration in class. According to the result obtained in Table 4, 94.4% (Item 8) of the students agreed that Kahoot vocabulary quizzes triggered positive attention and focus in the classroom. Kahoot quiz has successfully captured students' attention in the classroom. This finding confirmed that gamified tool increased the level of student engagement during lesson in the classroom (Attali & Arieli-Attali, 2015; Hanus & Fox 2015; Raifdah, Sabrina & Umami, 2018).

The finding for item 9 in Table 4 shows that 91.4% of the students agreed that Kahoot vocabulary quiz contributed to knowledge sharing among friends, and "very useful within the classroom, making the environment a conducive one for learning" as commented on the open-ended item. Knowledge sharing among classmates begins when Kahoot quiz is played question by question, and student discussed the answers and shared their point of view based on the answers given on screen. This active and interactive learning environment sustained during other activities carried out after the quiz in the classroom. The finding for item 10 in Table 4 indicates that 96% of the students agreed that Kahoot vocabulary quiz was fun and enjoyable. This is the highest percentage amongst the 10 items in section B of the study. This finding was in accordance with the analysis from the students' comments on open-ended item; "fun" appeared to be the highest frequency, other words related were "enjoyed", "enjoyable", "interesting" and "amazing". Overall, the findings indicate that the Kahoot quiz is fun and entertaining. This finding is also supported by research conducted by Ismail and Mohammad (2017), Kim and Lee (2015), Raj and Veerappan (2019) and Pedde (2017). Other comments from respondents that highlight Kahoot quiz as their favourite or love are "It is one of the most anticipating events when I'm in the Mandarin class.", "good and very recommended", "helpful", "effective", "really good" "best", "great", "brilliant", "love" and "like". Overall, these results suggest that Kahoot vocabulary quiz increased the level of competitiveness amongst students and triggered positive attention and focus in the classroom. Following these, it has contributed to knowledge sharing among friends and create a fun and enjoyable learning platform. In conclusion, the findings reveal that Kahoot game is a great platform for creating conducive learning environment. Its interactive and competitive feature, fun and entertaining platform has captured and sustained students' attention in class and allows students to share knowledge among friends.

### **Conclusion**

The main conclusion that can be drawn is that Kahoot gamified game is a useful learning tool to ensure students study the materials given prior to the actual class in the flipped classroom, especially in learning Mandarin vocabulary in this study. The second major finding is that Kahoot vocabulary quiz has improved language learning because it helps student master the vocabulary, improve weakness in vocabulary learning, understand the lesson better and has increased student's interest and confidence in learning. Besides, the findings reveal that Kahoot game is a great platform for creating conducive learning

environment. Its interactive and competitive feature, fun and entertaining platform has captured and sustained students' attention in class and allows students to share knowledge among friends.

The findings of this study demonstrate the theoretical and contextual contributions of the Kahoot gamified learning tool towards language learning in a flipped classroom, especially the mastery of vocabulary. The features in Kahoot gamified learning tool fits the motivation theory in learning. Viewed from the motivational perspective, it provides a higher level of motivation which leads to a better learning process. As such, Kahoot as gamified learning tool contributes to language learning classrooms not only through the engagement of the students during the learning process but also in helping students master the vocabulary.

Therefore, employing Kahoot quiz as gamification learning tool in the flipped Mandarin classroom or any subject is highly recommended, especially for the digital native and tech savvy undergraduate students. This could be an alternative approach to overcome the challenges of students being reluctant to study prior to the actual classroom in the flipped classroom approach.

### Limitations and Future Studies

The sample for this study is taken from students who attended the researcher's class where the flipped Mandarin classroom approach was conducted and Kahoot quiz was used to ensure the students studied the material given before actual class. Hence, the outcome of this study cannot be generalised to all Mandarin language classrooms. Furthermore, the accessibility to the internet influenced students' ability to participate in the Kahoot quiz, this should be considered in analysing and interpreting the data. Even though the findings of the study are limited in its generalizability, future studies in language research of other languages or subjects may apply the Kahoot quiz approach using a bigger sample in teaching and learning.

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