



# Enhancing Students' Reading Comprehension with Gamification of Local Wisdom Stories during Emergency Online Learning

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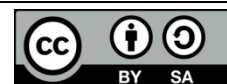
## ABSTRAK

*Di masa pembelajaran daring, siswa dituntut untuk lebih belajar mandiri. Namun absennya media pendukung pembelajaran membuat siswa kesulitan untuk memahami materi pembelajaran. Studi ini bertujuan untuk menyelidiki dampak Gamifikasi Cerita Kearifan Lokal terhadap pemahaman membaca siswa selama pengajaran jarak jauh darurat. Penelitian ini merupakan penelitian eksperimen dengan desain pretest posttest diikuti oleh 127 siswa di dua Sekolah Dasar terpilih di Bali, Indonesia. Dalam penelitian ini, siswa diberikan pretest tentang pemahaman bacaan mereka, diperkenalkan dan diajarkan dengan gamifikasi cerita kearifan lokal, dan diberikan posttest setelah menyelesaikan materi yang tersedia dalam gamifikasi. Instrumen yang digunakan telah melalui uji ahli dan uji lapangan. Analisis deskriptif dilakukan untuk mencari nilai rata-rata dan standar deviasi. Dari hasil analisis deskriptif dan inferensial, ditemukan bahwa rata-rata skor pemahaman membaca siswa pada posttest (80,27) lebih tinggi dari pada pretest (72,91). Perbedaan rerata yang signifikan diidentifikasi berdasarkan hasil uji t sampel berpasangan (Sig. 2-tailed=.001). Penelitian ini menyimpulkan bahwa penggunaan gamifikasi cerita kearifan lokal mampu meningkatkan pemahaman membaca siswa. Saran untuk penelitian selanjutnya juga didorong untuk meningkatkan kualitas gamifikasi dan kepuasan belajar siswa.*

## ABSTRACT

During online learning time, students are required to learn more independently. However, the absence of learning media to support learning process makes it difficult for students to understand the learning material. This current study was aimed at analyses the impact of gamification of local wisdom stories towards students' reading comprehension during emergency remote teaching. The study was an experimental study with pretest posttest design followed by 127 students in two selected primary schools. In conducting the study, students were given pretest about their reading comprehension, introduced and taught with gamification of local wisdom stories, and given posttest after finishing the material available in gamification. The instruments used have been through expert tests and field tests. Descriptive analysis was conducted to find the mean score and standard deviation. From the results of descriptive and inferential analysis, it was found that the mean score students' reading comprehension in posttest (80.27) was higher than the pretest (72.91). A significant mean difference was identified based on the result of paired sample t test (Sig. 2-tailed=.001). The study concludes that the use of gamification of local wisdom stories was able to enhance students' reading comprehension. Suggestions for further study are also encouraged in order to enhance the quality of gamification and students' learning satisfaction.

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## 1. INTRODUCTION

During the Covid-19 pandemic, learning is carried out online. The online learning model that is currently being implemented is more accurately known as emergency online learning (Espino-Díaz et al., 2020; Rahiem, 2020). The term emergency emphasizes the existence of a pandemic situation and compelling health threats so that learning cannot be done face-to-face. Moreover, it is said to be an emergency because there is no planning for the implementation of online learning (Rahiem, 2020; Schultz & DeMers, 2020). Online learning is generally done through careful planning and seeing the readiness of supporting instruments such as teachers, students, schools, and technology (Dewi, 2021; Hill, 2021). Online learning that is carried out forcibly causes many problems. Teachers find it difficult to adapt to new learning environments because of their lack of experience and understanding of online learning (Elshami et al., 2021; Jamal, 2020). Teachers also find it difficult to master technology quickly because of the demands of online learning. This causes the teacher to be very monotonous in teaching (Choate et al., 2021; Choi & Yi, 2016; Englund et al., 2017). As found in initial observations at elementary schools in Buleleng, teachers only give assignments via WhatsApp and learning materials only take from the internet. Some studies also have identified that teachers were not aware of the

difference between teaching online and offline (Andarwulan et al., 2021; Mukhtar et al., 2020). They were doing the same approach of teaching.

The current conditions certainly require teachers to immediately adapt and innovate learning so that the online learning process becomes meaningful. Teacher innovation is also very necessary because students have lost significant learning opportunities (Karuniasih, 2022; Yu et al., 2021). Innovations that can be made by teachers are learning media innovations. Learning media is very important during emergency online learning to support student learning processes and help students understand learning content when interaction between teachers and students is very limited (Huwaiddi et al., 2021; Islam et al., 2022). The teaching media could be used as learning tools to support students when learning online in which they are required to learn independently. One of the learning media that can be used by teachers is gamification-based media. Gamification is a method that combines elements of play and learning (Mee Mee et al., 2020; Mohamad et al., 2020). The development of gamification first began at the end of 1978 at which time game technology was experiencing rapid development and the demands for integrating technology into learning were high (Handoko et al., 2021; Khaitova, 2021). Since then, gamification has developed according to the demands of the 21st century era. Gamification as a learning innovation has been studied by many studies. The results of research conducted by previous researcher found that gamification is able to provide interesting and meaningful learning content so as to motivate students in learning (Buck, 2017). In addition, the results of research conducted by other researcher, found that gamification during online learning makes students more active in learning because of the characteristics of fun games and engaging activities (Nieto-Escamez & Roldán-Tapia, 2021). Gamification also offers an exciting and interactive teaching and learning activities (Rajendran & Shah, 2020; Shi & Cristea, 2016).

Looking at the problem of learning lost during the pandemic, the need for learning innovation, and the development of gamification as an innovative learning media, this study aims to analyses the effect of gamification on students' reading comprehension skills. In the emergency online learning period, more emphasis is placed on students' reading skills because students are more likely to study independently. The gamification used is gamification containing local stories that are widespread in Indonesia. This gamification of folklore based on local wisdom is not only to support the learning process but also to support government programs to preserve and instill Indonesian culture in children as early as possible. The main objective of the current study is to analyses if the implementation of gamification of local stories could enhance students' reading comprehension.

## 2. METHOD

This research is a quantitative type of research with a pretest posttest design (John W Creswell, 2014; Khaldi, 2017). In this study, the students first were assigned to complete a pretest in which they were given a reading test. After collecting the pretest, the students were introduced and taught with gamification of local wisdom stories. After completing all the challenges and tasks in gamification, the students were reassigned with a reading test as their posttest score. In choosing the participants of the study, this study used purposive sampling. There were two school selected in Buleleng Regency, Bali to be the participants of the study. The students were in grade 4<sup>th</sup>, 5<sup>th</sup>, and 6<sup>th</sup>. Descriptive analysis was conducted to find the mean score and standard deviation. Meanwhile, inferential analysis was conducted to find out whether there was a significant difference between the mean scores of students' reading comprehension scores before and after the gamification treatment. In conducting the study, this research used a gamification APK and reading comprehension test as the instruments. The instruments used have been through expert tests and field tests. The results are presented in Table 1.

**Table 1.** Instrument Validity and Reliability

Expert Judgment (Gregory)	Pilot Tested (Cronbach Alpha)	Remarks
1.00	0.88	Very Good / Very Reliable

Based on expert judgment through Gregory Formula, the obtained score between judges were 1.00. This indicates that the judges have the same opinion and evaluation towards the instrument. This also indicates that the instruments are valid. The result of pilot tested through Cronbach alpha found .088 which indicates a very reliable instrument (Pallant, 2016; Taber, 2018). The content of gamification is presented in Figure 1.

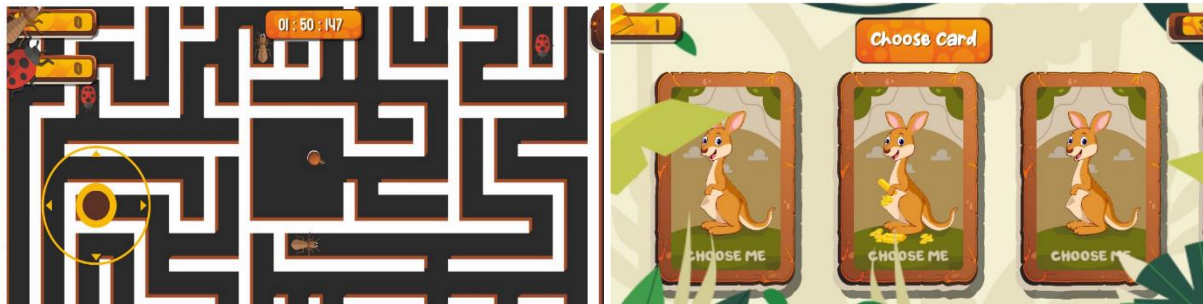


Figure 1. Gamification Content

### 3. RESULT AND DISCUSSION

#### Result

The first data collected is pretest data before being given gamification. The data on the pretest can be seen in Table 2.

Table 2. Pretest Data of Students' Reading Comprehension

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	127	45.00	100.00	72.9134	15.17675

From Table 2 it can be seen that the minimum score obtained from the pretest is 45.00 while the maximum score is 100. The mean score of the student's pretest score is 72.91 with a standard deviation of 15.176. After the pretest data was obtained, the research continued by introducing and applying gamification. Gamification based on folklore is given to students by teachers who have previously received training on how to operate gamification in the classroom. After all the material in gamification has been given, students are given a posttest. The results of the posttest are presented in Table 3.

Table 3. Posttest Data of Students' Reading Comprehension

Class	N	Minimum	Maximum	Mean	Std. Deviation
Posttest	127	50.00	100.00	80.2756	12.80667

From Table 3, the minimum score obtained is 50.00 and the maximum score is 100. The mean scores of the students' posttest scores is 80.27 with a standard deviation of 12.806. Looking at the mean scores of students' reading comprehension in pretest and posttest, students' scores in posttest were higher ( $80.27 > 72.91$ ). To see if there is a significant difference between the pretest and posttest scores, t test was performed. As for the prerequisite test, the data normality test was also carried out. The results of the follow-up test can be seen in Table 4.

Table 4. Inferential Statistics Result

Data	Normality	Paired Sample t Test
Pretest	0.053	0.001
Posttest	0.061	

Based on Table 4, the results of the data normality test showed that the values obtained were 0.053 for the pretest and 0.061 for the posttest. The threshold value of the normality test is 0.050 so it can be said that the pretest and posttest values are normally distributed. The results of the paired sample t test show a value of .001 which means the difference in the average value between students' reading comprehension scores on the pretest and posttest is significant. The results of this study indicate that the implementation of gamification of local stories was able to enhance students' reading comprehension. This is also evidenced by the difference in reading comprehension scores before and after the implementation of gamification based on folklore where the posttest score (80.27) is higher than the pretest (72.91).

## Discussions

The results of this study are in line with several previous studies which identified the effect of gamification on students' reading comprehension. Previous researchers found that there was a significant difference in reading comprehension between students taught by gamification and students taught by conventional technique (Abusa'aleek & Baniabdelrahman, 2020). Students who are taught with gamification are able to demonstrate an understanding of the content of reading both from a literal, inferential and critical perspective than students who are in a conventional learning environment. ( $\alpha= 0.05$ .) Previous study found that students' motivation to read was very high when learning with gamification so that it had a positive effect on their reading comprehension (Li & Chu, 2021). A study conducted by previous study found that students show a satisfying text comprehension when they learnt with gamification (Laura et al., 2020).

Students' reading comprehension ability is strongly influenced by the quality of reading content that can motivate students to read. The reason that gamification becomes very interesting for students is because there are elements of the game that engage students in the learning process (Almeida & Simoes, 2019; Handoko et al., 2021). The game element in gamification also creates an interesting way of learning for students (Castillo-Cuesta, 2022; Urh et al., 2015). Apart from motivating students in reading, gamification of folklore can also teach character values which are currently emphasized in the 2013 curriculum. The implementation of gamification of local stories directly helps introduce the values of local wisdom to students from an early age and is a step to preserve the culture of the Indonesian nation. As stated by previous study game can be an educational vehicle to transfer and teach the nation's cultural values (Mee Mee et al., 2020).

The implementation of gamification also brings advantages to classroom. According to research results identified by previous research students who learn with gamification shows positive learning attitude, motivation, and engagement (Rahmani, 2020). Previous study also found that gamification when integrated during online learning could engage and motivate students (Kaufmann, 2018). Furthermore, other studies had identified that gamification were able to help students in improving their academic performance and competence, increase their learning engagement, improve their motivation, attitude and behavior (Buckley & Doyle, 2016; Chung et al., 2019). However, in implementing gamification, teachers should clearly mention the goals of implementing gamification and try to familiarize the game to the students (Browne et al., 2014; Kaufmann, 2018). The implications of this research provide information and insight related to the impact of gamification of local wisdom stories towards students' reading comprehension during emergency remote teaching. Furthermore, gamification can still be applied even the learning process is no longer conducted online which of course can be used as a reference in conducting learning activities in classroom by teachers. The current study was limited on reading comprehension, further study is encouraged to identify the effect of gamification on different skill such as listening, speaking and writing. Further study is also encouraged to identify the perception of students in learning with gamification.

## 4. CONCLUSION

The results of this study conclude that the implementation of local story-based gamification was able to enhance students' reading comprehension. This was confirmed from the paired sample t test of students' pre and posttest. It was found that there was significant mean difference between students' reading comprehension before and after the gamification was implemented. Students in posttest showed better reading comprehension. The result of this study implied that Gamification of local stories can be used as an alternative media in teaching reading during emergency online learning.

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