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From Play to Practice: The Role of Game-Based Learning in Facilitating Learning Motivation, Enjoyment and Performance in Classroom

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Abstract

Games-based learning (GBL) incorporates the features and principles of games to achieve educational goals. This method enhances student enjoyment and fulfilment by positioning the learner at the center of the learning process. Learning motivation in GBL called *JoyMerge* is a process to motivate and improve students' attitude in the learning system. Some students feel that learning with games at school affects the way they behave, feel, understand, think and keeps them motivated to learn more. Meanwhile, enjoyment in *JoyMerge* encourages students' learning performance in the classroom by making learning behavior or activities more meaningful. The issue with traditional classrooms is the restriction of the competence to stimulate students' learning performance, especially in today's world where learners from Generation Z are more selective with information at their fingertips. Therefore, this study seeks to determine whether students' learning motivation and enjoyment in *JoyMerge* will contribute to learning performance such as positive academic in the classroom. 147 respondents were selected among undergraduate students via an online survey from six classes using a convenience sampling technique. The data was analysed through a multiple regression analysis. The result shows that students' learning motivation (β=.44, $p<.001$) and enjoyment (β=.30, $p<.001$) in studying Interpersonal Communication subjects through *JoyMerge* significantly influence learning performance in the classroom. The results also improved our knowledge and understanding of how GBL enhances students' learning performance. In addition, learning platforms with GBL can increase students' motivation, foster high critical thinking and problem-solving skills, boost self-motivation, and reduce stress and anxiety through enjoyment.

Keywords: Game-based learning, learning motivation, enjoyment, learning performance, students, *JoyMerge.*

Introduction

Ensuring students are motivated and enjoy the learning process is crucial for achieving learning outcomes. Learning outcomes are objectives set by instructors to guide student learning. Without this element, the process often fails to capture students' interest. Rajan (2022) discovered that learning and teaching without integrating games did not effectively increase student interest. He suggested incorporating game-based learning (GBL) as a method to successfully enhance students' interest.

The idea of using games in teaching and learning is not new. Going back to ancient times, games have been used in the learning process. As a traditional method enjoyed by many, GBL has long been appreciated by educators. Many researchers found that having games in the learning process will induce motivation to learn and result to more enjoyment and satisfaction experience. Chamillard (2006), claimed that if the learner can actively participate in light games and easy to follow the lesson it can enhance the learning motivation. This idea is supported by (Godoy, 2020). He found out that game integration can be used as a tool to help in teaching skill subjects. To enhance learning and development, incorporating games as an instructional tool within the classroom context can be highly beneficial.

Self-motivation and enjoyment are crucial for learning performance especially for students' engagement. When students are self-motivated and enjoyed in the tasks or assignments, they are deeply engaged with the subject. Thus, it indicates better identifying and retention of knowledge, as students are enthusiastically participating in class significantly than passively accepting knowledge. In addition, both variables are important to increased perseverance through tasks, challenges, obstructions etc. Students are more likely to continue learning and working towards their goals due to their satisfaction and accomplishment feeling throughout the tasks.

This study is also important for curriculum design where the researchers combined the elements of play, creativity and students' options to enhance intrinsic motivation. The educators will be equipped with techniques in creating assessment that not only focus on learning performance but also on students' self-motivation and engagement Reeve (2006). They will also be exposed to strategies in enhancing an enjoyable learning environment that can lead to more effective and meaningful learning experiences. Students' deep engagement accelerate beneficial understanding, critical thinking and lifelong learning retention of gaining knowledge. (Pintrich & Schunk, 2002).

Meanwhile, according to Garcia-Martin & Garcia-Sanchez (2018), the problem with traditional classroom is the restriction of the competence to stimulate students' learning performance, especially in today's world where learners are standardised towards and multimedia situations. Conventional education commonly depends on a passive style, which reveals to moderate or decline in motivation and education outcomes. Additionally, conventional education preserve overlooks individual differences in learning procedures and preferences, primary to fit in all types of learning that will not competently converge the requirements of different learners (Mayer, 2014). Today, education sectors are competing in creating greater values for learners. Many studies have shown that generation Z is more selective but always connected, with information at their fingertips. They also prioritize

collaboration, seeking relevant and effective learning experiences. Mostly crave active participation where they learn best by doing, discussing and implementing. In order to have better learning performance in classrooms, the researchers have produced an electronic module or handbook called *JoyMerge* which consists of games that can be implemented to students.

Therefore, this study aims to measure students' learning motivation and enjoyment in GBL by applying *JoyMerge* in the classroom for better learning performance among the students.

Literature Review

JoyMerge (An Electronic Handbook for JoyMerge)

Joy Merge is an Electronic Handbook developed by current researchers as guidelines for instructors to implement GBL in the classroom. All of the guidelines aimed to encourage learning motivation and enjoyment which contribute to learning performance. Therefore, *JoyMerge* can be used as a platform to connect students with real knowledge, improve understanding, encourage active learning with critical thinking and collaboration. It consists of five types of interesting games which are *Bingo Buddies, Pop & Resolve, Global Gourmet Adventure, Famous Face-off* and *Mimic Masterpiece*. After completing the lesson for today's subject, the instructors will read the guidelines to the students before the games begin. It took about 15 mins to 20 mins for students to complete each game.

Social Cognitive Theory

Previously, Social Learning Theory (SLT) developed by Albert Bandura in 1969, suggests that people learn by observing others and imitating their behaviors. When individuals observe behaviors that lead to positive outcomes, they are more likely to replicate those behaviors. Conversely, behaviors resulting in negative consequences are less likely to be imitated. The individuals whose behaviors are observed are called models, and learning through observation and imitation is central to SLT (Bandura 1977). In 1989, Bandura proposed Social Cognitive Theory (SCT) regarding people's abilities physically and psychologically different from others due to environmental and social practices. He claimed that "a belief in one's own abilities, goals, and intentions are all lead to one's behaviour". What a person thinks, feels and believes will affect the behaviour. In contrast, the perception will change due to individual's behavioural experiences. Human characteristics such as age, race, gender, physical looks etc may cause great differences in behaviour (Bandura, 1989). Many researchers used SLT in their studies such health (Lin and Chang, 2018); jobs (Sheu et al., 2017); education (Lin et al., 2018) and many more.

Game-Based Learning

Games-based learning (GBL) incorporates the features and principles of games to achieve educational goals. This method enhances student enjoyment and fulfillment by positioning the learner at the center of the learning process. Consequently, learning becomes easier, more fun, and interesting for students. This approach served as a method to achieve the ultimate objective, requiring a balanced integration of both content and activities in the classroom (Plass et al., 2015).

Researchers and scholars have proposed numerous methods for utilizing games to improve teaching and learning process. Scholars also believe that using games in teaching and learning can enhance the positive learning environment. According to Qu (2021), GBL has become increasingly popular in primary education for younger students in recent years. He defines GBL as a method that blends play with education to enhance children's overall development by integrating entertainment with learning. It is crucial for igniting children's passion for learning, fulfilling their cognitive needs, and fostering their social and physical well-being.

Chorney (2012), found that research on the positive effects of games in education has been increasing since 2006. Gris & Bengston (2021), emphasizes that effective educational activities should deliver both strong educational outcomes and emotional satisfaction that reinforces learning. Game-based learning stands out as the most effective approach in today's educational processes. Adeng and Shah (2012) studied how games can improve students' grammar proficiency. They found that grammar games make learning more enjoyable and motivate students to speak more fluently. Their study shows that using GBL helps the learning process achieve goals more easily.

Celik (2019), compared groups of students who played a new game every day in their learning with groups who did not integrate game-based learning (GBL) in their classes. The group of students applying for GBL in their classroom performed better. His findings support the idea that GBL has a positive effect on the teaching and learning process. Other studies also reported positive findings associated with GBL. Nasir et al. (2020) was conducted a mixed-methods study on integration of GBL in mathematics class. He found that students exhibited higher motivation to learn, communicated mathematical concepts more clearly, and achieved better results in mathematics.

Learning Motivation

Many academic courses are integrated into GBL systems because it is believed to motivate students to learn. Rajan (2022), highlights the significant impact of GBL system in current education environment. He found that GBL is the most effective approach in the current educational process. He also believes that the main focus of GBL is to motivate and improve the students' attitude in the learning system. Some students feel that learning with games at school affects the way they behave, feel, understand, think and keep them motivated to learn more (Stiller & Schworm, 2019).

According to Huang et al (2013), learning motivation can be divided into two. There is an intrinsic learning motivation orientation and an extrinsic learning motivation orientation. Intrinsic orientation involves enjoying challenging tasks and viewing learning as a hobby. Tend to believe that learning can broaden students' perspective, actively try new things, and develop their own potential to achieve personal goals. On the other hand, extrinsic orientation involves learning to get approval from others, perform better, pass exams, show off, compete with classmates, get praise from parents or the opposite sex, avoid punishment and criticism, escape the shame of failure, and get into a great school.

Chen (2017), found out that GBL has positive contributions towards learning motivation among universities students in Taiwan. Based on his research Chen (2017), suggested that GBL will help build a foundation for problem-solving skill. The problem-solving strategies learned in games can be applied to real-life situations or when asking for help. Students with different levels of self-efficacy are motivated in different ways by games. Those with high self-efficacy tend to have better problem-solving abilities, while those with low self-efficacy can improve their skills with some adjustments. This finding can be supported by systematic literature review done by Greenfield (2023). She found that seven of the eight research in GBL contend that integration of games in learning can increase student motivational and enjoyment.

The existence of immediate feedback during the learning process that integrates GBL is very valuable to ensure that students understand and are motivated to continue learning. Husle et al (2019), explores the main important key in GBL that is not found in the traditional education system. They found that feedback is an important feature in GBL. This key element encourages students to take risks, learn from mistakes and tackle more challenging concepts in a supportive setting.

Enjoyment

In recent years, many studies have explored game-based learning (GBL) in classroom practice. One significant discovery is enjoyment as a crucial element in GBL. Games are designed primarily for enjoyment and to motivate ongoing engagement not like traditional studying methods. (Adipat et al.,2021). In 2022 Entertainment Software Association of United States reported that 70% of children understand and enjoy games.

Many games are structured around the interplay of challenges and successes. GBL in grammar class makes learning more enjoyable and motivating in helping students acquire grammar knowledge. Cam and Tran (2017) observed that using games in grammar classes can decrease stress in learning. Their research revealed that games foster enjoyment and motivation among students. Puspitasari and Kurniawan (2017) also discovered that using game cards in grammar classes helps students enjoy learning more effectively.

Greenfield (2023), suggests that GBL principles can be optimized through integration into blended learning, combining two classes, or as an intervention. For instance, teachers could integrate movement games with physical exercise. Teachers also can integrate TGBL as an assessment tool or as support for students needing extra practice with specific math skills. By doing those activities, playing while learning can help student more understand and less stress. As a result, student will enjoy the learning process and create more positive enviroment.

Russo et al (2023), examined educators' views on integrating traditional games and the implications for effective integration. Participants in all three studies agreed that students' enjoyment was a crucial factor in deciding how games should be integrated. Educators faced challenges integrating traditional games into learning because of the fixed curriculum, homework and worksheet demands, and time limitations for each lesson. To address this, teachers opted to incorporate games through blended learning, free choice activities and field trips.

Learning Performance

Learning performance is how students assess their own knowledge, understanding, and skills they have gained, along with their motivation to continue learning (Young et al. 2003). Researchers often associated learning performance with more positive attitudes towards the environment, such as courses and teachers. When students have a positive outlook on learning and teaching, they are more likely to achieve higher academic success (Costa et al. 2015)

A systematic study conducted by Chang & Hwang (2019), found that GBL has been proven to improve academic performance and emphasize its value in education. This is because GBL is able to provide a more flexible learning environment in education. By incorporating game elements into learning activities, this system has effectively increased student engagement and interest. Study done by Abdul Ghani & Wan Daud (2023), provide empirical evidence that integration of GBL in Arabic language communication had improves student's academic performances. Another study conducted by Siti Nazleen & Zuliana (2017), found a significant improvement in students' communication skills by implementing GBL in the learning process. Her research found that GBL offers learners a fun, challenging, and new experience. Qu (2021), also agreed to support the idea that GBL will have a positive impact on student learning performance. His study found that GBL is suitable for Chinese classes by giving more flexibility to the teacher.

Thus, the researchers would like to investigate the relationship between learning motivation, enjoyment and performance as below:

H_1: Students' learning motivation in gamification significantly influences learning performance
H_2: Students' enjoyment in gamification significantly influences learning performance

As shown in figure 1, the dependent variable (learning performance) is influenced by the independent variables which are presented by learning motivation and enjoyment.

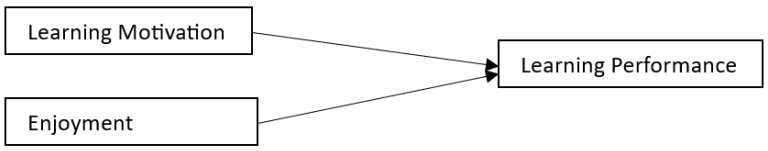

Figure 1: Research Framework

Methodology

Sample and Statistical Procedure

A cross-sectional, online survey was conducted among undergraduate students at faculty of Communication and Media Studies in Universiti Teknologi MARA, Rembau, Negeri Sembilan. Because *JoyMerge* is just a prototype and still in the process of improvements, thus researchers have used a convenient sampling technique. The study was conducted in May 2024 among Diploma students who implemented *JoyMerge* (is GBL assessments) after they had completed the lesson. Six classes under the subject of Interpersonal Communication (INC271) have been used in the study. The data collection process took about a month and in

total 147 online questionnaires were administrated via Google form. Two were removed due to invalid responses. The demographic profile of undergraduate students' which majority of the respondents are female 106 (72%) and male 41 (28%). Most of them are between 18 to 21 years old.

Instruments and Reliability

The instruments used were adapted from past research studies on game-based learning in mathematic subjects. A 11-item survey instrument was adopted and modified. The questions also included demography items. Respondents were asked about their experiences of using GBL in class named *JoyMerge* (is an e-module or handbook for GBL produced by the current researchers). Table 1 shows the allocation of instruments, items, reliability test, standardized item loadings, average variance extracted (AVE), composite reliability (CR), and Cronbach alpha (CA). The items used five Likert scales. The instruments were adapted from Glynn et al (2011), for learning motivation such as *learning Interpersonal Communication subject through GBL is interesting*, Botes et al (2021), for enjoyment items such as *I enjoy learning Interpersonal Communication subject through GBL* and Li (2021), for learning performance items such as *After the course, I have increased knowledge of Interpersonal Communication Skills through GBL.*

Before distributing the questionnaires to students, researchers consulted experts to ensure the items were suitable for the study's objectives. A pre-test was conducted with 30 Diploma students. The results of the reliability analysis, shown in Table 1, indicate that the reliability criteria were met after making some adjustments or rewording items to prevent misunderstandings. Each item's factor loading should be .6 or higher and positive. Conducting Average Variance Extracted (AVE) for each construct is crucial to measure validity. Most factor loadings were above .6, with AVEs for all constructs exceeding .5 and Composite Reliabilities (CRs) exceeding .6.

Meanwhile, the normality test using Skewness and Kurtosis have been tested. Referring to Nieslony et al (2021), stated that Skewness must fall between -3 and +3 and Kurtosis between -7 and +7. Every variable in the study shows values within the designated range: Learning motivation (-1.14, 2.27), enjoyment (-1.43, 2.84), and learning performance (-1.32, 2.36). In order to examine the appropriateness of factor analysis, the Kaiser-Meyer-Olkin (KMO) has been conducted and shows (.91, $p<.01$) which suggest that values between .8 to 1 indicates the data for each variable is adequate.

Table 1
Instruments, standardized item loadings, CA values AVE, and CR

Factor	Instrument	Item	Item loadings ≥.60	CA ≥.70 Pilot Test	CA ≥.70 Field Test	AVE ≥.5	CR ≥.6
Learning Motivation	Glynn et al. (2011)	LM1	.83	.75	.88	.65	.88
		LM2	.79				
		LM3	.78				
		LM4	.83				
Enjoyment	Botes et al. (2021)	E1	.88	. 78	.93	.76	.91
		E2	.89				
		E3	.85				
Learning Performance	Li (2012)	LP1	.86	.77	.90	.71	.88
		LP2	.85				
		LP3	.81				
		LP4	.82				

***** Cronbach alpha (CA), average variance extracted (AVE) and composite reliability (CR)

Data Analysis

The data were entered and analyzed using SPSS version 24 and two were removed due to invalid responses. The researcher used multiple regression analysis to predict the relationship between students' learning motivation and enjoyment in Interpersonal Communication subject through GBL and how these variables influence their learning performance. To conduct the multiple regression analysis, preliminary tests were performed to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. As previously mentioned, the normality test using skewness and kurtosis indicated normal distribution. The linearity test showed that the relationship between the independent and dependent variables was represented by a straight line. The multicollinearity test, with a Variance Inflation Factor (VIF) below 10, indicated a moderate level of multicollinearity (correlations between variables must be below 10). Homoscedasticity was confirmed by a consistent and random scatter of residuals across all levels of the predicted values (independent variables). To check the model fit, the researcher analyzed the R-square (Table 2), F-ratio, and significance value (Table 3). These steps were taken before running the multiple regression analysis to test the hypotheses. Table 2 shows the model summary of this study where R squared value is .46 which explains 46% of total variance of academic engagement (dependent variable). In general, the higher the R-squared, the better the model fits the data. In addition, according to Ozili (2022), acceptable values and minimum values of at least 0.10, R squared are acceptable in social science empirical modelling when some or most explanatory variables are statistically significant.

Table 2
Modal Summary for R-square value obtained.

Modal Summary

Model	*R*	R square	Adjusted R square	Std. Error of the Estimate
1	.68[a]	.46	.45	.66

a. Predictors: (Constant), Enjoyment, Learning Performance

In addition, the researchers used the ANOVA test in Table 4 as an analysis of variance to find common means between different groups of variables. As can be seen from the table, the F-ratio value is 60.91, significant value ($p<0.001$). It can be seen that this model is a significant model.

Table 3
Anova Table

Modal Summary

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59.86	2	26.87	60.91	.000[b]
	Residual	60.54	144	.44		
	Total	120.40	146			

a. Dependent Variable: Performance
b. Predictors: (Constant), Enjoyment, Motivation

Results

A multiple regression analysis using the enter method was conducted to examine whether students' learning motivation and enjoyment in *JoyMerge* significantly influences learning performance. Overall, the model was significant, $F(2,147) = 60.91$, $p<0.001$, explaining 45% ($R^2 = .45$) of the variance in the outcome variable. Thus, table 4 shows students' learning motivation in *JoyMerge* ($\beta=.44$, $p<0.001$) has positive and significant relationship towards learning performance. Meanwhile, enjoyment ($\beta=.30$, $p<0.001$) also shows positive and significant relationship. Learning motivation contributed as a strong variable towards learning motivation as compared to enjoyment. Overall, H_1 and H_2 are supported and reject H null. This demonstrates that GBL in the classroom enhances learning performance among students. The independent variables, such as learning motivation and enjoyment, are proven to be important elements in using GBL in the classroom.

Table 4
Regression Analysis Results

Variables	Unstandardized Coefficient		Standardized Coefficient	t	Sig	R^2	F
	B	SE	Beta (β)				
Constant	.60	.25		2.44	.28	.45	60.91
Learning Motivation	.44	.08	.44	3.81	.00**		
Enjoyment	.29	.08	.30	5.61	.00**		

**p>0.001

Discussion and Conclusion

The current study assessed the degree to which students' learning motivation and enjoyment of GBL contributed to learning performance in the classroom. The study demonstrated that students' learning motivation is influenced by learning motivation and enjoyment. This study is consistent with the previous research done by Cheng and Liang (2022); Chen and Tu, (2021). GBL in the classroom examines integrating games design features into informative education activities to improve student learning performance and education results. These variables cooperate in respective methods to improve how people obtain and employ information and expertise.

Motivation is an important approach in learning. Research has shown that learning motivation significantly influences learning performance. Higher learning motivation in GBL contributes to higher learning performance (Zhao and Huang, 2020). A study by Tokan and Imakulata (2019), found a positive relationship between intrinsic and extrinsic motivation on students' learning behaviour and learning performance in studying biology subject. Meanwhile, Zhao and Huang (2020), have proven that learning motivation and learning performance had a highly positive relationship in their study. In intrinsic motivation, students are highly influenced by internal factors such as curiosity, interest or desire in mastering a subject. Meanwhile, extrinsic motivation offers external reward such as grades, praise or acknowledgement that will contribute to learning performance.

In addition, enjoyment in GBL also contribute to an important factor in learning performance. Enjoyment in studying activities can lead to a positive action, where students are well immersed and concentrated on the project or assignment. The high concentration of students' commitment increases learning performance by improving prolonged awareness and endeavor. Moreover, enjoyment encourage positive excitements, that can lower students' anxiety, tension and generating an additional conducive learning situation. Positive feelings are simultaneously contributing valuable retention and cognitive process. When students find enjoyment in their class activities, their learning performance is repeatedly enhanced. This collaboration relationship shows that students that enjoy learning in GBL is more persuaded to continue, indicating to higher levels and better commitment. Besides, they are more likely to increase a permanent passion of learning and repeatedly obtaining new information.

Both learning motivation and enjoyment in GBL are important variables that contribute to greater intellectual processing. Studies constantly reported that students with high levels of motivation and enjoyment in GBL attain better learning performance such as academic results. The students are more prone to set greater targets, employ effort, and endure the challenge of difficulties. Overall learning motivation and enjoyment are crucial factors that significantly improve learning performance. It creates a positive response loop where motivation and enjoyment support learning performance, conducting to continued commitment, important learning, and greater accomplishment.

The importance and beneficiaries of this topic can be applied by educators, students, parents, and policymakers. As for educators, self-motivation and enjoyment can help in designing more engaging and constructive learning strategies. By integrating the elements of both variables, educators can develop effective stimulating studying situations that support better learning results. Meanwhile, students gained directly from the increased concentration on self-motivation and enjoyment. Thus, students are more focused on personal impact and satisfaction in the classroom, which improves better learning performance and more positive behaviour. Moreover, parents can also help their children's studying more successfully by identifying the importance of these variables. By supporting behaviours and participating the intrinsic motivation and learning enjoyable, parents can contribute to their children's educational success and well-being. Policymakers can benefit from this study by shaping the learning policies and planning to prioritize student commitment and well-being. Thus, it can lead to bigger educational amendments that further upgrade education outcomes at a universal level.

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