

# IMPLEMENTATION OF GAMIFICATION-BASED MEDIA AND ITS IMPLICATIONS FOR COLLABORATIVE LEARNING IN ELEMENTARY SCHOOLS

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## ABSTRAK

**Abstrak:** Pembelajaran gamifikasi untuk meningkatkan keterlibatan dan motivasi siswa telah banyak dilakukan, namun kajian tentang pengaruh gamifikasi terhadap pembelajaran kolaboratif belum banyak dikaji. Penelitian ini bertujuan untuk mengkaji dan memahami implementasi media berbasis gamifikasi serta implikasinya terhadap pembelajaran kolaboratif siswa kelas IV di SDN 2 Kentengsari. Jenis penelitian ini adalah penelitian kualitatif. Teknik pengumpulan data dilaksanakan melalui observasi, wawancara, dan dokumentasi. Hasil penelitian ini menunjukkan bahwa penggunaan gamifikasi oleh guru memberikan keuntungan dengan kemudahan dalam mengakses konten, terjalinnya interaksi dan komunikasi yang baik dengan siswa, dan peningkatan motivasi, dan hasil belajar siswa. Penggunaan media ini dapat membuat siswa antusias untuk mengikuti pembelajaran dan siswa dapat menyerap materi pembelajaran dengan lebih baik. Dari penelitian ini dapat disimpulkan bahwa penggunaan gamifikasi dalam pembelajaran kolaboratif memberikan banyak manfaat, termasuk peningkatan keterlibatan, motivasi, dan hasil belajar siswa.

**Abstract:** Gamification learning to increase student engagement and motivation has been widely used, but studies on the influence of gamification on collaborative learning have not been widely studied. This study aims to examine and understand the implementation of gamification-based media and its implications for collaborative learning of grade 4 students at SDN 2 Kentengsari. This type of research is qualitative research. Data collection techniques are carried out through observation, interviews, and documentation. The results of this study indicate that the use of gamification by teachers provides benefits such as ease of accessing content, good interaction and communication with students, and increased motivation and student learning outcomes. This media can make students enthusiastic about participating in learning and help them absorb learning materials better. From this study, it can be concluded that gamification in collaborative learning provides many benefits, including increased student engagement, motivation, and learning outcomes.

## A. INTRODUCTION

Technology development in learning presents challenges for implementing learning in the classroom. The generation of students who grew up in the digital era faces learning challenges and technological development. Students accustomed to playing games need a game-based or gamification learning space.

Non-gamification learning has been going on continuously so far at elementary school. If there is no innovation from the teacher in classroom learning, it can cause boredom and a lack of student motivation to learn. A common problem in the

classroom is a lack of student motivation. Teachers must do specific treatments to keep students focused on learning and build this motivation. This is necessary to encourage students to learn enthusiastically to achieve the expected learning outcomes.

In addition to the above problems, in the learning process in the classroom, the issue that often arises is the lack of active participation and interaction from students. Communication in the classroom is only one way and is mainly centered on the teacher. The current learning paradigm should

be a new paradigm of learning that is more centered on students.

Likewise, in class IV of SDN 2 Kentengsari, from observation results in pre-research, It can be seen that students tended to be passive, and the learning that took place was still centered on the teacher (Observation Result). Moreover, from the interview results with the teacher, the teacher said that when the teacher asked whether there were any questions, none of the students asked. Then, when the teacher asked specific questions or gave assessment questions to assess students, it turned out that the results were far from expected or still not good (Interview Result). This cannot be left alone, and teachers need to provide innovation in learning. From what the class IV teacher at SDN 2 Kentengsari did, the teacher finally innovated using gamification-based media through the Wordwall application for classroom learning.

Digital learning through gamification in the current era has become a topic of conversation in education. Moreover, gamified learning aligns with the current Merdeka Curriculum in Indonesia. The presence of the Merdeka Curriculum is a response to the reality of the Industrial Revolution 4.0 and Society 5.0. Gamification can be interpreted as a method or approach that includes game elements in solving problems and aims to increase motivation (Marisa et al., 2020). As an approach to learning, gamification is seen as effective for increasing student engagement and motivation (Rohaila Mohamed Rosly dan Fariza Khalid, 2017).

Previous research on gamification in learning has covered many trends, including product and technology development, psychology and behavior change, community management and social engagement, and education and learning. Research in the field of product and technology development is carried out by Qurotul Aini (2021), Sukran and Huda (2023), and Muhammad Khairul Azman (2023). The results of this study show that learning applications using the gamification method can increase learning motivation and help make the learning process more structured and easier. Research in the field of psychology and behavioral change is conducted by Solviana (2020), Moh. Khoridatul Huda (2023), Taruli (2020), and Ririn Dwi Agustin (2022). The results of this study are that gamification strategies implemented through games

can have implications for changes in certain behavioral patterns carried out by consumers, namely extending time spent and engagement on e-commerce applications. Then, the research in the field of community management and social engagement is conducted by Kharisma Danang Yuangga (2024), Kusuma Emanuel Dewangga (2022), Wicaksono and Subari (2021), Rosina Zahara (2021), also Felita and Hardjono (2022). The results of this study are that gamification can be a solution that helps to increase employee motivation and involvement in every process. Relevant research in the field of education and learning as conducted by Triatmojo and Sukirman (2024), Nurjanah (2024), Sukmawati (2021), also Rohaila Mohamed Rosly and Fariza Khalid (2017). The results of this study show that gamification can increase student motivation, involvement, or interaction and improve student learning outcomes.

Several previous studies show that although most previous researchers have carried out gamification in learning, these studies focus on the effects of gamification on individuals, such as motivation or personal performance. However, the influence of gamification on collaborative learning or group work for students is still lacking in others. No research has been found that is similar to the research conducted by previous researchers. This research is important to study and explore the role of gamification in the context of cooperative and collaborative learning, including its impact on communication, cooperation, and group dynamics among students. The urgency of this research is to be a reference for educators who will use gamification-based media and to know the implications of implementing this gamification-based media.

This study is different from previous studies in terms of both material objects and formal objects. This study has novelty in terms of the context of cooperative and collaborative learning combined with the use of gamification-based media in learning in Elementary Schools, especially in grade IV of SDN 2 Kentengsari. This study is urgent to provide deeper insight into gamification's more effective and adaptive implementation in the context of cooperative and collaborative learning. This study aims to examine and understand the implementation of gamification-based media and its implications for

collaborative learning of grade IV students at SDN 2 Kentengsari.

## B. METHODS

The research was conducted using a qualitative approach. Qualitative research aims to understand the phenomena experienced by research subjects by describing them in words, language, natural contexts, and various natural methods (Sutama, 2019). Qualitative research is used in this study because the researcher wants to understand more deeply about using gamification media in learning. The type of research used in this study is a case study. Case studies are qualitative research carried out comprehensively, intensively, in detail, and in-depth to investigate ongoing phenomena (Nurjanah et al., 2024).

This research was conducted at SD Negeri 2 Kentengsari, especially in class IV. The data sources for this research came from observation, interviews, and documentation. The analysis results are presented as a descriptive description of the implementation of gamification media in learning. Data analysis uses Miles and Huberman's (1992) data analysis technique through 3 stages: data reduction, data presentation, and concluding (Nurjanah et al., 2024). This study uses triangulation to conduct data validity testing. The triangulation used is technical. Researchers use three techniques to test data validity: observation, interviews, and documentation.

## C. FINDINGS AND DISCUSSION

### 1. Implementation of Gamification-based Media in Collaborative Learning

The implementation of gamification-based media includes the form, type, and process of using gamification-based media in collaborative learning in class IV of SD Negeri 2 Kentengsari. The use of gamification media in the class is adjusted to the learning needs, characteristics of students, content or teaching materials, and phases of students.

The learning media used in class is designed according to the teaching module and utilizes gamification media for the learning materials delivered in class. In the planning stage, the teacher prepares a teaching module that is in accordance with gamification-based or

integrated learning. Second, the teacher prepares test questions to evaluate learning.

Furthermore, the teacher carries out learning according to the learning tools that have been designed. In the learning process, the teacher also makes observations of the learning that is carried out. At the end of the learning activity, the teacher and the students conduct a learning reflection to improve future learning or as a step in knowing the achievement of learning outcomes (Fathoni et al., 2023).

The implementation of gamification media in learning in class IV of SD Negeri 2 Kentengsari is based on students' lack of active participation during class learning. Students also tend to be passive in following the learning process. So, the teacher initiated the implementation of gamification-based learning media through Wordwall. This is done to increase student involvement and collaboration in learning in class (Observation Result).

In elementary school learning, gamification can provide an innovative approach for students and provide contextuality to the subject matter being studied. Using gamification media makes learning more interesting and fun and can increase students' intrinsic motivation. It is important to elaborate on and explore this motivation for success in learning. In addition, motivated students will tend to participate more actively, have a spirit of learning, and have a strong desire to explore the material being studied (Mega et al., 2024).

The form of collaborative learning as part of the implementation of gamification-based media combines game elements to encourage cooperation, social interaction, and collective decision-making. Through this method, students collaborate in groups to complete challenges, share ideas, and achieve learning goals that are equipped with gamification elements such as points, leaderboards, and group missions. This approach has been proven to increase student engagement while developing their ability to work together.

There are various forms of gamification-based collaborative learning, such as group discussions designed through challenges, where students solve quizzes or puzzles together as a

team. Competitions between groups using leaderboards can also encourage students to be more motivated to work together. In addition, collaborative game and simulation projects, including role-playing or virtual scenarios, give students the opportunity to solve complex problems while strengthening their teamwork skills (Zheng & Wang, 2023).

The benefits of this approach are obvious, from increasing student motivation and engagement to improving group dynamics. Students can hone social skills, such as communication, collaboration, and respecting peers' opinions. The gamification element also provides immediate feedback, helping students better understand the material. This interactive and fun learning environment significantly increases students' active participation in the learning process (Observation Result).

However, there are a number of challenges, such as differences in student abilities in groups, limited access to technology, and managing group dynamics. To overcome this, teachers must ensure inclusive activities, provide technology training, and distribute roles in groups proportionally. With careful preparation, gamification-based collaborative learning can be an effective method to improve the quality of student education.

Gamification design strongly supports collaborative learning theory because both emphasize social interaction and cooperation in the learning process. Elements such as points, leaderboards, and challenges are designed to create an interactive and engaging learning environment, thereby increasing student motivation and engagement (Fonseca et al., 2023; Sailer & Sailer, 2021). In the context of collaborative learning, gamification provides scenarios in which students work together to achieve a common goal by the core principles of collaborative learning theory (C. Challco et al., 2015; Uz Bilgin & Gul, 2020).

Gamification components, such as points, leaderboards, and challenges, significantly motivate students. Points and leaderboards provide immediate feedback and foster a healthy competitive spirit, while challenges encourage students to think critically and creatively (Sailer

& Sailer, 2021; Saleem et al., 2022; Zheng & Wang, 2023). This combination of elements increases active participation and makes the learning process more interesting for students (Zheng & Wang, 2023).

## **2. Application of Gamification Media in Collaborative Learning at SD Negeri 2 Kentongsari**

The gamification-based media applications used by teachers in conducting learning in class IV of SD Negeri 2 Kentongsari use several applications such as Wordwall. Wordwall is a versatile educational tool that combines game elements such as quizzes, puzzles, and anagrams to enhance learning and is highly interactive and engaging for students (Rahmawati & Wijayanti, 2022). Wordwall is also included in interactive learning media with easy quiz creation, making it a versatile tool in the learning process (Fitria, 2023).

Wordwall media has become popular since 2022, when learning was still in the pandemic period. This Wordwall media can be used online and offline and is still used in the educational realm today. Until now, there have been additions and updates to features in Wordwall, making Wordwall more varied in its use. The use of this Wordwall is intended to make learning more interactive and also to build a collaborative learning climate. This is reflected in the activities or learning activities that students do with a collaborative space between students during the implementation of learning. When implementing learning using Wordwall gamification-based media, the teacher acts as a facilitator in learning.

This Wordwall application is beneficial for teachers. This application is easy to get and easy to make at no cost. Teachers can access this application for free. This Wordwall application has an attractive appearance and is easy to make, making teachers very helped by this application. During the use of this application, students are very interested in learning. They are enthusiastic to follow the learning delivered by the teacher (Interview Result).

There are several stages in the preparation of gamification-based learning media. The teacher prepares a plan in the first stage through a

teaching module. The teaching module prepared by the teacher is adjusted to the characteristics of the students. So that learning in the classroom can be in the best interests of the students. The teacher also prepares gamification media at this stage through the Wordwall application. The teacher creates and searches for teaching materials based on the material. Then, the teacher creates learning content using the Wordwall application. The teacher adjusts it to quizzes, matching, random words, grouping words, mazes/puzzles, and wheels of fortune. The second stage is the stage of implementing learning with Wordwall media. At this stage of implementing learning, the teacher opens the Wordwall link and displays it on the screen in the classroom. From this learning activity using Wordwall, students play while learning by doing quizzes through the Wordwall application. Students are motivated to achieve the highest rank and complete each level of the game in Wordwall (Interview Result).

From the use of this Wordwall application, many students have just found out that there is a Wordwall application that can be used as a learning medium in the classroom. By using this Wordwall, it turns out that there is no need to install any applications on a laptop or cellphone. Learning activities through gamification can also be carried out by teachers as individual assignments or collaboratively or in groups. Thus, the connectivity and interaction that occurs can be said to be very varied.

The implementation of this media is carried out by teachers during class learning by displaying the Wordwall site. From this activity, students appear motivated to occupy the highest ranking in their scores. Students have interactive responses to both teachers and other students. So this gives meaning to learning that can take place interactively and enjoyably.

The competitive element of Wordwall can increase student engagement. In addition, multiplayer, offline, and printable features allow for flexible learning, meaning it can be done individually (independently) and in groups (Nurjanah et al., 2024).

From the observation results and observations of students, there are several

student perceptions of gamification-based media: 1) Students feel happy when learning using gamification-based media with the Wordwall application. 2) Gamification media makes lessons more varied and more interesting. 3) Gamification media helps students understand the subject matter more easily. 4) Students become more active in participating in learning using gamification media through the Wordwall application (Observation Result).

In line with the above, the teacher revealed that using this media greatly affects students' learning motivation. This application is like a game, and the teacher understands that most elementary school children like to play. When the teacher provides content with this application, the students seem happy (Interview Result).

The use of this Wordwall media also affects students' understanding. Students are happier in learning so they can absorb learning materials better. In addition, content with this Wordwall can also be given repeatedly to students through the class Whatsapp Group so that children can play again in their spare time (Interview Result).

### **3. Implications of Using Gamification Media in Collaborative Learning**

The use of gamification media in classroom learning has the following impacts: 1) Students are more motivated to learn after using gamification media through the Wordwall application. This can be seen from the desire of students to ask the teacher to use Wordwall again during the next meeting or learning activity. 2) Gamification media helps students achieve better learning outcomes. Students, when teachers carry out summative assessments, show better learning outcomes than with non-gamification learning media. 3) Students become more confident in understanding the subject matter. The collaborative learning experience that students gain during the learning process in class can make them more confident in overcoming problems or questions related to the material that has been studied. 4) Students become more motivated to complete the tasks given. The application of collaborative learning in the classroom emphasizes active and

collaborative participation among students, so that students can be motivated to complete the tasks given. 5) Students experience an increase in grades after using gamification media in learning. Based on the results of the summative assessment carried out by the teacher, there is an increase in student learning outcomes after using gamification-based learning media through the Wordwall application (Interview Result).

Gamification implemented in learning can increase student involvement in group discussions. With the presence of game elements, students become more motivated to discuss and work together with their peers in completing tasks (Fonseca et al., 2023). Furthermore, research results from Sailer (2021) and Zheng (2023) show that students in gamified learning environments are more motivated and show improved learning outcomes compared to students in conventional learning environments (Sailer & Sailer, 2021; Zheng & Wang, 2023).

Gamification positively changes student interaction patterns, encouraging learners to share information and help each other achieve common goals (Saleem et al., 2022). Elements such as challenges and leaderboards enhance group dynamics by strengthening communication and collaboration, thereby creating closer bonds among group members (C. Chalco et al., 2015).

The comparison of the use of non-gamification media with those using gamification media can be seen from the atmosphere and interactions during student learning in class. When the learning process uses this Wordwall gamification media, students appear enthusiastic and actively participate in following the instructions given by the teacher. Students become more confident and want to try using the Wordwall application displayed by the teacher on the screen. Collaboratively, students solve problems through assignments from student worksheets given by the teacher.

When using gamification-based learning media through this Wordwall application, student interaction with other students during the use of this media takes place actively, interactively, and collaboratively. This shows that in learning, there is cooperation between

students. Collaboratively, students can improve their learning outcomes in achieving learning outcomes and learning objectives (Observation Result).

In line with this, the teacher said the interaction between students and teachers during classroom learning through Wordwall media can be established very well. Providing content through the Wordwall application creates pleasant and intense two-way communication. Teachers can provide direct appreciation to students. Likewise, fellow students show appreciation to each other if the answer is correct and continue to provide motivation when other friends still do not answer correctly (Interview Result).

Furthermore, the teacher revealed that using this media has changed the learning outcomes. Because the values obtained have increased well, students can quickly answer questions given by the teacher and get good results (Interview Result). Thus, it can be concluded that the use of Wordwall gamification media can improve student learning outcomes and is effective for students in absorbing the material presented during the learning process.

Besides improving learning outcomes, gamification also helps build social values such as mutual respect, cooperation, and empathy (Rivera & Garden, 2021). By creating a fun learning atmosphere, students learn to appreciate the contribution of each group member and work together effectively to achieve team goals (Uz Bilgin & Gul, 2020).

The development of effective gamification media at the elementary education level must consider the needs and characteristics of students. Simple elements such as points, badges, and challenges that are tailored to the developmental stage of students can be used to increase engagement (Rivera & Garden, 2021). In addition, gamification media needs to be easy to integrate into the curriculum and support the achievement of learning objectives (C. Chalco et al., 2015).

Teachers have an important role in facilitating gamification-based learning. They can create activities that encourage student collaboration and active participation, such as

using leaderboards, providing team challenges, and providing constructive feedback (Sailer & Sailer, 2021). It is also important for teachers to create an inclusive learning environment where every student feels valued and motivated to participate (Rivera & Garden, 2021).

#### 4. CONCLUSION AND SUGGESTION

Using gamification in collaborative learning provides many benefits, including increased student engagement, motivation, and learning outcomes. Student engagement can be seen by using gamification elements such as points, challenges, and leaderboards that can encourage cooperation and build important social values for students. Using gamification-based media through the Wordwall application can effectively increase student learning motivation during the learning process in the classroom. Then when formative and summative assessments, there is an increase in student learning outcomes. Teachers must design strategies that suit students' needs and create a supportive learning environment to maximize its benefits.

Suggestions for further research include studying the adaptation of gamification for students with special needs, assessing the long-term impact of its implementation, and developing a new theoretical framework that combines the principles of gamification and collaborative learning to create more effective and inclusive learning designs.

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