

Application of Gamification with "SIKMA" to Increase Motivation and Learning Independence Attitudes

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ABSTRACT

This Community Service Activity (PKM) aims to increase the motivation and independence of learning for students in Porisgaga Housing, Ambon Block, Tangerang City, so that the use of Smartphones can be used as a tool to support the learning process outside of class hours (outside of school). Most students use smartphones outside of school to play games, so their time is spent on the game, so the function of the smartphone, which was originally to support the learning process, turned into access to playing online games. One effective way to solve this problem is the application of gamification with the concept of "SikMa". SikMa is a gamification that is conceptualized based on the fun of learning mathematics, after applying gamification with the concept of sikma, more than 80% of students stated that learning using the SikMa concept is more fun, and their learning independence is increased. This can be seen from their atusias working on the exercises given through gamification, from the results of the survey after being carried out PKM it was found that more than 60% of students are motivated in learning and more than 50% of them have a good attitude of learning independence.

INTRODUCTION

Advances in information and communication technology today have had an impact on various aspects of human life, especially aspects of education. Education in the era of the industrial revolution 4.0 requires everyone to master information and communication technology. The Industrial Revolution 4.0 has fundamentally changed the way people think, live, and interact with each other (Prasetyo and U. T 2018). Setiawan (2017) explained that the sophistication of technology makes learning more interesting and efficient so that students are active in acquiring knowledge. This is also supported by the provisions of the 2013 curriculum revision, namely student-oriented learning. This means that students must be more active in carrying out the learning process, using technology can make it easier for humans to convey information.

Since 2020, the learning system that was originally carried out face-to-face with the COVID-19 pandemic has undergone a major change to face-to-face, all or entirely online. This is certainly an educator who provides learning in the field of education, especially to achieve learning goals. Well achieved. Of course, to support the effectiveness of learning, it must be supported by appropriate facilities and media. One of them is the gadget. Broadly speaking, the advantage of gadgets in the learning process is the creation of communication communication that facilitates interaction or communication between educators and students and makes learning effective and efficient according to Muhammad Nuhman Mahfud in ilmadi (2022)

Some of the information summarized in the field related to online learning both during the pandemic and during the new normal period, students more often access content outside the subject matter, they use gadgets more often to access social media and games than to use it to watch the content of the subject matter. Parents are very difficult to control students in using gadgets on the grounds that the use of gadgets is a must in accessing learning. In addition, there are still teachers who do not like the use of learning platforms, arguing that it is "difficult or very difficult to use".

Some of the cases above are certainly our collective obligation and responsibility in finding solutions, making gadgets their main function, learning access media, and online teacher assignments. You can also control students as they use gadgets. "The use of learning media in the educational and learning process is one of the efforts to improve the effectiveness and quality of the learning process as well as the quality of student learning outcomes. Good media is certainly one of the students' efforts. Provide fun learning opportunities and motivate students to learn" (Hadi and Emzir 2016)

One of the media that teachers or instructors can use in increasing student learning motivation is to use a gamification model. "Gamification is the use of elements related to video games (game mechanics and game dynamics) in non-gaming applications. It aims to increase community engagement and to promote certain behaviors. There are many educational games that can be used in easy-to-use learning, such as the use of gamification (Simões, J., Redondo, R. D., & Vilas 2013). "Based on the nature of this technology, one of the areas where gamification has the greatest impact is online learning" (Dominguez, A,

2013). "Gamification has been implemented across multiple domains in recent years. One such domain is education and training" (Delon, W, 1992), in which game elements are used to increase student motivation, engagement and performance. The use of gamification packaged in the form of playing while learning, called Asik Mathematics learning abbreviated as SikMa, is a new innovation that can be used as a step to divert students' attention to continue learning while playing.

The SikMa game (aSik learning Mathematics) with the help of Linktree media makes it easier for teachers and students in learning activities. Because this game is very accessible and makes it easier for students to understand the subject matter. One of the cooperative and student-centered learning models, where students are actively involved in the learning process. With the application of the gamification learning model, it is hoped that students will be able to apply cooperative learning to gamify the SikMa concept. According to Kapp, (2012) "The SikMa Concept Gamification Learning Model is a method designed in the form of a game. This learning model leverages game-based dynamics, art, and game-based student thinking. Applied by: How do you promote the subject of your students learning The SikMa Concept Gamification Learning Model will be more interesting if it is supported by Linktree Learning Media. , Attendance, materials, learning task media. From the explanation above, to overcome these problems, it is necessary to carry out training on the use of gamification in learning to increase learning motivation and an attitude of learning independence.

IMPLEMENTATION AND METHODS

The solution to solving problems is by applying the learning while learning model, namely gamification with the concept of SikMa (Asik learning Mathematics". Tutoring activities carried out in the form of PKM collaboration between students and lecturers of the Mathematics Study Program FMIPA Pamulang University with lecturers and students of the PGSD Study Program of the Shanti Buana Bengkayang Institute of West Kalimantan, were carried out for two weeks with the Hybrid system. The training participants are junior high school level students who are equivalent in the Porisgaga residential area, Ambon Block, Tangerang City, Banten Province. The application of Gamification aims to increase the learning motivation of students and their learning independence is also trained. The solution provided there are 4 stages, tah ap 1 Gamification design with the concept of SikM a, the second stage, product use trials, at this stage a trial of the use of Gamification is carried out to participants, with the hope that students can use and understand the steps of Gamification. The third stage is the use of Gamification in learning.

Table 1. The Lecturers and Students Involved in the Implementation of this Service

No	Name	Institution	Position
1	Ilmadi	Universitas Pamulang	Lecturer
2	Joshua Damas Sadewo	Institut Shanti Bhuana	Lecturer
3	Uswatun Hasanah	Universitas Pamulang	Lecturer
4	Totok Victor Didik Saputro	Institut Shanti Bhuana	Lecturer
5	Enggar Prasetyawan	Universitas Pamulang	Lecturer
6	Aldi Florensus Gea	Universitas Pamulang	Student
7	Syifa Rahmawati	Universitas Pamulang	Student
8	Maulida Nurazizah	Universitas Pamulang	Student
9	Anisa Nurfebrianti	Universitas Pamulang	Student
10	Teresia Wini	Institut Shanti Bhuana	Student
11	Santi Suprapti	Universitas Pamulang	Student

The fourth stage in the implementation of PKM is an evaluation of the use of gamification based on SiKM a. Evaluation is carried out using non-test instruments in the form of questionnaires to see the motivation and attitude of independence of training participants after being given training and learning using SikMa-based gamification.

RESULTS AND DISCUSSIONS

PKM is carried out in the Porisgaga housing complex, Ambon Block, Tangerang City, Banten Province with the main target being students at the Junior High School level as equals. This PKM activity is one of the efforts of the community service team in providing benefits of using smartphones in increasing learning motivation and training learning independence. PKM activities are carried out in 4 (four) stages, namely:

1. First stage: Gamification Design

At this stage, gamification design is carried out which consists of: determining the scope of learning, identifying the character of students, collecting supporting sources, and validating products by a team of validators, in this case PKM supervisors.

2. Second Stage: Product Trial

Validation that has been validated, then a trial of its use is carried out to PKM participants. The activity aims to enable participants to understand the use of gamification.

3. Third stage: Use of Gamification

After validation and testing its use to students, the next step is the use of gamification in learning. The gamification used is SikMa-based gamification, which is cool to learn Mathematics. At this stage, students and lecturers play the role of facilitators.

4. The fourth stage: The use of SikMa

Based Gamification in tutoring, in this activity, the implementation of learning is carried out by applying gamification, after the implementation of learning, an evaluation is carried out related to the success of the application of gamification in increasing student motivation and independence in learning. Based on the results of the survey using coesioner shows the following results:

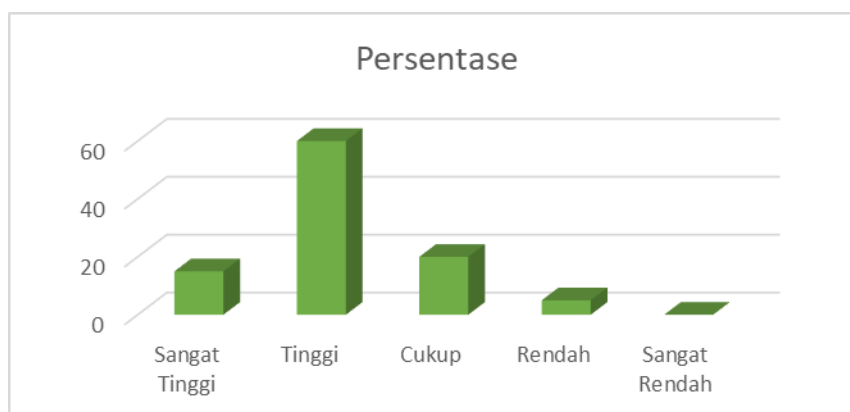


Figure 1. Percentage of Learner Motivation Level

From Figure 1, it can be seen that 60% of students have high motivation in learning after learning using SikMa-based Gamification. The increase in student motivation is due to the intensive interaction between students and teachers as explained by Fadilla and Nurfadhilah (2022) that learning methods with gamification can increase student learning motivation by generating interactions between students and teachers in their implementation. So that the learning method using gamification is an interesting innovation to do, this is in line with what was conveyed by Putri and Asrori (2019) that the use of gamification can build active interaction between students and teachers, as well as students with other students. The results of similar studies also state the same thing, that gamification can increase student learning motivation. Based on research conducted by (Winatha and Setiawan 2020) which shows that the average student learning motivation score increased significantly by 0.55 points and 12.1 points. The research proves that the application of gamification in the learning process can provide positive changes to student learning motivation.

In addition to seeing learning motivation, in this PKM, students also see the learning independence after being given training on the use of gamification in learning. Independence really needs to be developed in learning specifically learning mathematics, because mathematics material is often related to human problems that occur in everyday life. It is not a matter of limited face-to-face learning strategies or online, the character of independence embedded in students can encourage and motivate students to learn on their own without any coercion from anyone (Sundari, Fuadi, and Hidayati 2022)

Indicators of learning independence in this PKM are 1) students have initiative and motivation to learn in themselves; 2) students have a habit of studying learning needs; 3) students are able to monitor, organize and control learning activities; 4) students can set their own goals or learning targets; 5)

students can perceive that learning difficulties are a challenge; 6) students can utilize and search for relevant sources; 7) students can choose and apply learning strategies; 8) evaluate learning processes and outcomes; 9) have self-efficacy/self-concept/self-ability as stated. From the results of observations after Devotion to the Community after the application of Gamification, the following results were obtained:

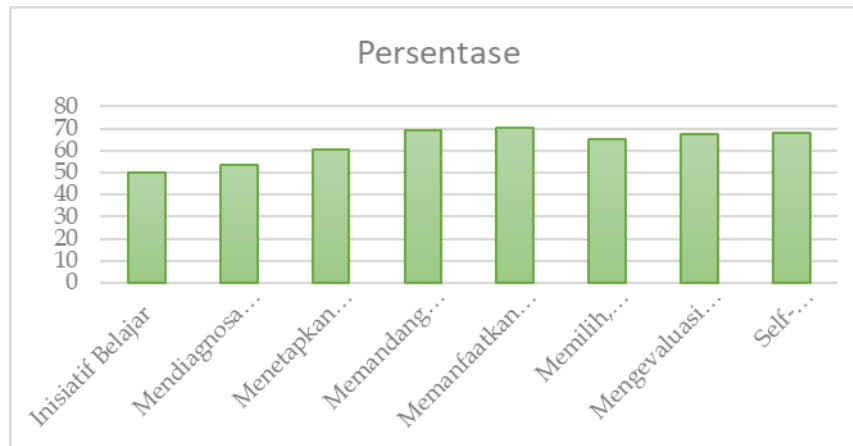


Figure 2. Independence of Learners' Mathematical Learning Attitudes

Based on Figure 2, it can be seen that the average percentage of students' answers on the mathematics learning independence attitude scale questionnaire shows that most PKM participants have learning independence of more than 50%. This attitude of independence in learning is very important for students because learning independence has a high correlation with student success, individuals who have high learning independence tend to learn better (Elda 2015). Another thing that requires students to have an attitude of learning independence is that learning independence is an important aspect in supporting the success of 21st century learning, where learning activities are increasingly student-centered and knowledge can be obtained from various sources that can be accessed via the internet (WWW Brata, C Suriani, H Simatupang, S Siswanto 2020).

CONCLUSIONS AND RECOMMENDATIONS

From the analysis above, it can be concluded that after implementing PKM, it was obtained that more than 60% of students are motivated in learning and more than 50% of them have a good attitude of learning independence.

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