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IMPACTS OF GAMIFICATION LEARNING APPROACH ON STUDENT'S PERFORMANCE AND PERCEPTION DURING COVID 19 POST PANDEMIC 2021 IN INDONESIA NEW NORMAL LEARNING SETTING

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Abstract: This study aims to determine the impact of student performance and perceptions of those taught with a gamification learning approach compared to students in rote classes on their academic reading comprehension during COVID 19 Post-Pandemic 2021 in Indonesia's New Normal learning setting. A quasi-experimental study design with pre-test and post-test control groups was used. Students are allocated to one of two versions of the program's learning environment at random: the gamified version or the original non-gamified version. The results of the pre-post test through the Independent Sample T-Test found a significant value which proved that the Gamification Learning Technique was also more effective than the rote learning method. Questionnaires were used to collect data regarding opinions related to gamification elements and it was found that most students chose "strongly agree" to "agree" with positive statements about research. In conclusion, gamified learning is recommended to make learning more enjoyable, even without fully solving some of the motivational challenges students face.

Keywords: Perception; Gamification; Performance; Pre- post- control group; Experimental design; New Normal learning setting.

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INTRODUCTION

English is one of the languages which has become an international language. English proficiency has huge benefits in today's world since it is a worldwide lingua franca. Indonesia is the only Southeast Asian country that has not made English compulsory. In Indonesia, English is placed as a Foreign Language; there is no immediate use of the language in everyday context; it serves a minimal purpose.

Students speak Indonesian in school or in formal settings and it is the local language at home every day. Based on the English Proficiency Index by Education First, Indonesia is the 15th country with the lowest English Proficiency in Asia and 74th globally with a score of 453 (EF.com, 2021) (see Figure 01). The result proves that Indonesia needs room for improvement.
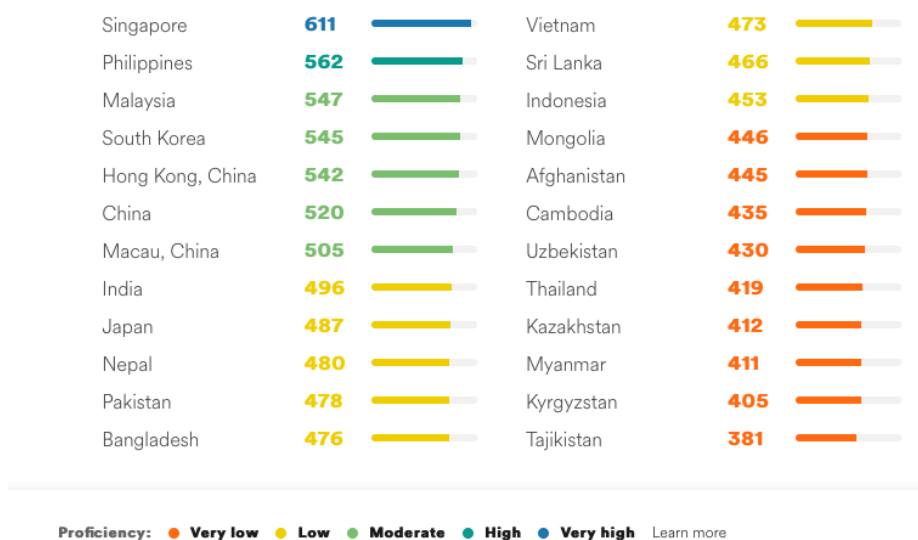

Singapore	611	Vietnam	473
Philippines	562	Sri Lanka	466
Malaysia	547	Indonesia	453
South Korea	545	Mongolia	446
Hong Kong, China	542	Afghanistan	445
China	520	Cambodia	435
Macau, China	505	Uzbekistan	430
India	496	Thailand	419
Japan	487	Kazakhstan	412
Nepal	480	Myanmar	411
Pakistan	478	Kyrgyzstan	405
Bangladesh	476	Tajikistan	381

Proficiency: ● Very low ● Low ● Moderate ● High ● Very high Learn more

Figure 1. EF English Proficiency Index in Asia

Mastery of regional languages and Indonesian is no longer sufficient in this advanced period. Indonesia has long felt the impacts of globalization. Everyone is competing to acquire diverse talents to win life's competition. The community must convey ideas and skills, aided by competent communication mediums, such as the English language. Quoted from the journal English in Indonesia: Status and Influence, it is mentioned that the ability to comprehend English is challenging for Indonesians, both in terms of vocabulary,

pronunciation, and sentence structure. Since English has become an asset for employment opportunities, many parents consider sending their children to a bilingual English-Indonesian speaking school, which promotes early bilingual child development. In addition to that, parents do not have to worry about their children being unable to speak English; although there is a lack of support from the community and family who speak English in daily life. This trend brings a significant impact on the student's language

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comprehension and literacy skills.

Reading has a crucial role in the acquisition of a language, particularly in the success of language learning. It is common for students to struggle with reading English fluently. Despite the fact that many youngsters can read, the act of reading and the act of comprehending are two very distinct things. It is critical to have significant reading comprehension skills. Besides that, reading comprehension is the highest level of reading skills in English. Students should be able to use their cognitive abilities to understand how written and spoken communication is interwoven. With this skill, the learning experience is enhanced as the task of reading is done more efficiently, which is beneficial not only in the classroom but also in the workplace and in one's personal life. In order to keep up with contemporary global developments, English reading comprehension abilities are a necessity for Indonesians to possess. Teachers are challenged to be innovative when teaching language to create an engaging and positive learning environment, especially when teaching reading comprehension.

COVID-19 in Indonesia was confirmed by the President of Indonesia on the 2nd of March 2020. COVID-19's preventive measures include implementing social and physical distancing policies as well as the temporary closure of schools (Fong, 2020). Traditional education has changed radically within the last two years due to the Covid-19 Pandemic; since then students have been learning online. After the cases decreased and vaccinations given; Indonesia reopened schools with extra caution in the New Normal Era. Students returned back to school and have adjusted to the new arrangements by following health protocols. The President of Indonesia approved in-person learning in the current academic year with strict requirements to ensure a safe return to schools during the Covid-19 pandemic. Those requirements were that only 25 percent of the total number of students were allowed to attend classrooms at a time, classroom activities were to last only four hours per day, and student attendance was limited to twice per week. The President's official speech was followed by The Jakarta Provincial Government's press release. During the limited offline schooling trial, several regulations had to be paid attention to, such as that the offline school trial was to be held once a week for each grade, the number of students was limited to a maximum of 50% of the capacity per class, a distance of 1.5 meters between students had to be maintained and the study duration had to be limited to a maximum of four hours a day. This pandemic could not be a reason for Indonesia to blindfold students that struggle with reading comprehension. Teachers are required to help them to maximize their potential and to come forward from the lowest English Proficiency and Reading Comprehension level in Asia, to hopefully one day be the highest English Proficiency in Asia, with fewer illiterate students. In such a limited amount of time and a physically distanced classroom, teachers are challenged to create an engaging, motivating, and active classroom that maximizes learning.

Gamification approach which has been shown to increase learners' engagement

with course materials and improve their motivation, learning participation, and collaboration could be the solution. (Natalia Nehring, 2018). There is limited literature on the implementation guidelines of gamified designs done in Indonesia and the gamification approach available in literature also lacks standardized elements which is essential to ensure compatibility and control the optimum usage of the method to avoid gamification as unnecessary eye candy.

Moreover, with a student population predominantly composed of millennials, educators should be able to turn technology into something useful and create a fun learning atmosphere. As a result, an effort to move away to a gamified learning strategy with integrating technological devices is hoped to meet students' needs better and foster better classroom engagement. Fast ForWord Reading Assistant Program is a cutting-edge online guided reading tool that delivers rigorous reading practice with a combination of gamification and self-paced learning. This program has almost all of the gamified elements implemented to improve students' English language skills. Up to this moment, the researcher has not found any research which tests the effectiveness of the FastForWord reading program in research. This program can also be a good example of standardized application of gamified lessons.

Additionally, no research has examined which elements of the gamification approach increase learners' motivation and engagement from the student's perspective. Hearing the learner's perspective is very important, as they are the ones experiencing it. Their opinions can be used as feedback to improve the strategy into a better one. This study aims to answer the following research question:

How significant is the difference between students who are taught using rote learning approach to students who are taught using a gamification learning approach in respect of their academic English reading comprehension?

Literature Review
Gamification

Games have existed in human communities for as long as records have been documented. They are available in many different formats, such as card games, board games, dice games, various sports, and many others. Looyestyn described gamification design as a new approach to improve students' participation in learning (Looyestyn, 2017). The term "gamification" has been defined differently by different researchers. The first definition stated by Dr Zachary Fitz Walter is "The implementation of game-design features and gaming ideas in non-game environments is known as gamification. It may also be defined as a set of actions and methods used to address issues by utilizing or applying game element characteristics (Walter, 2021)." Another definition mentioned is "Gamification is about taking something that is not a game and applying game mechanics to increase user engagement, happiness and loyalty." Yet another definition by Kiryakova et.al mentions that "Gamification is an integration of game elements and game thinking in activities that are not games (Kiryakova, 2017)." From these three

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definitions mentioned, we can conclude that gamification is the use of game features and techniques in non-game settings to increase loyalty, engagement, and motivation. The use of gamification in education therefore should follow the concept of gamification.

From the viewpoint of a teacher, the use of gamification in education stems from the anticipated potential of this strategy in improving students' attention and motivation, entertainment, involvement, and ease of learning (Sánchez-Mena, 2017). Gamification seeks to include more fun and engagement in education while delivering positive feedback, encouraging students to be more engaged, motivated, and inspired to study. Engagement and motivation are two closely related notions that often overlap in cognitive engagement and intrinsic motivation. While they are sometimes used interchangeably, the two notions are separate.

Motivational

A fundamental premise of this study is that game design components may be actively employed to transform non-game settings such as working or learning environments, hence addressing motivating mechanisms. The relationship between gamification concepts and motivating needs must be established in developing an efficient gamification process. Thus, the growing theoretical challenge is which specific game design features may fulfil distinct psychological demands. Three essential psychological and inherent needs are suggested under self-determination theory: the need for competence, the need for autonomy, and the need for social relatedness. (Sailer, UlrichHense, & Mandla, 2016).

- *The need for competence* is associated with sentiments of efficiency and success while dealing with one's surroundings. It is thought that every human aspires to feel competent while consciously impacting the world with which they interact. Competence can be addressed by using points, performance graphs, badges, or leader boards. Points give the player detailed feedback directly related to the player's activities. Performance graphs visibly represent the player's progress over time, offering continuous feedback. Badges and leaderboards evaluate a sequence of player activities and deliver cumulative input as a result. If chances are genuinely accessible, stories can help players view their acts as significant and volitionally engaging.
- *The need for autonomy* relates to psychological independence and the will to complete a specific job. While psychological freedom refers to the sensation of making decisions based on one's values and interests, volition refers to the experience of acting without the influence of others. As a result, autonomy refers to both experiences (a) choice of freedom, which indicates the ability to choose between multiple courses of action, and (b) task meaningfulness, which suggests that the path of action at hand is consistent with one's aims and attitudes. The need for autonomy comprises two components: experiences of choice freedom and experiences of task meaningfulness. Avatars are significant in the first element (autonomy in terms of freedom

of choosing) since they provide the players with an option. Stories significantly influence the second feature (autonomy in terms of task meaningfulness). If chances are genuinely accessible, stories can help players view their acts as significant and volitionally engaging.

● *The need for social relatedness* relates to one's sense of belonging, connection, and concern for a group of significant persons. It symbolizes the individual's fundamental need for cohesive integration with the social environment. A storyline can also alter the need for social relatedness if it provides a narrative frame where the player is given a meaningful role. A sense of significance can be produced by highlighting the importance of the players' actions for the group's performance in collaboration with teammates, who can be genuine co-players or non-player characters. A common objective that may be articulated through a meaningful storyline can help build feelings of social connectedness. In conclusion, to provide a gamification approach that affects students' behaviour, commitment, motivation; and to improve knowledge and skills, gamified elements should consist of these ten grail items. They are: points, level, trophy/badges, time pressure, a leader board that tells players status or hierarchy, goals, feedback, challenge, storyline, and chance.

Student's Achievement

Student achievement is an important component of a three-legged stool that also involves standards and learning. Educational programs may be flawed if one leg is weak or lacking, but if all three are strong, the programs can be successful. The student performance leg of this stool is measured using standardized tests. Standardized exams are typically successful at assessing students' knowledge, abilities, and comprehension because they are objective, fair, efficient, and thorough, according to research and experience. Standardised exams that measure academic achievement (in reading, math, and other disciplines) are given to students to measure their academic development from the beginning through the finish of a program of teaching, and are referred to as "pre-post testing." The findings of the pre-test should, in theory, represent a student's skills upon entering an educational setting and serve as a benchmark for their current success level. Pre-testing is particularly useful for assessing student knowledge, abilities, and cognitive learning, but less so, for assessing values (Walberg, 2019).

Conceptual Framework

During this quasi-experimental research, students were divided into two groups; first, an experimental group, the class taught using the gamification learning approach, and the control group, which is the class taught using the rote learning approach. The conceptual framework presents the relationship between the Independent variable which is the classrooms with Rote and Gamification learning approach and the Dependent variable which is the student's performance. The model implied that students' attitudes about gamification would affect both their skill-related performance and their engagement in and interaction with the

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course. The control variable which is the same vocabulary difficulty level in the reading tests given to both groups and the extraneous variable such as student's intelligence level and their interest towards game were also built as it is crucial to understand the target group with their unique extraneous variety and to use a systematic approach towards a meaningful research design.

The following hypothesis have been generated from the relationship between the variables of the current study:

H1: Students who are taught using gamification learning approach show a significant increase over time in their academic English reading comprehension as opposed to the rote learning approach.

H0: Students who are taught using gamification learning approach do not show a significant increase over time in their academic English reading comprehension as opposed to the rote learning approach.

H1: Perceived interest towards the application of gamification learning approach will make students feel happy and motivated.

H0: Perceived interest towards the application of gamification learning approach will not make students feel happy and motivated.
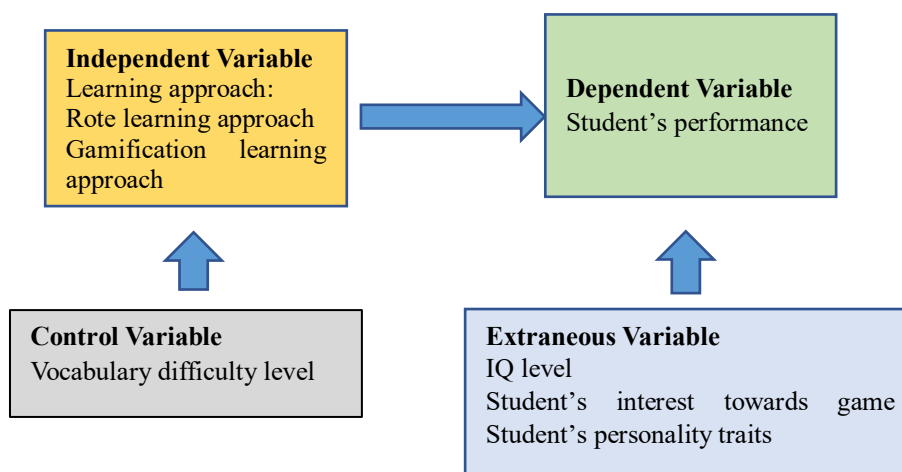

Figure 2. Conceptual Framework Diagram

MATERIALS AND METHODS

Subjects

This research is a quantitative study. A quasi-experimental research design with a pre-test- post-test, and control group was employed. The sampling method used by the researcher is the non-probability convenience sampling; this sort of sampling is used in exploratory research when the researcher is interested in obtaining an economical approximation of the truth. In this research, the population of this study includes all 4th -5th grade students in bilingual school programs, 240 students in total. The samples of this research will be 120 students. The students are elementary school students in Highscope Indonesia. There are 60 students in the experimental group, and another 60

students are in the control group from the same academic year.

Data Collection and Procedure

The study was conducted in March to May. To eliminate biases in the study, the researcher collaborated with other class teachers to perform the study and to teach the control group using the same resources and lesson planning when the permit was approved. Then, a short introduction was given to the students regarding the use of the Fast ForWord application. This study lasted for twelve effective weeks: Group I got the experimental therapy via Gamification learning method, whereas Group II received the control treatment rote learning (Lecture Method). Using the two techniques, both groups were given tests (pre and post) on researcher-created assessments before and after instruction. Pre-tests were given on the first day of research to both groups, while the post-

tests for both groups were done after the treatment given, or on the last day of the academic term 2. Then, the students were asked to complete a questionnaire regarding the opinion towards gamification elements.

Instruments of data collection

Questionnaire consisted of three parts. Part I of the research instrument consists of the items which gather respondents' demographic data such as their gender, year of study, duration of playing game in a day, type of game played. Part II consists of 32 items adopted from the previous research to examine the general perspectives of students about gamification. To check the reliability, the researchers used a reliability coefficient that was calculated for the questionnaire using Cronbach's Alpha equation.

Table 1. Reliability Analysis of Respondents perception on gamified elements

Factors	No. of items	Mean±SD	Cronbach's Alpha
Respondent's perception on gamified- learning method	32	3.55±0.54	0.926

With a Cronbach's alpha score of 0.926, the respondents' perceptions of Gamification components and gameful experience coefficients demonstrate a high level of dependability. This result demonstrates that the items assessing a certain factor have a high level of congruence.

Pre-Post-tests.

The pre- post-test used in this research was in the form of a short-essay with a full score of 10 to find out whether the

gamification learning approach brings an impact in the student's performance. Both tests measure the reading skills related to comparing and contrasting a story and a poem and reading comprehension about a fiction story. The tests and scoring rubrics were provided by the English language department committee in Highscope. The tests were done systematically in the beginning of the program and after the program was done for three months.
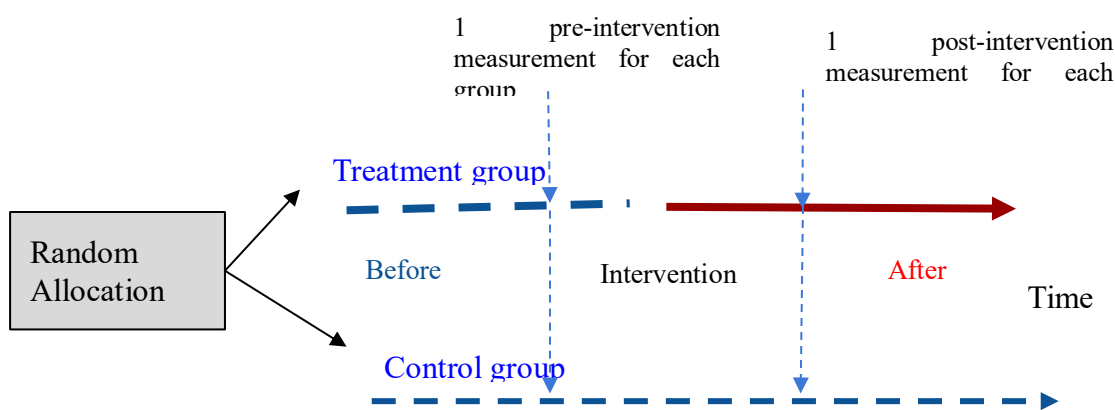
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Figure 3. Experimental Design Flowchart

The result of pre and post-tests of vocabulary mastery will be analysed using Paired t-test in Number Analytics to test if the means of two paired measurements are significantly different. The significance level for all inferential tests were set at 0.05 alpha. The data consisted the mean and standard deviation for two related groups; and the observed t-value, 95% confidence intervals, degrees of freedom, and significance level

RESULTS AND DISCUSSION

Normality Test

The researcher evaluated the data distribution to see if it was normal before testing the hypothesis. The Kolmogorov-Smirnov test was utilized by the researcher.

Table 2. Normality Test

Kolmogorov-Smirnov					
Mean	D	p-value	Skewness	Kurtosis	Std. Deviation
3.88525	.16141	.07424	-0.31357	-1.045219	1.654271

A Kolmogrov-Smirnov test indicates that the distribution of research participants follows a normal distribution, as the significant value is greater than 0.05, p .07424 >0.05.1

Pre- Post Test Result

The P-value not only conveys the importance of evidence for or against the null hypothesis, but also offers a guideline for accepting or rejecting it. Small values around 0 give significant evidence (low to high) against the null hypothesis, whereas big values provide evidence in favor. In this case, the researcher grouped the outcomes of the p-value result in order of evidence to better convey our findings to a non-scientific audience.

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Table 3. Pre Post Test

p-value	Evidence for an association
<0.001	Very strong evidence against the null hypothesis in favour of the alternative
<0.01	Strong evidence against the null hypothesis in favour of the alternative
Between 0.01 and 0.05	Moderate evidence against the null hypothesis in favour of the alternative
Between 0.05 and 0.1	Low evidence against the null hypothesis in favour of the alternative
>0.1	Absence of evidence against the null hypothesis

When the mean post-test scores for the traditional and gamified groups were compared using an independent sample t-test, there was a very strong statistical difference between the groups, indicating that the gamified classroom model had more positive effects and created more progress on the students' reading comprehension achievement (t = 7.594, p 0.05). As demonstrated in Table 5, the gamified classroom group's post-test mean achievement score (M = 8.656) was considerably higher than the traditional group's (M = 7.164). This finding demonstrated that the gamified study's methods were more effective as the p value of ≤0.05 indicates strong evidence against the null hypothesis.

Table 4. T-Test result of Experimental and Control Post tests

Groups	Number, N	Mean, X	Stan.dev., Sd	Degrees of freedom, Df	t-test, t	p
Gamified learning	60	8.656	0.9981			
				60	7.594	0.000
Rote learning	60	7.164	1.1858			

The finding of hypothesis 1 that stated the significance effect of gamification learning on student performance is in alignment with previous studies. Anggraeni (2021) students show a good attitude towards the use of gamification during

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learning so that it has a positive impact on learning. According to the results of the analysis, gamification can increase student involvement in lectures, such as: (1) more likely to take notes in class because it can help them in answering quizzes through gamification, (2) communication in solving problems with classmates, (3) being more careful be careful in answering questions so as not to affect the score they have got, and (4) be more competitive with scores on the leaderboard. The application of gamification also makes students enjoy learning more, such as: (1) enjoying learning more (2) accessing and using learning materials more often, (3) completing more homework, thereby increasing class attendance, and (4) becomes more excited to keep trying to complete the given so as to achieve goals like collecting lots of things and being able to lead on the leaderboard. When dealing with material for the first time, applying gamification in the learning media used will help students understand at the earliest stage. However, along with the increasingly complex material, it will have an impact on student learning motivation so that adjustments in the application of gamification are needed. Gamification in learning can affect learning activities. Students become more active in participating in the learning process thereby increasing engagement and being more motivated to learn. The application of gamification in learning can improve student learning outcomes. The effect of gamification shows that the application of gamification is a promising technique that can be applied to learning materials.

Perceptions of Students for Gamification Approach Questionnaire Result

When a gamification strategy was integrated with the program in all of the classes, the students replied "completely agree" to some of the statements. Below is the way on how the data will be intepreted through the result of the mean :

1. From 1.81 until 2.60 represents (do not agree).
2. From 2.61 until 3.40 represents (true to some extent).
3. From 3:41 until 4:20 represents (agree).
4. From 4:21 until 5:00 represents (strongly agree)

The learners' responses to the Likert scale items were also positive. These questions looked into whether students felt gamified learning increased their reading comprehension, their motivation, the level of difficulty of the exercise, whether they enjoyed the classroom, and whether they thought speed reading should be taught at all program levels. The aggregate average was 4.49, which shows that most people agreed strongly with the claims and indicates strong evidence against the null hypothesis.

Discussion

The finding of hypothesis 1 that stated the significance effect of gamification learning on student performance is in alignment with previous studies. Anggraeni (2021) students show a good attitude towards the use of gamification during learning so that it has a positive impact on learning. According to the results of the analysis, gamification can increase student involvement in lectures, such as: (1) more likely to take notes in class because it can

help them in answering quizzes through gamification, (2) communication in solving problems with classmates, (3) being more careful be careful in answering questions so as not to affect the score they have got, and (4) be more competitive with scores on the leaderboard. The application of gamification also makes students enjoy learning more, such as: (1) enjoying learning more (2) accessing and using learning materials more often, (3) completing more homework, thereby increasing class attendance, and (4) becomes more excited to keep trying to complete the given so as to achieve goals like collecting lots of things and being able to lead on the leaderboard. When dealing with material for the first time, applying gamification in the learning media used will help students understand at the earliest stage. However, along with the increasingly complex material, it will have an impact on student learning motivation so that adjustments in the application of gamification are needed. Gamification in learning can affect learning activities. Students become more active in participating in the learning process thereby increasing engagement and being more motivated to learn. The application of gamification in learning can improve student learning outcomes. The effect of gamification shows that the application of gamification is a promising technique that can be applied to learning materials.

The learning process between teachers and students is carried out by utilizing technology and information. Learning that takes place, of course, has its own obstacles. Teachers are required to be able to create an effective but pleasant atmosphere. Fun learning is a learning process that takes place in a pleasant and impressive atmosphere for students. If the atmosphere when learning can be created with fun, it is hoped that students can be more actively involved when the activity takes place so that learning objectives can be achieved optimally. Fun learning is a model in learning that supports the development of creative thinking. Students can develop their creativity in developing knowledge, attitudes, values, and responsible behavior towards the surrounding environment. Gamification-based learning or game-based learning is used as a solution to existing problems. Gamification itself is a method that can be used in the learning process. In this gamification learning, games are used as an interesting place for students to learn many things in a fun way. This learning approach using game elements is quite effective in learning. Learning can be said to be effective if it shows the level of success or achievement of a goal that can be measured by quality, quantity and time in accordance with what was previously planned. This learning can increase the success rate because the presentation of material that is different from usual can attract the attention of students, so that students can better understand the material presented by the teacher.

This is evidenced by research conducted by Winatha and Setiawan (2020) with results showing that there is a significant increase in learning achievement with an increase of 8.25 points and 29.93 points, respectively. In learning, gamification can be stated as an effective learning approach because the use of

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gamification is an innovation in technology that is still rarely used by teachers. Gamification presents game-based material and uses technology, so this approach is appropriate to use in distance learning to improve learning outcomes, familiarize students with using technology in a positive way and avoid feeling boredom felt by students when the learning process takes place. With the use of gamification, teachers can more optimally prepare teaching materials to achieve learning objectives. Gamification can be used in various subjects in school. Gamification is generally used at the education level. Teaching materials are presented as attractively as possible so that students do not experience boredom when learning takes place. It can be concluded that this gamification is a very appropriate alternative to be used in the learning process by delivering interesting, fun, and effective material.

The finding of hypothesis 2 that stated the significance effect of gamification learning on student perceptions is in alignment with previous studies Fadilla (2018) Learning that implements the use of gamification can change the learning paradigm that was originally teacher-centered to student-centered learning. Based on constructivism learning theory which states that learning will be more meaningful if students are involved in building their own knowledge. Therefore, students' learning motivation has an important role in learning. With the motivation in students, it will provide enthusiasm for learning and a sense of pleasure in learning. Learning is very influential on students' learning motivation.

This is in line with previous research, by Aini (2018) which showed an increase in student interest in learning. Judging from the occurrence of these increases, it can be concluded that the application of gamification has an effect on student learning motivation which includes attention to lessons, and the presence of interest and pleasure. The learning methods and models presented are in accordance with the characteristics of students so that the learning process takes place effectively and pleasantly. Similar research also states the same thing, that gamification can increase students' learning motivation. Based on research conducted by Winatha and Setiawan (2020) which showed that the average score of student learning motivation increased significantly by 0.55 points and 12.1 points, respectively. This research proves that the application of gamification in the learning process can provide positive changes to students' learning motivation. With the implementation of gamification in the learning process, the learning process between teachers and students will take place interactively. Learning that takes place interactively can make the learning atmosphere more lively and not boring. This learning occurs when there is communication between students and teachers who interact with each other. This interaction can be built in several ways, such as asking questions and discussing. Therefore, the application of gamification will provide changes to the learning atmosphere between teachers and students. Gamification is a game-based learning model that requires students to play an active role in the learning process

and the teacher only as a learning facilitator. This can encourage students' learning motivation in the learning process. Based on research conducted by Putri and Asrori (2019), it shows that the use of gamification can build active interactions

between students and teachers, as well as students and other students. Some students look very enthusiastic in participating in the learning process using gamification.

CONCLUSIONS

Based on the results of the literature study that has been carried out, it can be concluded that the application of gamification in learning in the Covid-19 era has a positive impact on student learning activities. There are 2 positive impacts that are highlighted, namely first, gamification in learning can affect learning activities. Student performance becomes more active in participating in the learning process

thereby increasing engagement and being more motivated to learn. Furthermore, the application of gamification in learning can improve student learning outcomes because they are motivated. The effect of gamification shows that gamification is a promising technique that can be applied to learning materials in the post pandemic in 2021.

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