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Kahoot! in a flipped classroom: A case study at Junior High School in Samarinda

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ABSTRACT

The study explores the integration of Kahoot! within a flipped classroom approach at SMPN 22 Samarinda, focusing on its impact on student involvement, motivation, and educational achievements in English language learning. The research employs a qualitative case study design involving Class VII-7 students. Data collection methods include pre- and post-implementation surveys, semi-structured interviews, and observation. Thematic analysis analyzes the data, revealing insights into students' experiences and perceptions. The study aims to contribute to both theoretical understanding and practical application of Kahoot! in language learning within a flipped classroom context. This study examines how SMPN 22 Samarinda uses Kahoot! in flipped classrooms, with an emphasis on how it affects student motivation, engagement, and academic performance when learning English. Data was gathered via surveys, interviews, and observations using a qualitative case study approach with students in Classes VII–7. The results showed that Kahoot! greatly raises student achievement and motivation, and average scores show a strong desire to use it. Although there are some technical difficulties and a learning curve, Kahoot! creates an engaging and dynamic learning environment that improves comprehension and retention of the content. The present study highlights the potential of Kahoot! to enhance academic results and suggests further investigation into creative pedagogical approaches that incorporate technology, like Kahoot!, to augment student involvement and efficacy of instruction.

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1. Introduction

The availability of online resources, such as virtual audio and video that are allies of any subject and are frequently related by some of the top education authorities, has made the “flipped” approach to teaching especially appealing. In this electronic age, the approach appears to hold a distinctive appeal for students, especially at a time when video has gained a special place in the hearts of the “Extraordinary Generation” (Herried & Schiller, 2013). According to Milman (2012), the flipped classroom approach is an instructional strategy designed to enhance learning effectiveness by delivering knowledge to students through videos and vodcasts. This method involves discussions, group

activities, and the application of concepts throughout the learning process. Hamdan et al.,(2013) clarify that the flipped classroom is not a rigid model but rather an approach employed by educators in response to student needs, utilizing a diverse range of tools. As educators in different countries implement flipped classrooms with diverse methods, this has led to a shift in the concept of flipped classrooms into a broader approach to classroom learning.

In education, especially learning, educators must attract students' attention all the time because their attention starts to wane after ten minutes (Wilson et al., 2016). Educators have to change the students' environment and engage them to regain their attention. Through the utilization of technology, educators now have the chance to include and integrate game-based learning into their curriculum. The emergence of game-based learning is a consequence of integrating play into the educational process (Wood, E., 2010). Almost half of American teachers and students use Kahoot!, a learning platform based on games originated in Norway in 2013 and is now available for free (Wang & Tahir, 2020). As of March 2016, Kahoot! was utilized by 20 million out of the 55 million elementary and junior high school students in the United States (Bawa, P., 2019). Kahoot! and similar applications, which offer different learning experiences, are essential for enhancing students' cognitive capacity (Yılmaz, 2017). Kahoot! contributes to students' success at various levels and holds a significant position in incorporating game elements into straightforward assessment programs (Bolat et al, 2017).

Wang and Lieberoth (2016) conducted a study on Kahoot! with about 600 students, it was shown again the benefits of using game-based platforms for learning, specifically game-based platforms for learning. Specifically, they found that students' concentration, engagement, enjoyment and motivation were significantly and positively affected by variations in the utilization of points and audio. In the realm of language instruction and learning, Medina (2017) views Kahoot! as a tool for teaching English vocabulary. Budiati (2017) describes the examination of Kahoot! as a blend of information and communication technology (ICT) and gaming, can be used in English classes to improve students' vocabulary and increase their desire to learn. According to Bicen (2018), the Kahoot! app can be used to gamify lessons as it helps students become more excited and motivated to learn. Using Kahoot! online media in the learning process can improve student learning in the classroom, with the greatest reported impact on classroom dynamics, engagement, motivation and learning experience. Finally, the application of Kahoot! shows that the use of educational games in the classroom can reduce distractions, thus enhancing education and learning beyond the conventional classroom standards.

Flipped Classroom (FC) using gamification tools such as Kahoot is recommended (Bhattacharya, et al., 2016). To deal with the perspectives of digital natives and future generations, updates in teaching and learning methodologies are required. This implies a review of traditional system-based methods with practices articulated through central, direct and one-way power relationships, where the teacher is the sole holder of knowledge (Moreira & Ribeiro, 2016). Therefore, the education system needs to undergo a redesign and modernization oriented towards the needs, preferences and orientations of digital natives. They need to develop a critically reflective profile that allows them to work as teams, participate in interactive and experimental learning experiences, and use constructivist methodologies as instruments of transformation (Gursoy, et al., 2019).

The increased focus on the flipped classroom approach aligns with the advancement of educational technology in the current era. Central to this approach is the delivery of content, where knowledge or concepts are presented before the actual class, optimizing them for in-class activities to improve student comprehension. (Sharples et al., 2014). This has become a concern in the flipped classroom approach. A significant issue in this form of learning is students' lack of participation in extra-curricular learning or their tendency to skip pre-class activities (Lo & Hew, 2017). In addition, teachers must ensure that students have previewed the video and actively participate in the class (Chao, Chen & Chuang, 2015). The success of flipped classrooms largely depends on students' desire to learn what is being taught or a new idea.

Previous research emphasizes the benefits of using Kahoot! in English language learning, but lacks understanding of its impact when applied as an interactive tool in a flipped classroom approach, especially at the pre-class stage. This research is important as it will explore in more detail how Kahoot! affects students' preparation, participation, and comprehension in English language learning. By filling the gap, this research is expected to provide deeper insights into the contribution of Kahoot! in a flipped classroom. Factors such as student motivation and classroom dynamics will also be considered to understand the success of implementing Kahoot! in this context. The objective is to specifically contribute to the theoretical and practical understanding of Kahoot!'s efficacy in language learning within flipped classrooms.

1.1. Research question

Given the preceding context, this study aimed to investigate the following questions:

1. How do the incorporation of Kahoot! a flipped classroom strategy influences student involvement, motivation, and educational achievements when contrasted with traditional teaching techniques?
2. How does the incorporation of Kahoot! as an interactive tool in the pre-class phase of a flipped classroom influence students' readiness, engagement, and understanding in in-class activities, particularly in the context of language learning in an English class?

1.2. Significance of the study

1. Theoretical Significance

With internet resources available to be used as aids for every subject, such as virtual audio and video, it becomes increasingly clear how important the flipped classroom approach to learning is. This method is attractive because it has a special appeal to the electronic generation, especially due to the popularity of video, which is an important part of the "Extraordinary Generation" (Herried & Schiller, 2013). Educators in different countries have used flipped classroom with various methods, turning the idea into a broader learning approach. Moreover, with the help of technology, teachers can integrate game-based learning into their curriculum. Kahoot! is one of the game-based learning platforms that offers a different approach to learning (Wood, E., 2010; Wang & Tahir, 2020).

According to the investigation carried out by Wang and Lieberoth (2016), game-based platforms like Kahoot! exhibit favorable impacts on students' focus, involvement, enthusiasm, and motivation. Traditional teaching methods need to be evaluated and modernized to meet the needs and preferences of the digital generation, according to Bhattacharya et al. (2016), who suggest the use of flipped classrooms with gamification tools such as Kahoot! Therefore, the education system must modernize and transform to meet the needs, desires, and orientations of this digital generation. With this transformation, students can have a critically reflective profile that allows them to work in teams, participate in experimental and interactive learning, and use constructivist methodologies as transformation tools (Gursoy et al., 2019).

The purpose of this study is to find out how the implementation of Kahoot! in a flipped classroom model impacts students' preparation, participation, and comprehension at SMPN 22 Samarinda. The researcher wants to increase the theoretical and practical understanding of how Kahoot! helps students learn English. This research will find out more about the use of Kahoot! in the pre-class stage and how it functions in a flipped classroom context. The researcher also wants to provide a more specialized perspective on the successful use of Kahoot! as an interactive learning tool by considering things such as student motivation and classroom dynamics. Therefore, the purpose of this study is to fill a gap in the previous literature and make a valuable contribution to educational practitioners and researchers in this field.

2. Practical Significance

This research is expected to benefit teachers, students, and future researchers. This study will give educators a variety of strategies for raising students' motivation and involvement in the classroom. In addition, they can also learn from this research on how to cater to various learning styles, thus potentially improving educational outcomes.

On the other hand, students can also benefit from this research as they can learn how to participate and have a more personalized learning experience actively. This study will also prove valuable for upcoming researchers intending to undertake similar investigations. They can grasp the methodology employed in this research and apply it to their future studies, thereby advancing further exploration of the subject.

1.3. Literature review

Numerous research studies have consistently emphasized the beneficial influence of Kahoot! within the flipped classroom setting for language learning. Its ability to improve engagement, motivation and learning outcomes underscores its relevance in modern pedagogical practices (Lin, Ganapathy, & Kaur, 2018). Despite the challenges, overcoming technical issues and tailoring its use to specific educational purposes can maximize the benefits of Kahoot! in enriching the learning experience for students (Cetin, 2018). Future research can continue to explore the evolving role of Kahoot! and similar tools in education, ensuring a differentiated understanding of their applicability and implications.

Kahoot! has been considered an easy-to-use and beneficial tool to increase student participation in classroom activities due to its interactive and hands-on nature (Yuruk, 2020). It has also been shown to be beneficial for assessing student achievement, understanding of key learning content (Wang & Lieberoth, 2016); game-based learning increases motivation and enjoyment (Dellos, 2015); and formative assessment through engagement (Johns, 2015; Wang & Lieberoth, 2016; Zarzycka & Piskorz, 2016).

There is substantial evidence that links gaming to higher levels of student motivation and persistence, according to Zarzycka-Piskorz (2016). Suzanne (2013) states that an individual's desire to achieve a desired outcome determines the sustainability or enhancement of gamification. However, the individual's sense of fun determines this desire. Any kind of game has the power to boost motivation and involvement among students.

Wang and Tahir (2020) thoroughly examined literature from 93 studies and found that Kahoot! can help many things, including student anxiety reduction, teacher and student attitudes, classroom dynamics, and learning performance. Although, Kahoot! sometimes does not make any impact. Students face problems such as fear of losing, difficulty to catch up if there are wrong answers, time pressure to answer questions, and unreliable internet connection are the problems students face.

In addition, teachers also face many problems. These included determining the right level of difficulty for the Q&A, problems with network connectivity, finding the right assessment method, and several other issues that made it difficult to use the technology well. The results showed that Kahoot! encouraged students to actively participate and increased interaction in the classroom. Students recognized that it improved their knowledge and skills and increased their attention, focus, interaction and learning engagement (Wang & Tahir, 2020).

Flipped classroom pedagogy incorporates the ability to address situations where students are unable to attend class due to illness as well as students taking part in other school-supported activities, such as athletics (Roehl et al., 2013). Strayer (2007) studied the learning outcomes in flipped classrooms and showed that the learning environments in flipped and traditional classrooms are different. Compared to traditional classrooms, students in flipped classrooms are more innovative and cooperative. In addition, the flipped classroom approach seems to be more effective if the focus is on giving students the freedom to interact at their own pace (Strayer, 2007).

The flipped classroom method helps teachers build relationships and communication with students, and vice versa. In addition, this method is expected to improve leadership skills, problem solving, decision making, and teamwork (Zappe et al., 2009, Kim et al., 2014). Kahoot! is an example of game-based learning that belongs to an educational approach that aims to utilize the flipped classroom approach (Nkhoma et al., 2018).

2. Method

2.1. Research Design

This research uses a case study approach to study the case of Kahoot in a flipped classroom at SMPN 22 Samarinda. This school has a strategic location and adequate facilities to help the imple-

mentation of this research. A case study itself is an in-depth empirical study of a recent phenomenon in the real world (Yin 2003 cited in Hollweck, 2015). A case study, as stated by Stake (2006), is a research approach that aims to uncover how a particular study is unique and distinctive. When researchers want to gain an in-depth understanding of a particular condition or event and explore a phenomenon that has not been widely tested, this approach is often used.

Several studies have successfully used case studies as a research method. Among them are Zainuddin and Attaran (2016) with the research Malaysian Students' Perceptions of Flipped Classroom: A Case Study. However, there are still few researchers who examine the flipped classroom as a case study. This is a great opportunity that can be used for research in this school.

This research uses descriptive qualitative methods to help describe how Kahoot! is implemented in a flipped classroom. Questionnaire survey and observation will involve students (Class VII) to analyze the frequency of participation, average motivation score, and learning achievement.

2.2. Sample/Participants

The sample participants for this research were drawn from SMPN 22 Samarinda. SMPN 22 Samarinda is a school located on Pahlawan Street with 1,230 students in the 2023/2024 academic year. The sample participants were specifically from one class: VII-7B. A detailed breakdown 6 students participated in collecting qualitative data, and 16 students participated in collecting quantitative data, with an even distribution of 37 students in one class who had used Kahoot! as a learning method in class. Reveals that 6 students who actively participated in the research, with an even distribution of 37 students in one class who had used Kahoot! as a learning method in the classroom.

The selection of participants was conducted voluntarily, ensuring that students willingly opted to take part in the research. Each participant gave their informed consent prior to the study starting, with an emphasis on ethical issues and respecting the students' autonomy. This careful selection process aimed to ensure a representative and willing group of participants, contributing to the reliability and ethical integrity of the study.

2.3. Instruments

In the extensive qualitative study titled 'Kahoot! in a Flipped Classroom: A Case Study at SMPN 22 Samarinda,' the researcher meticulously devised a comprehensive tool featuring open-ended survey questions and semi-structured interviews. This survey instrument will be administered to students both before and after the implementation of Kahoot! in the flipped classroom setting. The primary focus of this investigation is to delve into the detailed experiences and perceptions of students in classes VII-7. The overarching goal of the study is to address the first research question: How does the integration of Kahoot! within a flipped classroom strategy impact student involvement, motivation, and educational achievements, as compared to conventional teaching methods? Furthermore, the study aims to address the second research question: What is the influence of implementing Kahoot! as an interactive tool in the pre-class phase of a flipped classroom on students' preparation, participation, and comprehension during in-class activities, specifically emphasizing lan-

guage learning in an English class? To gather in-depth insights, the researcher plans to conduct in-depth interviews with the students. This questionnaire was adopted from several references, one of which is Gonzalez Ruiz, & Cristina, 2021.

2.4. Data Collection Process

The data collection process for the qualitative exploration of ‘Kahoot! in a Flipped Classroom: A Case Study at SMPN 22 Samarinda’ will involve an accurate and phased approach. Firstly, an orientation session will be conducted to acquaint the participants from classes VII-7 with the study’s objectives and methodologies. Following this, an extensive survey questionnaire containing open-ended questions will be circulated to gather the student’s viewpoints, encounters, and reflections on their involvement with Kahoot! in the flipped classroom.

2.5. Data Analysis

In the investigation of ‘Kahoot! in a Flipped Classroom: Case Study at SMPN 22 Samarinda’, data analysis will be carried out using comprehensive qualitative descriptive methods and quantitative descriptive methods. Based on research from Heriyanto (2018), qualitative research requires a fairly complex process. This is because this research has been chosen to be conducted qualitatively. After all, it has research characteristics that aim to explore and tell the experiences of people involved in events. Therefore, a method is needed to evaluate the qualitative data that has been collected by the researcher so that a solution can be found that matches the current problem formulation.

In qualitative research, there are many ways to analyze data—for example, content analysis, discourse analysis, and thematic analysis. Thematic analysis is the method that will be used in this research. Thematic analysis is one of the data analysis methods that aims to find patterns or themes through the data that has been collected by researchers (Braun & Clarke, 2006). If a study intends to explore in detail their qualitative data to find relationships between patterns in certain phenomena and to explain how much the phenomenon occurs from the researcher’s perspective, this method is very effective (Fereday & Muir-Cochrane, 2006). Even Holloway and Todres (2003) said that thematic analysis is the basis of the importance of analysis in qualitative research.

a. Data collection

The following are the stages used to analyze data using the thematic analysis method—the first stage is data collection. Researchers must understand and integrate with the qualitative data they obtain. Re-reading interview transcripts, even watching video recordings made during the data collection process, is the best way to become one with the data. The main goal of this first stage is for the researcher to begin to gain a better understanding of the data they have obtained and find some aspects of the data that relate to their research questions.

b. Coding

The second stage is coding. Coding is similar to a librarian’s job of assigning topics to book titles. Codes can also be thought of as labels or features in the data that relate to the research question. In this case, the researcher is responsible for determining which data should be coded in the

interview transcripts. As much as possible, codes should be written as clearly as possible so that the researcher can better understand the meaning of each question asked.

c. Looking for a themes

The third stage is searching for themes. At this point, the researcher’s focus shifts from finding codes to finding themes. Themes should be selected according to the research objectives, according to Braun and Clarke (2006). This theme clarifies existing data related to the formulation of the research problem.

In addition to qualitative data, the researcher also collected quantitative descriptive data from the questionnaire. In this study, descriptive quantitative methods will be used to collect data on students’ participation in Kahoot! activities, their motivation levels before and after the use of Kahoot!, and their academic achievement in English learning. Furthermore, these data will be systematically analyzed and presented in easy-to-understand formats, such as tables and graphs, to provide a more complete picture of the effects of its use. The descriptive quantitative method not only allows researchers to know more about how effective Kahoot! is in teaching English but also helps teachers in the field make decisions.

3. Results and discussion (This part is excluded for the non-research articles)

3.1 Findings

3.1.1 How do the incorporation of Kahoot! a flipped classroom strategy influences student involvement, motivation, and achievements when contrasted with traditional teaching techniques?

Involvement and Motivation

Kahoot! has been proven to increase student involvement, motivation, and achievement in flipped learning. The researcher had implemented this method at SMPN 22 Samarinda to make the learning environment more interactive and fun. Kahoot! as a learning tool makes students more interested in learning and active. We strive to provide a different and more effective learning experience with this approach compared to traditional learning approaches.

Table 1. Descriptive statistics of Involvement and Motivation

	N	Minimum	Maximum	Mean	Std. Deviation
1. Does Kahoot! motivate you to read the topics before each exercise?	16	3.00	4.00	3.6250	.50000
2. Do you think using Kahoot! increases your competitiveness in class?	16	2.00	4.00	3.6250	.80623
3. Does using Kahoot! help you to be more focused and active during class?	16	2.00	4.00	3.3125	.60208

	N	Minimum	Maximum	Mean	Std. Deviation
4. Does Kahoot! encourage you to be an active student in class?	16	2.00	4.00	3.6875	.70415
5. Do you think using Kahoot! in class takes up too much time?	16	2.00	4.00	3.3750	.71880
6. Would you prefer the teacher to use Kahoot! to explain the theory rather than conventional methods?	16	2.00	4.00	3.8750	.50000
7. Do you find Kahoot! games more challenging compared to paper-based tests?	16	2.00	4.00	3.7500	.57735
8. Do you think the results of the Kahoot! game are more objective compared to the paper-based test?	16	3.00	4.00	3.8125	.40311
9. Do you feel more prepared for classroom learning activities after using Kahoot! as an interactive tool in the pre-class phase?	16	3.00	4.00	3.8750	.34157
10. Do you think using Kahoot! in home learning provides additional motivation to study?	16	3.00	4.00	3.6875	.47871
Valid N (listwise)	16				

The following data from table 1 indicates that the motivation of students at SMPN 22 Samarinda in learning to use Kahoot! is high, with an average score of 3.8750. This suggests that students possess a strong interest and enthusiasm for utilizing Kahoot! as a learning tool. However, the level of student involvement tends to be low, with an average score of 3.3125. This suggests that despite their high interest, students may encounter obstacles in actively participating and engaging directly in learning using Kahoot!

The researcher’s observations and interviews focused on student motivation through the use of Kahoot! During classroom observations, students often expressed their excitement and anticipation. They are highly motivated, driven by fun games and healthy competition, and often talk about quiz answers and strategies with classmates. For instance, student 1 said, “*I look forward to our Kahoot! sessions because they make learning so much fun and competitive.*” Similarly, student 2 mentioned, “*It’s very fun, and it makes us learn while playing.*” Another student shared, “*It’s more engaging than traditional methods. We get to discuss and strategize with friends, which makes learning more enjoyable.*” These comments illustrate how Kahoot! fosters a more interactive and enjoyable learning environment, enhancing student motivation and engagement in the classroom.

In addition, interviews with these students can provide additional information about their motivation levels. Compared to traditional learning methods, many students said that Kahoot! made

learning more fun and less monotonous. Immediate feedback on their performance, helps them understand and correct their mistakes quickly. This instant feedback is crucial to maintaining high levels of motivation as it ensures that students remain aware of their progress and encourages continuous improvement.

Achievement

Achievement before using Kahoot! in Table 2 was used in an flip classroom at SMPN 22 Samarinda, teaching traditional methods were used to measure student performance. Students had a relatively low average achievement, with a mean score of 59.8750, according to the data presented in Table 1. These initial scores suggest that the approach of using traditional methods may not have the interactive and engaging components needed to attract high student attention and comprehension. Students may face difficulties in understanding the material.

Achievement after using Kahoot! in Table 3, in a flipped classroom setting, student achievement improved drastically. The mean score increased to 78.0625 after use, indicating that Kahoot! has an excellent effect on student learning outcomes. Kahoot! provides a gamified learning environment that not only makes learning more fun but also helps students understand the material better. Students are more motivated to engage with the content, which results in better assessment results.

These findings are reinforced by the data presented in Table 4, which provides a comparative analysis of scores before and after the implementation of Kahoot! in a flipped classroom. This table shows a consistent pattern of improvement across different aspects. For example, the number of students scoring above the pass mark increased, and the overall distribution of grades shifted towards higher performance, with more students scoring better after using Kahoot!

Table 2. Scores from teachers before the researches

No	Name	Score
1	Subject 1	50
2	Subject 2	67
3	Subject 3	70
4	Subject 4	54
5	Subject 5	66
6	Subject 6	54
7	Subject 7	57
8	Subject 8	51
9	Subject 9	64
10	Subject 10	60
11	Subject 11	55
12	Subject 12	56
13	Subject 13	63
14	Subject 14	61
15	Subject 15	64
16	Subject 16	66

The data above shows that students at SMPN 22 Samarinda get an average score of 60, which is quite poor. These scores come from traditional learning, which is often used. Many students still get below average grades. These results suggest that teaching methods should be changed to help students achieve better and more satisfied results.

Table 3. Student’s score after using Kahoot! as an interactive tool

No	Name	Score
1	Subject 1	79
2	Subject 2	83
3	Subject 3	72
4	Subject 4	88
5	Subject 5	78
6	Subject 6	70
7	Subject 7	74
8	Subject 8	78
9	Subject 9	89
10	Subject 10	74
11	Subject 11	75
12	Subject 12	74
13	Subject 13	79
14	Subject 14	73
15	Subject 15	74
16	Subject 16	89

The table above shows that the use of Kahoot! app has improved students’ grades and learning motivation at SMPN 22 Samarinda. The scores show satisfactory results as many students scored above average. Kahoot!, an interactive learning tool, helps students become more interested and focused on the lesson. Students are more engaged in learning with a fun and competitive approach. Kahoot! has features that make learning more interesting and effective. Overall, using this app in the classroom improves students’ academic performance, making them more motivated to learn and achieve better results. This shows that creative learning strategies such as Kahoot! can improve the quality of education.

Table 4. Descriptive statistics of student scores before and after using Kahoot!

	N	Minimum	Maximum	Mean	Std. Deviation
Tradisional.teaching.technique	16	50.00	70.00	59.8750	6.14139
Using.Kahoot	16	70.00	89.00	78.0625	6.14783
Valid N (listwise)	16				

The data above shows that the use of Kahoot! tends to provide better results in the context of learning. The highest result using Kahoot is 78.0625, while the use of traditional methods is 59.8750. This shows that Kahoot! can increase students' involvement and motivation in learning.

Table 5. Frequency analysis of student questionnaires

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	80.00	2	12.5	12.5	12.5
	87.50	3	18.8	18.8	31.3
	90.00	1	6.3	6.3	37.5
	92.50	3	18.8	18.8	56.3
	95.00	4	25.0	25.0	81.3
	97.50	2	12.5	12.5	93.8
	100.00	1	6.3	6.3	100.0
	Total	16	100.0	100.0	

The table below displays the descriptive statistical results of the research data relating to the student questionnaires used to measure the level of student motivation. This analysis provides an in-depth picture of how motivated students are in the learning process using Kahoot! in the flipped classroom.

This frequency data highlights the high level of motivation of SMPN 22 Samarinda students in learning. Of the sixteen students who were respondents, four students gave a score of 95.00 or accounted for 25.0% of the total. There was one student who gave a perfect score of 100%. This shows that most students have a very positive perception of the use of Kahoot! in the flipped classroom strategy. They see Kahoot! as a significant factor in increasing engagement, motivation, and achievement in learning.

From the data, it can be concluded that students feel engaged and motivated by the use of Kahoot! in learning. This high level of motivation can have a positive impact on students' understanding of the material and academic achievement. This shows that Kahoot! as an interactive tool in learning can be an effective option to improve the quality of learning in the classroom.

3.1.2 How does the incorporation of Kahoot! as an interactive tool in the pre-class phase of a flipped classroom influence students' readiness, engagement, and understanding in in-class activities, particularly in the context of language learning in an English class?

Readiness

Based on an interview conducted on March 8, 2024, at 10:15 AM, students demonstrated a significant level of readiness and enthusiasm towards using Kahoot! in their learning activities. Specifically, 4 out of 6 students interviewed indicated a marked increase in their engagement and motivation when using Kahoot!. Student 1 from class 7B shared, *"I enjoy using Kahoot! because it makes learning fun and competitive."* Student 2 noted, *"Learning with Kahoot! is much more exciting than traditional methods. I feel more motivated to participate in class because it makes learning feel like a*

game.” Student 3 mentioned, “Using Kahoot! is very fun because it allows us to learn while playing, which makes the class more interactive and engaging.”

Student 4 also expressed a positive perspective, stating, “*Using Kahoot! increases my motivation to learn English because it’s fun and feels like a game, making the learning process less tedious.*” These statements highlight the students’ readiness and willingness to incorporate Kahoot! into their regular learning routines, demonstrating its positive impact on their motivation and engagement in learning. The students’ positive reaction to incorporating Kahoot! Their coursework highlights how gamified learning platforms can improve motivation and engagement. With its competitive and interactive elements, Kahoot! Not only makes learning fun but also encourages students’ excitement and involvement. This engaging method of teaching holds students’ interest and promotes teamwork and active engagement, fostering a positive learning atmosphere where students are inspired to succeed.

Additionally, the positive reviews from students 1, 2, 3, and 4 demonstrate how successful Kahoot! is at facilitating more approachable and pleasurable learning. Integrating technology like Kahoot! can be a useful tool in fostering student-centred learning experiences that accommodate a variety of learning preferences and styles, especially as educators continue to experiment with cutting-edge teaching techniques. Teachers can encourage a lifelong love of learning and provide students with the knowledge and abilities they need to succeed in a constantly changing world by utilising the power of gamification.

Engagement

The results of questionnaires and interviews show that the level of student involvement still needs to be improved. Some students still need to engage in learning using Kahoot! Various aspects include a need for more interest in the lessons being studied or technical obstacles that arise during learning. For example, in questionnaire number 3, “*Do you use Kahoot! help you be more focused and active during class?*” This question received an average score of 3.3125, which shows that students are less involved in learning using Kahoot! In addition, in question number 4, “*Does Kahoot! encourage you to be an active student in class?*” with an average value of 3.6875. This shows that the calculated value is high. However, some students are not encouraged to participate in learning due to various aspects, including technical problems.

Finally, in question number 9, “*Do you feel better prepared for learning activities in class after using Kahoot! as an interactive tool in the pre-class phase?*” with an average value of 3.8750. This shows that students are ready to use Kahoot! as an interactive tool and engage in the learning process before class starts.

Understanding

Based on the table 6, it can be seen that there is a difference between learning with traditional techniques and using Kahoot! Using Kahoot! students become more able to understand the learning in the classroom.

Table 6. Descriptive statistics of student scores before and after using Kahoot!

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
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Using.Kahoot	16	70.00	89.00	78.0625	6.14783
Valid N (listwise)	16				

Table 6 shows a difference in student understanding between traditional teaching techniques and the use of Kahoot! The average score for traditional teaching techniques was 59.8750, while the average score for using Kahoot! was 78.0625. This average difference of 18.1875 points shows that students who learn using Kahoot! have a higher understanding of the subject matter than those who study using traditional methods.

Additionally, the minimum and maximum values for traditional techniques are 50.00 and 70.00, respectively, while for Kahoot! are 70.00 and 89.00. This shows that even the students with the lowest grades who use Kahoot! have a better understanding than students with the highest scores using traditional methods. The standard deviation is almost the same between the two methods, namely around 6.14, indicating that the distribution of grades among students is relatively consistent in the two methods. However, the average is higher in the Kahoot! This method is more effective in improving students' understanding. Therefore, integrating Kahoot! Into the learning process can effectively enhance students' knowledge of the subject matter.

3.2 Discussion

The research was conducted over two weeks in the same class, VIIB, consisting of 37 students. 16 participated in the study, and 6 were interviewed directly to gather in-depth insights. The findings from this research indicate a significant difference in learning outcomes between traditional methods and Kahoot!. Specifically, the average results of learning using traditional techniques were notably lower, with a mean score of 59.8750. In contrast, when students used the Kahoot! Application, their average scores increased substantially to 78.0625. This data highpoints the effectiveness of Kahoot! in enhancing student performance. The increase in scores suggests that the interactive and engaging nature of Kahoot! helps students understand and retain the material better than traditional teaching methods. This improvement can be attributed to various factors inherent in the Kahoot! platform, such as its ability to make learning more enjoyable and competitive, motivating students to participate more actively.

Moreover, students who were interviewed directly reported that Kahoot! made the learning process more exciting and engaging. It helps them stay focused and motivated (Bicen, 2018; Bhattacharya, et al., 2016). They appreciated the platform's immediate feedback, which allowed them to recognize and correct their mistakes in real-time, thereby reinforcing their learning. The combination of increased motivation and active participation facilitated by Kahoot! This appears to be a key factor in the improved learning outcomes observed in this study.

The data description based on the research findings proves that learning using Kahoot! The app can increase students' motivation and learning achievement (Wang & Lieberoth, 2016). This is not just a theoretical assertion; it is supported by concrete evidence from the frequency of student questionnaire data. For instance, 4 students gave a score of 95.00, which is equivalent to 25.0% of the total respondents, and one student even gave a perfect score of 100%. These high scores indicate a strong positive response toward using Kahoot! in their learning process. Furthermore, the qualitative data gathered from interviews with 6 students provides additional insights into the effectiveness of Kahoot!. During these interviews, the majority of students expressed a positive impression of using Kahoot! in their learning activities. They highlighted several key benefits of Kahoot!, such as increased involvement, enhanced motivation, and improved learning achievement.

Students noted that Kahoot!'s interactive and game-like format made them more engaged in the lessons (Gursoy, et al., 2019). The competitive element of Kahoot! Encouraged them to participate actively and pay more attention to the taught content. This heightened level of involvement is crucial, as active participation is often linked to better retention and understanding of the material (Lo & Hew, 2017). Many students mentioned that Kahoot! made learning more enjoyable and less monotonous. The fun and excitement of competing with peers in a quiz format boosted their motivation to study and perform well. The immediate feedback Kahoot provided also helped them understand their mistakes and learn from them quickly, further motivating them to improve. Increased involvement and enhanced motivation naturally led to better learning outcomes.

This study is in line with several previous studies conducted by Lin, Ganapathy & Kaur (2018), emphasizing that the influence of Kahoot! is very beneficial in flipped classroom learning to improve engagement, motivation, and learning outcomes. As Yuruk (2020) mentioned, Kahoot! is an easy-to-use and helpful tool that increases students' participation in classroom activities. Its interactive and practical nature makes Kahoot! Effective in capturing students' attention and encouraging their active participation in the learning process, Dellos (2015), also says that the interactive and engaging nature of Kahoot! Significantly increases students' motivation and enjoyment. In addition, Johns (2015), Wang and Liberoth (2016), and Zarzycka and Piskorz (2016) showed that Kahoot! is beneficial to assess students' achievement and understanding of learning and can increase students' attention, focus, interaction and learning engagement. They showed that game-based learning such as Kahoot! can increase students' motivation and enjoyment and serve as an effective formative assessment tool in assessing and improving students' retention.

However, the engagement score (3.3125) indicates room for improvement in active participation. This finding is in line with Wang and Tahir (2020), who reported similar challenges in maintaining consistent student engagement due to factors such as time and technician pressures. The flipped classroom approach, facilitated by Kahoot!, provides a more interactive and student-centered learning environment than traditional methods. Cetin (2018) also highlighted challenges in Kahoot!, such as technical issues. However, Cetin also states that addressing these technical issues and tailoring Kahoot! for specific educational purposes can maximize its benefits in enriching students' learning

experiences. This research emphasizes the importance of customization and maintenance of technology in education. Strayer (2007) found that flipped classrooms encourage innovation and cooperation among students, supported by this study's positive engagement and performance outcomes. In addition, Kahoot!'s ability to improve classroom dynamics and reduce anxiety, as reported by Wang and Tahir (2020), contributes to a more supportive and effective learning atmosphere. Nkhoma et al. (2018) also highlighted that Kahoot! is an example of game-based learning that belongs to an educational approach that aims to utilize flipped classrooms. This research affirms that integrating game technology in flipped classroom learning can increase student effectiveness and engagement.

3. Conclusion

A study conducted at SMPN 22 Samarinda explored the impact of integrating Kahoot! As an interactive tool in a flipped classroom strategy, it has improved student motivation, engagement, and academic performance. The results showed that students were highly motivated when using Kahoot! The average score is 3.8750 out of 4. Students find the gamified learning environment exciting and fun, encouraging them to adopt a more active and enthusiastic approach to learning. However, despite the high motivation, the overall engagement score was still low, suggesting that technical and pedagogical barriers may need to be overcome to maximize engagement.

In addition, academic performance before and after the implementation of Kahoot! Showed substantial improvement. The average score of students increased from 59.8750 with traditional teaching methods to 78.0625 with Kahoot! This demonstrates the effectiveness of the tool in improving learning outcomes. This growth is due to Kahoot!'s interactive and competitive elements, which make learning more dynamic and fun, resulting in better understanding and retention of the material. Interviews with students support these findings, with many reporting that Kahoot! It makes learning more fun and helps them stay focused and motivated.

In conclusion, incorporating Kahoot! with the flipped classroom strategy at SMPN 22 Samarinda proved very useful in improving student motivation, engagement, and academic performance. Positive student feedback and significant grade improvements highlight the potential of learning-based tools to transform traditional educational practices. Addressing identified barriers to participation, such as technical issues, may further enhance the effectiveness of Kahoot! These findings support a more comprehensive implementation of innovative teaching strategies such as Kahoot! Improving educational outcomes and creating a more stimulating and effective learning environment.

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Appendix (optional)

This section is for your Appendix