

# Gamification in Learning using Quizizz Application as Assessment Tools

**Wiwin Handoko<sup>1</sup>, Eva Mizkat<sup>2</sup>, Auliana Nasution<sup>3</sup>, Hambali<sup>1</sup>, Juna Eska<sup>1</sup>**

<sup>1</sup>Sekolah Tinggi Manajemen Informatika dan Komputer Royal, Indonesia

<sup>2</sup>Universitas Asahan, Indonesia

<sup>3</sup>Universitas Battuta, Indonesia

Email: win.van.handoko@gmail.com

**Abstract.** Nowadays, Teaching and learning activities in the world of education must always follow the development of technology. The use of these technologies will make these activities more effective and efficient. Gamification is part of innovation in education. In this research, gamification is used as a tool for studying activities in project management information systems subject. The method used is technology-based applied research. The Assessment Tool in this study uses Quizizz. Quizizz is used on midterms. This exam was attended by 29 students of the information systems department STMIK Royal. The questionnaire was made using a Mentimeter. The use of Quizizz has a positive impact. The level of student answers questions correctly is 51%. Then 66% prefer Quizizz as assessment tool compared to paper and google forms.

## 1. Introduction

Nowadays, the development of education in the world, especially Indonesia is growing so fast, both in terms of science and information technology. The development of information and communication technology provides a very large impact on the world of education, especially student learning and teaching activities [1]–[3]. Teaching and learning activities in higher education are activities that involve lecturers and students to achieve a learning goal [4]. Learning objectives will be achieved if there are learning methods that are appropriate for the development of information and communication technology. Most universities in Indonesia, currently still use conventional methods in the teaching and learning process, namely by using paper as a work assignment given by lecturers, discussing in class directly, collecting assignments by giving assignments to lecturers, which are ongoing every day [5]. This is certainly not following technological developments. Information and Communication Technology (ICT) should have brought significant changes in educational acceleration and innovation [6]. Therefore, currently, there is a learning method, gamification.

Gamification is the process of adding game elements to something in this case education to increase motivation to do it [7]. Gamification takes part in the game including points, badges, challenges, leaderboards, rewards, incentives, and so on and applies it to pedagogy to motivate students to a higher and more meaningful level of involvement [8]. Based on this gamification can be used as an evaluation and assessment tool.

assessment is one of the activities in the organization besides planning and implementation [9]. In the world of education, assessment is an element that supports the success of teaching and learning. assessment is used to monitor student learning progress mathematically [10]. The form of assessment is



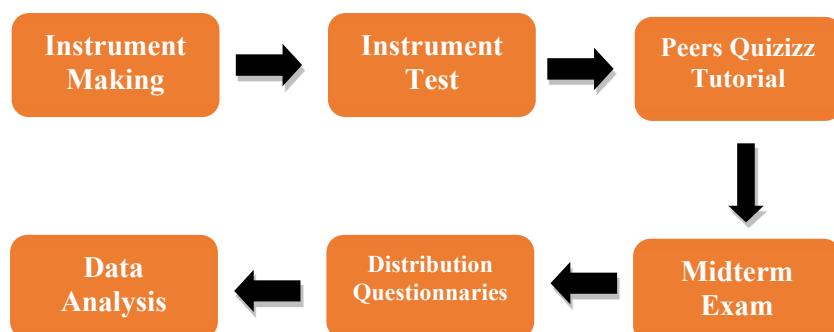
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usually in the form of individual assignments, group assignments, midterms, and final examinations. This progress information can be obtained in many ways. One of the tools in gamification is Quizizz.

Quizizz is a game-based educational application that can be played by many people working on problems with an interactive and fun display [11]. Students can use Quizizz via their PC or mobile phone as long as they are connected to the internet. Quizizz provides statistical data from quiz results and is quite flexible because there are time settings in administering the quiz [12]. Quizizz also allows students to compete with each other and motivates them to learn because they can see their immediate ranking on the scoreboard. Lecturers can also monitor the process and download reports when the quiz is finished to evaluate student performance [13].

## 2. Materials and methods

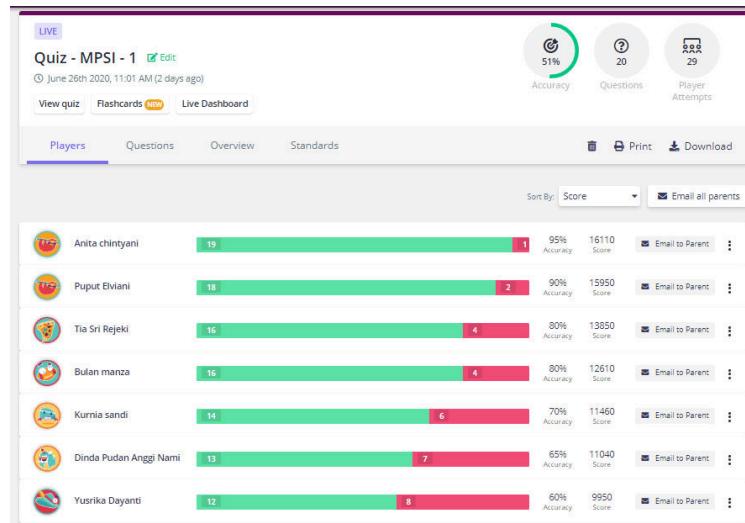
The method used is applied research based on information technology where Quizizz is used as an assessment tool. This research was conducted at STMIK Royal with 29 research subjects as the sixth-semester students in information systems. The instrument used was a midterm exam in the information system project management course. The midterm exam consists of 20 questions with multiple choice question types. Each question is given 10 seconds to answer it. In the final session, the researcher made a questionnaire to find out the students' responses about using quizizz as an assessment tool.



**Figure 1.** Research Steps [9]

## 3. Result and discussion

Quizizz has an attractive and interactive display. When you host, you can see the questions that have been answered correctly and incorrectly from each participant [14]. With such a display, we will be easy to analyze the data. Each student works on their midterm questions with full concentration using their mobile phone. they are so orderly finishing it with a set time limit. The answers from every student both right and wrong can be monitored in realtime so it is very easy for lecturers to see it. Students are also very enthusiastic because the results of their answers can be seen directly on the scoreboard. The score will always change depending on the answer from each student.

**Figure 2.** The result of student's answer in midterm exam

Based on Figure 2, the assessment using Quizizz, it can be seen that the level of accuracy of students' success in answering questions correctly in this class. In the quizizz we can also see the success of students in answering each question so that it will be easier in future evaluation. The results of the assessment in quizziz can be downloaded in the form of a spreadsheet (.xsls) if you want to process the data further.

**Table 1.** Analysis of the results of student answers in the midterm exam

No	Level of accuracy of students success in answering questions correctly	Percentage
1	Average	51%
2	Highest	95%
3	Lowest	25%
4	Question 1	83%
5	Question 2	72%
6	Question 3	55%
7	Question 4	24%
8	Question 5	55%
9	Question 6	69%
10	Question 7	59%
11	Question 8	28%
12	Question 9	52%
13	Question 10	76%
14	Question 11	45%
15	Question 12	38%
16	Question 13	38%
17	Question 14	28%
18	Question 15	55%
19	Question 16	55%
20	Question 17	31%
21	Question 18	55%

22	Question 19	41%
23	Question 20	59%

Based on Table 1, the level of accuracy of students' success in answering questions correctly in this class is 51%. The highest score is 95% (True 19, False 1) and the lowest score is 25% (True 5, False 15). This shows that most of the students in this class understand the information system project management lectures until the 8th meeting. but in some questions, there are questions with a low level of accuracy, especially in questions number 4, 8, 12, 13, 17 and 19.

To find out the students' responses after using Quizizz, made a questionnaire. There are two questions. The questionnaire was made using a Mentimeter. Mentimeter is a free and online response system whose results can be known immediately without waiting for a long time [15]. To use Mentimeter, students can enter a unique six-digit code to be accessed to the specific page assigned by their host and begin sending responses.

**Table 2.** The result of questionnaires on student response to question 1

No	Question	Percentage		
		Paper	Google Form	Quizizz
1	What exam method do you prefer?	24%	10%	66%

Based on Table 2, in the first question, given 3 choices of exam methods that have been implemented including Quizizz. The result was that 19 students (66%) preferred using Quizizz. The remaining 7 students (24%) choose to use paper and the last 3 students (10%) choose to use Google Forms.

**Table 3.** The result of questionnaires on student response to question 2

Students	Question	Answer
1		Challenging
2		exciting
3		fun, and adorable learning methods
4		very effective for learning
5		not boring to make emotion but fun
6		easy to use
7		cool
8		very cool and the results are quickly known
9		Challenging
10	What is the reason for choosing Quiziz?	Good
11		Exciting
12		Very Happy use it
13		Not Boring
14		Effective and Efficient
15		Cool
16		Happy
17		Exciting
18		Challenging
19		Fun and Challenging

Based on Table 3, all students made good comments. they were very enthusiastic about using

quizizz as an assessment tool. they argue that Quizizz is an application that is easy to use, results can be quickly known, challenged and more.

#### 4. Conclusion

Quizizz is an assessment tool in gamification which is very positive in its use, in terms of lecturers, Quizizz is very effective and facilitates the assessment process in teaching and learning activities. Quizizz provides an analytical picture of the answers of the student tests so that they can be used as learning evaluation materials for future improvement. From the student side, they are so enthusiastic about using Quizizz as a means of carrying out exams. The attractive and interactive display of this application gives encouragement to carry out the exam.

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