THE EFFECT OF GAMIFICATION BASED ON BALINESE LOCAL STORIES AS TEACHING MEDIA TOWARD FIFTH GRADE STUDENTS' SELF REGULATION IN PRODUCTIVE SKILLS

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ABSTRACT

This research aimed to investigate the effect of Gamification based on Balinese Local Story toward students' self-regulation in productive skills. The design of this research was one group pretest posttest. The research population consisted of 150 students of SD Negeri 1 Tukadmungga. Then, the research sample was the 5th grade students consisted of 20 students. The result shows the writing mean score of pretest was 43.38 and writing mean score of posttest was 79.73. While speaking mean score of pretest was 44.88 and speaking mean score of posttest was 80.33 and the result of effect size of writing was 9.797 and speaking was 10.324 that was the large effect. The result of those analysis showed Gamification based on Balinese local story could improve students' self-regulation in productive skills. This result also supports by the result of the questionnaire that the motivation of students was increased after implemented gamification in their learning process.

Keywords: *Gamification, Self-regulation, Young Learner*

INTRODUCTION

The development of technology gives many effects on various aspects in human life. The developments of technology in the 21st century, as known as the 4.0 industrial revolution, are very helpful in the education field. There are many kinds of technology that can use by teachers like computers, LCD and also internet. ICT can support teachers in the learning process in education 4.0. According to Azmi (2017), the use of ICT allows students to develop positive attitudes and increase the student's interaction and communication. The use of ICT can also increase the efficiency of the learning process and help teachers to achieve the objectives of the learning process. There is new concept that include in education 4.0 that is learning by doing (Almeida & Simoes, 2019). Education 4.0 has changed the role of students, in education 4.0 the students should be more active in the learning process (Demartini & Benussi, 2017)

In this era, students should familiar with the technology because students are Z generation. According to Dolot (2018), Z generation refers to people who are in the world that provide by internet connection, and also digital media such as smart phone and laptop . Z generations are easier to share the information with others because they helped by the technology. They are also easier to communicate with others although they in a long distance. Their communication process is continuous because they use various communication devices. By using different mobile devices, they can comment or give opinions by using blogs, and internet forums and they share photos (Dolot, 2018). Generation Z not only as a user, but they can create and control the content in their mobile phone. This means students who as generation Z are ready to implement the ICT in the 21st century learning process.

There are four skills demanded in the 21st century that are problem solving, collaboration, critical thinking, and creativity. The adaptation of 21st century curriculum should be combining of innovation skills, knowledge, media, information and Communication Technology (ICT) literacy that related to the context of academic. In the learning process, the teachers can implement Artificial Intelligence (AI) in the learning process. By using existence of Artificial Intelligence (AI) as the technology, it can changed teaching process. Teaching process through technology should support by tools, such as; smart phones, laptops and computers. It means teaching process can be an online learning process. The use of technology in learning process has change the traditional learning that is teacher centered become student centered. With the presence of technology, learning is not only done in schools but it can be done anywhere independently.

This case is related to self-regulation of the students. According to Toharudin et al., (2019), Self-Regulation is the students ability in managing their own learning without being dependent on others. Students who self-regulate their will be motivated and be confident in their learning process. Self-regulation of students is often described as decisive and strategic in monitor their progress (Matric, 2018). To develop this self-regulation cycle, it could be supported by technologies (Toharudin et al., 2019). To build self-regulation of students can be done with various approaches such as, by using web-based learning, using multimedia, application and learning online. It means that the used of application

as a media could support the students to form their self-regulation. There are many applications that can use by the students for support their learning process and one of them is gamification. Gamification is kind of application that use game features that has function to increase students' motivation. This gamification contains of fun components and it makes gamification suitable for young learner and this gamification can support their self-regulation because young learners have sensitive stage of self-regulation. Five Balinese local stories are the content of this gamification and the first story is I Ketimun Mas, the second is Men Kuuk, the third is Cupak Gerantang, the fourth is Manik Angkeran, and he last is Sugih Teken Tiwas. By using gamification the student especially young learner can play the game of gamificasion and they can improve their critical thinking because there are some challenges in each stage of the game. Based on that features gamification can support self-regulation of the student.

Papp (2017) had conducted a research about gamification the title was "Gamification Effects on Motivation and Learning: Application to Primary and College Students". This study aimed to identify the effect of gamification on student's motivation and learning in the class. The result was the students' motivation and engagements were increased at both the sample. Ribeiro et al., (2018) also conducted a study about the gamification entitled "Gamification: A Methodology to Motivate Engagement and Participation in A Higher Education Environment". This study had purpose to stimulate students' engagement in the class by using gamification during the semester. The result of the study showed this method has proved to be very useful for a better management and conduction of classes by the researcher, it can be a stimulus for students to participate, providing a clear and visual evaluation of their performance in their participation in the learning process. In other side, there is no study about gamification that used local stories as the content. Thus, conducting this research is needed to find out the effect of gamification based on Balinese local stories as teaching media toward fifth grade student's self-regulation in productive skills. Productive skills can call active skills means that skills of produce information from people who use the language in spoken or written form (Golkova & Hubackova, 2014). This research also aimed to find out the student's responds about the implementation of gamification based on Balinese local story in their self-regulation.

REVIEW OF RELATED LITERATURE

The Definition of Gamification

Gamification is kind of application that contains of game fetures that can use as a media in learning process. Based on (Alsawaier, 2018), Gamification is kind of application that contains of game features that designed into non-game context that has function to promote students motivation. Gamification provides fun component that can transform students' attitudes toward learning process (Alsawaier, 2018). According to Hamari et, all (2014), the use of gamification give an effect to the student's motivation, psychology and behavior outcome. Based on aforementioned statement, gamification is effective to students in learning process.

According to Alsawaier (2013), there are four gamification features such as:

1) Avatars

   Avatars are player's representative in gamification. The avatars in the gamification can be like people.

2) Quests and challenges

   Quests are a series of challenges that include in gamification, students need to follow and answer the question in the each series of challenges.

3) Badges

   Digital badges are the feedback that students will get when they can the finish the challenge or the questions.

4) Points and levels

   Point use to motivate someone to do something when they have no other reason to do it. Point is a score of the task in gamification.

METHOD

This research implemented mixed method design. Qualitative approach was used to answer the research problems to know the implementation of gamification. The quantitative approach implemented one group pretest and posttest design. Quantitative approach was used to investigate the pretest and posttest score. SD Negeri 1 Tukadmungga was the setting of this study. It was located at Dusun Dharma Semadi,Tukadmungga, Kec.Buleleng, Kab. Buleleng. All of students in SD N 1 Tukadmungga were the population and the fifth (5th) grade students in SD N 1 Tukadmungga as the sample. The class as the sample consisted of 20 students. Those 20 students were in one group of this research.

The data collection was done by several processes. The first process was got permission and observation for conducting the data. The second process was created pretest, posttest and questionnaire as instrument for collecting the data. The third process was conducted the pretest before did the posttest. The fourth process was gave the chance for the students to play the gamification in their pleasure time. The fifth process was gave posttest and gave the questionnaire. After conducting the data, the analysis of the data were needed to determine the significant effect of the gamification that used Balinese local story as the content.

The data analysis was done by using SPSSX 24 program. This had function to determine the descriptive and inferential analysis of the data. The descriptive analysis was containing of mean, median, variance, standard deviation, maximum and minimum score. While for the inferential analysis was including of the normal distribution, t-test, and effect size. The analysis of qualitative data had a function to find out the implementation of gamification as learning media and students' response on the use of gamification in learning English. The obtained data were analyzed in four processes analysis such as: Data Collection was done by collecting data through documentation, and questionnaire. Data reduction was the process of reducing the data into a manageable size and it used for reporting the data. Data Display was done by forming the data into table and description. Conclusion Drawing was done when the researcher finally ends the data analysis and display.

RESULT

The Descriptive Analysis of writing test

Table 1 The Mean Summary

Pretest	1	2	3	4	5	6	Mean
	42.80	46.70	47.00	48.80	50.60	50.90	43.38

Posttest	1	2	3	4	5	6	mean
	78.70	79.30	81.40	83.50	87.70	88.30	79.73

Based on Table 1 the mean summary, the mean summary of pretest was 43.38 and the mean summary of posttest was 79.73. This result indicated there was significant different between it and mean summary of posttest was higher than mean summary of pretest 79.73 > 43.38). The descriptive of pretest and posttest of writing skill is shown in table 2.

Table 2 Descriptive Analysis of writing test

	Mean	Std Deviation	Median	Max Score	Min Score	Variance
Pretest	47.80	3.009	47.90	50.90	42.80	9.060
Posttest	83.16	4.123	78.45	88.30	78.70	17.007

Descriptive analysis is shown in the Table 2 and it showed the descriptive analysis of posttest was higher rather than pretest instrument in every descriptive analysis. After doing the descriptive analysis, the next is conducting the T-test (normality test). The normality test is shown in Table 3.

Table 3 Normality Test

	Kolmogorov-Smirnov		
	Statistic	Df	Sig.
Pretest Mean Score	.191	20	.200
Posttest Mean Score	.199	20	.200

Table 3 show the value of normality test for pretest is .200 while the posttest is .200 those value is more than .05. It means the data are normally distributed. It indicated the data can analysis through T-test (Hypothesis Testing).

Table 4 The Hypothesis Testing

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	
Pair 1	Mean_Pretest - Mean_Posttest	-35.36667	1.82062	.74327	-37.27729	-34.30313	-47.583	20	.000

Table 4 shows that the value of Sig. (2-tailed) was .000. This value is lower than the level of standard (α=.05). It means there was significant difference between pretest and posttest.

Table 5 Effect Size Test Result

	Pretest	Posttest
Mean Score	47.80	83.16
Standard Deviation	3.009	4.123
Sample	20	20
Cohen d Result		9.797

Table 5 shows the value of Cohen d is 9.797. It means the effect size of treatment is large. The effect size was analyzed by using Cohen's d measurement.

The Result of Descriptive Analysis speaking test

Table 6. The Result of Mean Summary of speaking test

Pretest	1	2	3	4	5	6	Mean
	41.50	41.52	41.50	46.33	47.25	51.50	44.88

Posttest	1	2	3	4	5	6	mean
	76.50	78.50	81.52	81.00	81.00	83.33	80.33

Table 6 show the result of mean summary of speaking test, the mean summary of posttest was higher rather than mean summary of pretest (80.33 > 44.88).

Table 7. Descriptive Analysis of Pretest and Posttest of speaking test

	Mean	Std Deviation	Median	Max Score	Min Score	Variance
Pretest	44.88	4.184	43.91	51.50	41.25	17.514
Posttest	80.33	42.464	81.00	83.50	76.50	0.076

Table 7 shows that the posttest instrument was higher rather than pre-test instrument in every descriptive analysis. After conducting the descriptive analysis of pretest and posttest, the next is conducting the T-test.

Table 8. The Result of Normality Test of speaking test

		Kolmogorov-Smirnov	
	Statistic	Df	Sig.
Pretest Mean Score	.291	20	.123
Posttest Mean Score	.273	20	.184

Table 8 show the value of Kolgomorov-Smirnov for pretest is .123 while the posttest is .184. This value of Sig. for pretest and posttest is more than .05. It means the data are categorized normally distributed. It indicated the data can analysis through T-test (Hypothesis Testing).

Table 9 The Result of Hypothesis Testing

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Mean_Pretest - Mean_Posttest	-35.44833	2.81880	.1.15077	-38.40649	-32.49018	-30.804	5	.000

Table 9 shows that the value of Sig. (2-tailed) was .000. This value was less than the level of standard (α=.05). It indicates that there was significant difference between pretest and posttest.

Table 10 Effect Size Test Result

	Pretest	Posttest
Mean Score	43.37	79.74
Standard Deviation	3.681	15.697
Sample	20	20
Cohen d Result	10.324	

From the result of effect size test, the value of Cohen d as shown in Table 7 is 10.324. This indicates that the effect of treatment is large.

The Result of Students Response

The questionnaire was distributed in order to know students' response about their self-regulation after the implementation of gamification. The questionnaire was conducted by the researcher on December 10th 2019. The questionnaire consisted of 20 questions about tudents' response about their self-regulation after the implementation of gamification in the learning process. The details of questionnaire explained as follows.
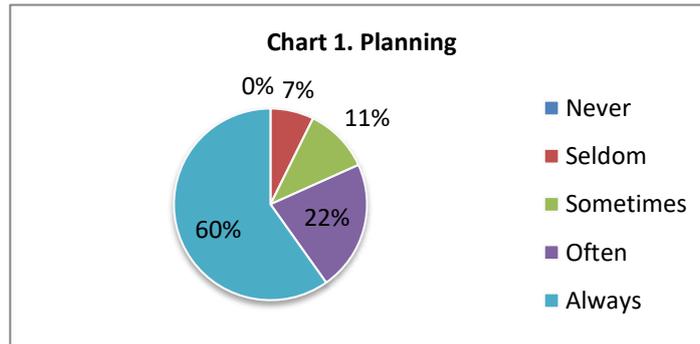
Chart 1 Planning/ Forethought

The chart 1 showed the student response of Planning (*Forethought)*. From the chard, it showed that 60% of the students answered *"always",* 22% of the students answered *"often",* 11% of the students answered *"sometimes",* 7% of the respondents answered *"seldom".*
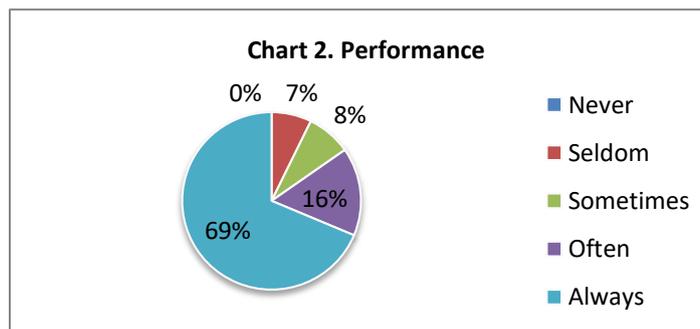

Chart 2 Performance/Valitional Control

Referring to the chart 2, it can be described the students" response on the *Performance/ Valitional Control*. From the chard, it showed that 69% of the students answered *"always",* 16% of the students answered *"often",* 8% of the students answered *"sometimes",* 7% of the students answered *"seldom".*
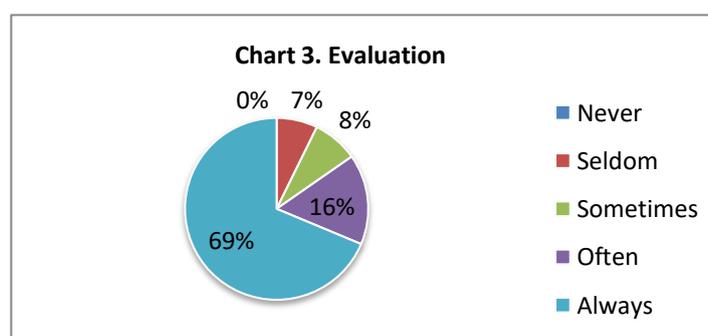

Chart 3 Evaluation

The chart 3 showed the student response of evaluation. From the chard, it showed that 68% of the students answered *"always"*, 20% of the students answered *"often"*, 7% of the students answered *"sometimes"*, 5% of students answered *"seldom".*

DISCUSSION

This study aims to find out how the implementation of gamification and also to find out the significant effect of the use of gamification in learning process in elementary school. The subject of this research was 5th grade students in SD Negeri 1 Tukadmungga. This research was a mixed method research which combined quantitative and qualitative technique in collecting the data. The quantitative data were gained through giving pretest and posttest in six meeting. Meanwhile the qualitative data were gained through giving questionnaire to the students in one meeting. Quantitative method was used to find out the significant effect of students' writing and speaking after they implemented gamificaion in the learning process. While qualitative method was used to know student's response of the implementation of gamification in their self-regulation.

The quantitative method had been done by administering one group pretest-posttest for the students by giving the treatment using Gamification contaained of Balinese local story. According to Gross (2007), the implementation of gamification should include of 4 steps for the first step is experimentation, the second step is activity, the third step is discussion, and and the forth is reflection. Experimentation step include two process such as detemined the topic and the metarial. The topic that choosen based on the syllabus of the curriculum. The second process was determined the material. Material help the students to understand about the topic before the treatment using gamification. The material that used was picture that suitable with the topic. Next was using worksheet. the used of worksheet help the students to understand the topic after the treatment using gamification. Other ways, this reseach also used questionae to know student's responds of the use of gamification in the learning process.

The second step was the activity. In this research, the use of gamification was in the pleasure time in the school because this research has purpose to know self regulated of the students so, the activity was designed in the pleasure time.

Students was provided 5 gadget that can instal gamification. Then students was devided into five group that every group consist of four and every group used one gadget to played the gamification. The students was enthusiasm when they played the gamification because they can learn and play the game in the gamificaion in one time. The enthusiasm was kind of engagment value in learning process. It was supported by Deese (2014), stated that the use of gamification can increases students' engagement. It showed when the students play the gamification in the gadget and tried to answer the quiz in every level.

The third step was discussion. According to Gross (2007), discussion is the part of activity that students get the opportunity to discuss about the material after the treatment using gamification. The last step is reflection. According to Gross (2007), reflection is the activity of remind the material based on whole activities that have been done. In this step also give opportunity to the students about the value of the local story in gamification. Students can relate the moral value in the story to their real life. Students can learn the moral value in each local story because each gamification contained of different local story.

The qualitative method had been done by giving questionnaire to the students. The questionnaire was conducted by the researcher on November 20th 2019. The questionnaire was distributed to the fifth grade in SD N 1 Tukadmungga which consisted of 20 students. In this questionnaire, there were about 20 statements in the questionnaire that divided into 3 sub variable such as planning/Forethought, Performance/Valitional Control, Evaluation. The first sub variable that was planning/Forethought contained of seven items, it showed that 60% of the students answered *"always"*, 22% of the students answered *"often"*, 11% of the students answered *"sometimes"*, 7% of the students answered *"seldom"*. Based on the result, could be concluded that most of the student made their planning for their learning process. The second sub variable hat was Performance/ Valitional Control contained of seven items, it showed that 69% of the students answered *"always"*, 16% of the students answered *"often"*, 8% of the students answered *"sometimes"*, 7% of the students answered *"seldom"*. Based on the result, could be concluded that most of the student already implementing cognitive and metacognitive strategy in their learning process and also the students have good motivation in the learning process. That result also supports by Hamari

(2014), that the implementation of gamification gave an effect to the motivation. The last sub variable that was evaluation that contained of six items, the result of student's response showed that 68% students answered *"always",* 20% students answered *"often",* 7% students answered *"sometimes",* and 5% of the students answered *"seldom".* Based on the result, could be concluded that most of the student have evaluate their learning process.

CONCLUSION

Based on the result of finding, it can be concluded that the use of gamification based on Balinese local story gave significant effect on student's productive skill of 5th grade students in SD Negeri 1 Tukadmungga. The pretest mean score was 47.80 and 83.16 was the posttest mean score for writing test. Those result indicated that the posttest mean score was higher than pretest mean score for writing test. While, from the speaking test result, pretest mean score was 44.88 and the posttest mean score for speaking test was 80.33. It means the posttest mean score was higher than pretest mean score. Moreover, the effect size of writing was 9.797 and the effect size of speaking was 10.324 it means that the effect size was large. Besides that, it was supported by the result of implementation that showed the students were exited in following the treatment. In addition, the result of questionnaire also shown that the students had positive responses after they use gamification in their self-regulated learning. Then, it could be concluded that of gamification based on Balinese local story is an appropriate teaching media to improving students' productive skill in their self-regulated learning.

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