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Effect of "Kahoot!" to Students Understanding at Young Achievers' School of Caloocan, Inc.

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Abstract

This study explored the effects of using Kahoot on the understanding of Science, Technology. Engineering, and Mathematics students in the specialized General Biology 1 in the topic Cell Types. the researchers conducted a pre-test and post-test on selected participants, this process aims to know whether it improves or not the students understanding by using an experimental method. Researchers selected a total of 20 participants out of 169 STEM students that are not familiar with the gamified platform Kahoot.

The researchers conducted a pre-test to see the student's prior knowledge. After, researchers introduced to the participants the gamified platform Kahoot. The researchers helped the students engage and play the said platform by answering the 20 questions in Kahoot. Afterwards the participants answer the post-test and questionnaire to test if the gamified platform Kahoot is effective.

After conducting a survey, the researchers calculated the participants data using paired t-test the result in pre-test is M=66.3 and post-test is M=85.3 while the calculated value is (-6.7269) compared to table t (2.262) this means the null hypothesis is rejected. Therefore, there is significant improvement in students' understanding. The gamified platform Kahoot helps to improve the students understanding in General Biology 1 at Young Achievers' School of Caloocan, Inc.

Keywords: Kahoot, Understanding, Improved, Effective, and General Biology 1

Introduction

In recent years technology has taken over the daily lives of many. This encouraged developers to create game-based technology for learning. That includes the application "Kahoot". This is a learning-based platform that helps students learn in a fun and entertaining way. Not only that but game-based learning technologies such as Kahoot! help students to memorize different topics and help them participate in the students' learning environment.

One of the challenges that the students face is having a hard time understanding the lesson easily that leads to a decrease in the students' interest in learning, that affects productivity. According to Go Guardian Team (2024), one of the factors that the learners deal with is the reduction of interest in learning, due to low self-esteem that leads to academic struggles. Morten Versik, John Brand, and Jamie Brooke created "Kahoot!" as a fun learning alternative for teachers and students. This platform is sought to increase the thinking and memorization skills of the students; this increases the students' habit of studying. This study is intended to determine the effect of the gamified learning platform "Kahoot!" to the understanding of STEM students at Young Achievers' School of Caloocan in the subject General Biology 1.

In recent studies it shows that Kahoot! has a positive effect on students' academic performance. According to Zhang, Q., & Yu, Z. (2021) [10], Kahoot! Improves students* engagement towards others and its' environment. This study also stated that gamified learning technology such as Kahoot! Improves the students' outcomes when it comes' in the learners' academic

performance.

Similarly, Kohnke, L., & Moorhouse, B. L. (2022) [4], Stated that game-based learning technology improves classroom dynamic, aids with students' engagements, and improve students' learning experience. This study indicates that many teachers have implemented Gamified Learning Technology as it is far more interesting and interactive as an alternative to traditional activities. Kahoot! is used as it focuses on enjoyment, motivation, and give students a friendly competition that motivates the students' academic performance. This study argues that Kahoot! improves the students' engagement to the subject thus potentially improving one's academic performance.

According to, García-Barrios, A., *et al*., game-based learning enhances students' expressiveness and motivation. This study also explores the increasing participation of students in the learners' academic performance when the gamified learning system is in use.

Researchers choose the gamified platform "Kahoot!" since it has different types of interactive learning games such as quiz, puzzle, team mode and so on. Since the researchers are aiming to identify the effect of "Kahoot!" in students understanding in using Kahoot this can help to captivate the awareness and engagement in understanding the General Biology 1. According to Mariana Madalina Nastase (2024) it is stated that the used of Kahoot in computer science students has a significant effect by means of motivational tool enabled students to focus better.

This study is a Quantitative perspective of the outcome of Kahoot! as a learning method within Grade 11 STEM students at Young Achievers' School of Caloocan. This research explores' the possible effect of gamified learning technology on one's academic performance. It also aids in understanding the statistical difference of using Kahoot! This research aims to find out whether Kahoot! helps students to improve the learners' academic skills and engagement towards the learning environment of the learners.

In addition, the researchers aim to understand the correlation between students understanding and the use of the gamified platform "Kahoot!". According to Sean D (2024), the students who use Kahoot improves learning performance in participation, and attitudes towards learning. This study is conducted by researchers and aims to obtain the relation between students' academic understanding while using Kahoot as a learning material. The benefit students will gain from this study is to increase the understanding of learners, increase the engagement to the topic, and to raise the confidence of the students. In the teachers, they will have knowledge on improving the participation and confidence of the students.

Materials and Methods

This study employs quantitative data analysis; it focuses on data collection and will use statistical analysis. According to Babbie, Earl (2020), Quantitative research emphasizes objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys. Researchers selected quantitative research design to pertain to how to measure and analyze the numerical data.

In addition, the researcher used an experimental research design with a pre-test and post-test to determine the effect of the gamified tool Kahoot on the understanding of the students in the subject General Biology 1. The respondents will come from the Grade 11 STEM students at Young Achiever School of Caloocan. The pre-test is utilized to measure the students' knowledge in the subject of general biology without the use of the gamified tool Kahoot. Prior to providing the post-test, the students will use "Kahoot!" to determine the significant difference if Kahoot has an effect of the academic performance of the students.

To sum up, the aim of this research is to determine whether Kahoot influences the understanding of Grade 11 STEM students in General Biology. Experimental design is used to find out the difference between the understanding of the STEM students before and after utilizing the platform Kahoot. The researchers will gather and examine numerical data that enhances the intended outcomes of this study.

The researcher's basis for selecting respondents for this research study are students from Young Achievers' School of Caloocan, INC that is currently enrolled in Grade 11 Science, Technology, Engineering, and Mathematics in the school year 2025-2026 that have general biology 1 as one of the core subjects.

In selecting respondents' researchers used the purposive sampling and quota sampling. According to Kassiani Nikolopoulou (2022) a purposive sampling relies on the researcher's judgement when identifying and selecting the individuals. This indicates that the purposive sampling is fit for this study as this study only focuses on a set of students which are the Grade 11 STEM students in Young Achievers' School of Caloocan, Inc.

The researchers selected respondents from a total of 169 grade 11 Science, Technology, Engineering, and Mathematics students. The selected respondents are based on specific criteria to ensure the precision of the respondents' data. The criteria required in this study is the students of STEM that does not use the platform Kahoot as review method, as the researchers will introduce Kahoot to select participants. The researcher selected 5 respondents in each room, the main purpose of selecting respondents is to make a comparison between a group of students to find the significant difference in the data gathered. Therefore, this research study ensures the safety of the respondents' data. The researchers obtained permission to collect the necessary data from the Young Achievers School of Caloocan before handing the survey questionnaires to the Grade 11 STEM Students.

The researchers will use Paired t-test to analyze the gathered data to find any significant changes in students understanding before and after the use of Kahoot. Pre-tests will be given to students before the use of Kahoot. This will identify the students' prior knowledge about the topic Cell Types. The students will take the post-test after the gamified platform "Kahoot!" is implemented. This will serve statistical data which identifies the correlation between the understanding and the use of "Kahoot!"

In this study, researchers used Paired T-Test to know the significant difference between the pretest and post-test. As stated by Hayes (2025). The paired t-test will help the researchers determine if there is a significance in terms of the effect of "Kahoot". The paired t-test is a statistical tool that analyzes the scores of the same students before and after using Kahoot, focusing on two related data sets such as pretest and post-test outcomes from the same group of students. The paired t-test can determine if the students

learned more after engaging in Kahoot games focused on Biology.

Results and Discussion

The researchers conducted a pretest to measure the respondent's prior knowledge in General Biology 1 cell types. After the pretest the respondents play the gamified Kahoot wherein Kahoot questions are from cell type topic thereafter the researchers conducted a post-test to measure the changes in respondents understanding.

Before performing a paired sample t-test, researchers must define the hypotheses that will guide this study. In this case, this study aims to assess whether the Kahoot significantly improves students' understanding. The hypotheses are formulated as follows.

- Alternative Hypothesis (Hi): There is significant difference between pretest and post-test scores, suggesting that the method enhances understanding of students.

Pretest	Post-Test	Difference	Difference ^2
57	84	-27	729
51	83	-32	1024
80	87	-7	49
67	86	-19	361
68	80	-12	144
68	84	-16	256
66	82	-16	256
67	95	-28	784
76	83	-7	49
63	89	-26	676
T=663	T=853	T=-190	T=4328
M=66.3	M=85.3		

In Table 1, it shows can the combination of data collected from the pre-test and post-test that were conducted. To determine the effectiveness of Kahoot on students' understanding. The researchers used the paired t-test to determine the difference between the pre-test and post-test. The researchers administered the pre-test and post-test to 20 respondents. To get the difference (d) of each score, the pre-test was subtracted from the post-test, resulting in a difference (d) of (-190).

To calculate the sample differences and the sum of squares of the sample difference score (SSD). Divide the difference (d) of (-190) by the number of participants who answered, which is (20) respondents, to get the sample difference of (-19). To get the SSD, to take the sample difference and divide it by the number of respondents, then subtract the summations of the difference score² (4328) and the standard deviation is (718).

To get the t-statistics, subtract the difference score (-190) from the mean of the population of difference scores (0) and divide by the square root of (718) divided by the number of participants (20) multiplied by minus 1, which is (19). The t-statistics is (-6.7269). To get the critical value, subtract the number of participants (20) from 1, the alpha level is (0.5), and the t-table value is (2.262).

H. The gamified learning platform Kahoot has an effect on students' understanding.

H. The gamified-learning Kahoot had no effect on students' understanding.

In conclusion, the calculated value (-6.7269) is greater than the table t (2.262). The null hypothesis is rejected. Therefore, there is a significant difference between the pre-test and post-test. The use of statistical treatment showed that using gamified-learning Kahoot has an effect on increasing the understanding of grade 11 STEM students.

Significant improvement on the Grade 11 STEM students in YASCI in understanding after using the gamified platform "Kahoot!"

Table 2: Survey response: "I Use Kahoot as a Review Method"

A	X1	O	X2	S	X3	R	X4	N	X 5	WM	V.I
1	1	3	6	10	30	4	24	2	10	3.55	R

Based on table 1, the researchers discovered that using the gamified platform Kahoot significantly improved the Grade 11 STEM students understanding. According to table 2.0, the selected students rarely use Kahoot as a review method. This was discovered as the researchers conducted a pre-test to Grade 11 STEM students to see the student's prior knowledge about the topic Cell Types before the use of Kahoot.

The researchers introduced Kahoot to assist the students' understanding on that said topic. After using the platform, the students were given a post-test to assess the learners' level of understanding after the use of the said platform.

The students were able to understand and recall information with the use of the gamified platform "Kahoot!". This research has found that using gamification to review can significantly improve student's understanding.

Kahoot enhanced the understanding of Grade 11 students at YASCI

Table 2.1: Survey responses

	A	X1	O	X2	S	X3	R	X4	N	X5	W.M	VI
2.	6	6	7	14	5	15	1	4	0	0	1.95	O
3.	10	10	9	18	0	0	1	4	0	0	1.6	A
6.	8	8	5	10	5	15	0	0	1	5	1.9	O
8.	4	4	10	20	4	12	1	4	0	0	2	O
9.	4	4	10	20	6	18	0	0	0	0	1.6	A
10.	6	6	11	22	2	6	1	4	0	0	1.9	O

The gathered data suggests that this gamified platform helps students to be more productive while understanding and learning General Biology 1. According to the questionnaire answered by participants, it shows that after using Kahoot as review method it helps the learners to increase understanding in the topic cell types. This helps students to be more engaged in learning, reinforcing their knowledge through playing Kahoot. Additionally, this study aid student's difficulty when it comes to productive in learning by giving them alternative ways on how to understand and engage to that topic. Kahoot helps the participants to understand the topic cell types more by using gamified platforms such as Kahoot. It made the students more motivated and interested in learning General Biology 1. It also fostered unity among students as they consider correct answers and clarified mistakes in real time. The data gathered proved that Kahoot helps increase the understanding of students by playing Kahoot. As the researchers observed the participants, while participants

make mistakes it motivates them to learn more and made them interested in question about cell types.

The academic challenges that students from YASCI encounter in the subject of General Biology 1

Table 2.2: Survey responses

4. I can easily understand terms in Biology.
5. I easily remember important topics in Biology.
7. I easily analyze cell types.

	A	X1	O	X2	S	X3	R	X4	N	X5	W.M	VI
4.	6	6	8	16	6	18	0	0	0	0	2	O
5.	8	8	5	10	5	15	1	4	0	0	1.94	O
7.	5	5	5	10	7	21	1	4	0	0	2.22	O

According to table 2.2 the challenges faced by Grade 11 STEM students at YASCI in the subject General Biology 1 are often the complex terms and difficult to understand topics. This study used gamified-learning Kahoot to facilitate the students' learning, especially in the subject of General Biology 1. This 1 is a major subject that involves difficult topics, one of which is the topic on cell types. There are many deep and difficult to understand terminologies within this topic, and one reason is the number of parts that need to be studied.

Based on the results of the pretest, the researchers found that students had difficulty understanding the questions due to the depth and complexity of the words used. Researchers found that students are struggling to understand the meanings and functions of forbidden parts and where they should be. One of the reasons why they are struggling is the understanding of scientific terms and complex terminologies. Included in this is the number of parts that need to be studied, which adds to their confusion and difficulty in understanding.

This chapter includes the summary of the information gathered by the researchers, in addition this chapter also includes the main point and conclusion of the study. This also contains the recommendations of the researchers.

Conclusion

Based on the data gathered by the researchers it is concluded that that the gamified platform Kahoot does enhance the understanding of Grade 11 STEM students in YASCI. According to the results that the researchers gathered from the pretest and post-test that was conducted. The calculated value (-6.7269) is greater than the table t (2.262). The null hypothesis is rejected. Therefore, there is a significant difference between the pre-test and post-test. The use of statistical treatment showed that using gamified-learning Kahoot has an effect on increasing the understanding of grade 11 STEM students. The survey questionnaire concluded that students feel more motivated and productive when Kahoot is used to study complex topics. The scores from the pretest and post-test showed a significant difference as shown on the table above.

To sum it all up, the gamified platform Kahoot is effective among the Grade 11 STEM students from YASCI. This study concludes that Kahoot aids the students understanding within complex topics.

Recommendations

The following statements were recommended by the researchers to help students and teachers, as well as future researchers, express the use of the gamified platform Kahoot in understanding the Cell types.

Students: The platform causes learners to understand and engage while the students are entertained. This study also proves that Kahoot does not only help the students to engage and socialize with fellow learners but rather aids the students understanding when it comes to the said topics. The use of the said platform may also improve the students' academic performance in the long run.

Teachers: This platform can offer engagement within the classroom. Students can confidently showcase the learner's ability. Teachers may find the platform Kahoot helpful not only in engaging within the area of learning but also help the students gain a deeper understanding of the said topics. This platform can create a more interactive environment for the learners that affects the teachers teaching extensively.

School Administrator: The application of the gamified platform Kahoot may help the students to improve with the learners learning process. This can create a productive and supportive environment within the classroom. Not only that but this is proven to aid students understanding in complex subjects such as General Biology 1 this can create a fun way to understand complex topics.

Future Researchers: Exploring different levels of understanding between the students. This can create a basis from a different perspective.

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References

1. Ali R, AbdAlgane M. The Impact of Gamification 'Kahoot App' in Teaching English for Academic Purposes. World J Eng Lang. 2022; 12(7):18-27.
2. Ahmed AAA, Sayed BT, Wekke IS, Widodo M, Rostikawati D, Ali MH, *et al*. An Empirical Study on the Effects of Using Kahoot as a Game-Based Learning Tool on EFL Learners' Vocabulary Recall and Retention. Educ Res Int. 2022; (1):9739147.
3. Gawwrcía-Barrios A, Cisneros-Gimeno AI, Luesma-Bartolomé MJ, Benito-Rodríguez J, Barrio-Ollero E, Whyte-Orozco J. El juego como factor motivador en la enseñanza de la anatomía humana. FEM: Revista de la Fund Educ Méd. 2020; 23(6):347-350.
4. Kohnke L, Moorhouse BL. Using Kahoot! to gamify learning in the language classroom. Relc J. 2022; 53(3):769-775.
5. Martínez-Jiménez R, Pedrosa-Ortega C, Licerán-Gutiérrez A, Ruiz-Jiménez MC, García-Martí E. Kahoot! as a tool to improve student academic performance in business management subjects. Sustainability. 2021; 13(5):2969.
6. Özdemir O. Kahoot! Game-based digital learning platform: A comprehensive meta-analysis. J Comp AssiST Learn. 2025; 41(1):e13084.
7. Robiños JR, Novio AE, Parane Jr HD. Effectiveness of Kahoot! Application on Student Achievement in Mathematics Education. Application on Student Achievement in Mathematics Education. Asian J Probab Stat. 2025; 27(5):110-112.
8. Wang AI, Tahir R. The effect of using Kahoot! for learning-A literature review. Computers & Education. 2020; (149):103818.
9. Yu Z. A meta-analysis of the effect of Kahoot! on academic achievements and student performance. Research Square, August 30, 2021. Retrieved from: LRIhttps://doi.org/10.21203/rs.3.rs-842089/v1PDI.
10. Zhang Q, Yu Z. A literature review on the influence of Kahoot! on learning outcomes, interaction, and collaboration. Education and Information Technologies. 2021; 26(4):4507-4535.