

## APPLICATION OF THE QUIZIZZ EDUCATIONAL GAME TO MATH LEARNING OUTCOMES

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### ABSTRACT

This article is inspired by teachers' creative use of the educational game Quizizz to enhance student learning outcomes. It aims to gain thorough knowledge of how the cutting-edge educational game Quizizz affects mathematics learning outcomes for fifth-grade students. The study was conducted during semester 2 of January–July 2022 at SD Negeri Jatiasih X Bekasi. This descriptive qualitative research employed observational data, interviews, and documentation. Six interview subjects and all fifth graders participated in the study. The findings suggest that using Quizizz educational games improves learning outcomes, as evidenced by a significant 4.29% increase in student learning motivation and results. Thus, it can be inferred that Quizizz has the potential to enhance student learning outcomes. Future researchers and stakeholders, including school administrators, instructors, parents, and students, are expected to benefit from this study.

**Keywords:** Math Learning, Quizizz Educational Game, Learning Outcome

### INTRODUCTION

Science-related technological developments are fueling a growing number of innovation and technology projects post-industrial revolution. Version 4.0 aims to address the challenges that have emerged during the ongoing industrial revolution. The presence of online learning policies during the Covid-19 era spurred system renewal throughout the education sector, including the transformation of learning media. People require new information and abilities to handle their daily lives because the world is always changing, claim Lenher & Wurzenberger in Rafika (2020:18). The need for better instruction that focuses on problem-solving, communication, reasoning abilities, knowledge, and attitudes as outcome measures of what pupils have learned is highlighted by recent

developments in education. As a result, learning outcomes might be described as the knowledge and abilities that an individual

According to Zulfitria (2020: 2), parents are involved in their children's education at home. However, online learning from home also has drawbacks that hinder its effectiveness in supporting children's learning. These limitations include insufficient information and parents who are often busy and occasionally inconsistent or late, which can make them feel less effective in nurturing their children. Therefore, we urge parents to prioritize their children's academic development more deliberately.

It is undoubtedly expected that students would achieve positive learning results in every learning activity. Yet, it was discovered that student learning outcomes were not always positive and what was predicted based on observations made through surveys of online learning activities. KKM has been established as a benchmark for the success of the learning process and is used to determine whether the learning results are up to par. In the learning process, this should be of concern and serve as evaluation material. One of the issues in education is the poor learning results of students.

The outcomes of classroom observations yielded very intriguing findings regarding the approach to these challenges. Educators demonstrated significant creativity in utilizing the educational game Quizizz to improve student learning outcomes. According to Sanga in the educational journal article "Increasing Student Learning Concentration Through Utilizing Quizizz Learning Evaluation" (2019: 48), using Quizizz as a learning tool is integrated into the teacher-student learning dynamics, treating this media on par with other components of the learning system. The Quizizz program facilitates the creation and enhancement of interactive multimedia learning patterns.

In addition to serving as a learning environment and a tool for monitoring student progress, the Quizizz software has benefits. As an example, statistics and statistical computations of student performance can reveal the degree of subject understanding, and the results are then utilized as a standard for assessing overall learning. According to Hofstetter in Suyanto (2020: 11), multimedia in the context of computers involves using computers to create and integrate text, graphics, audio, and video, employing tools that enable interaction, creation, and communication. Through observations in the school environment, it is evident that teachers have innovated by integrating the educational game Quizizz. This integration has gradually but significantly enhanced student learning outcomes.

The arguments concerning pedagogical innovation are included in QS. al-Ra'd(13): 11 of the Journal of Education, Vol. 18 (1) (2020)

إِنَّ اللَّهَ لَا يُغَيِّرُ مَا بِقَوْمٍ حَتَّىٰ يُغَيِّرُوا مَا بِأَنْفُسِهِمْ لَهُدً

Indeed, Allah does not alter the circumstances of a people until they alter the circumstances that already exist inside them (QS. Al-Ra'd: 11).

This information will be used to further explore the "Application of the Quizizz Educational Game on Mathematics Learning Outcomes in Class V SD." Thus, the goal of this study is to get a thorough understanding of how Quizizz's innovative educational games impact learning outcomes, particularly in fifth-grade elementary school mathematics learning.

## A. LITERATURE REVIEW

### 1. The Nature of Mathematics

According to Russefendi in Danang (2016: 11), the Latin word "mathematic," which originally derives from the Greek verb "mathematike," meaning "to learn," is the origin of the word "mathematics." The term stems from "Mathema," Greek for "knowledge" or "science." Etymologically, mathematics is defined as the science that studies reasoning rather than focusing primarily on experimental findings or observations. It is the human mind's connection to concepts, processes, and reasoning that underpins mathematics. In terms of structure, as James asserts in Septu (2017: 41), order, magnitude, and concepts are interconnected within mathematics as it is the science of logic. Mathematics is traditionally divided into three main branches: algebra, analysis, and geometry. However, some perspectives categorize mathematics into four subfields: algebra, geometry, analysis, and arithmetic, with the latter encompassing number theory and statistics.

According to Rahman (2020: 38), the expected mathematical skills and proficiency can be achieved in learning. It can be seen that these objectives contain a number of values that can guide the classification of mathematics learning objectives are:

- 1) Formal Objectives: Formal objectives emphasize more on structuring reasoning and developing personality (personal mathematics)
- 2) Material objectives: The thing to note is the fact that so far teachers have focused more on the purpose of the material in the classroom, including environmental requirements that are heavily influenced by regional or national systems.

As a result, many people now believe that mathematics is only driven by cognitive goals. While formal goals are considered to be achieved by themselves Hakikat

## 2. Learning Outcomes

Learning outcomes are the abilities that have been possessed by students after carrying out the learning process. In connection with this statement, Nasution in Firdaus (2018: 89), argues that learning outcomes are an indicator of the quality and knowledge possessed by students. Abdullah argues that learning outcomes are an indicator of the quality of knowledge mastered by children after following the teaching and learning process at a certain interval. High and low learning outcomes can be used as an indicator of the amount of knowledge that students have or master in certain fields of study. Slameto in Septu (2017: 99) stated that there are two factors that affect student learning outcomes, namely factors that come from within students (internal) and factors that come from outside students (external). Internal factors include:

- 1) Physical factors derived from the physical condition of students, including: physical health, good nervous system, good hearing and so on.
- 2) Psychological factors are factors derived from children's psychiatric conditions which include: intelligence, attention, interest, talent, concentration, motivation, and so on.

The external factors that affect learning results include:

- 1) Adequate learning facilities such as stationery, learning media, and so on.
- 2) Learning time, namely regularity and discipline in learning.

The indicators according to Shah (2019: 98) are as follows:

- 1) Cognitive (realm of creation) which includes; Observations with indicators can show, compare, and relate memories
- 2) Affective (the realm of taste) includes; Acceptance with indicators can show.
- 3) psychomotor attitudes (karsa domain) include; skills, moving and acting with indicators of ability to coordinate the movement of all limbs.

## 3. Quizizz Educational Games

According to Rafika (2021:45) a game-based educational program called Quizizz offers several game modes and makes interactive exercises entertaining. Students can use electronic devices such as computers and mobile phones at home to submit the Quizizz application. Unlike other game media, educational games on Quizizz contain theme characters, memes, avatars, and music that can entertain players while they are learning. The Quizizz program also allows competition between classes, which motivates students to participate more actively in their education and complete exercises and quizzes in pursuit of high quiz scores. According to Solikah (2019: 60), the Quizizz application for learning media has several advantages and disadvantages. The following are some of the benefits of the Quizizz app:

- 1) More personal. For example, in order for students to access the questions the teacher has shared, the teacher must give them a six-digit code.

- 2) Can be used as homework for students; There are restrictions on how to complete the tests made by the teacher. Two weeks is the maximum processing period.
- 3) Students can't lie. Due to the random nature of the questions, students cannot collude to cheat. Students receive rewards after completing the questions.
- 4) With appropriate responses to the questions they have worked on, students can learn the topic of the problem.
- 5) There will be a review question displayed at the end of the quiz so that students can review the answers students choose.

According to Zulfitria (2020: 6) The positive thing about technology products is that students like them. Students easily get to know and operate technological equipment. The internet for learning can function as a learning resource that contains data and facts for learning references. The data and facts can always be updated, so they do not get stale easily, but can also be displayed repeatedly without significant additional costs. This is in contrast to printed data, and conventional laboratory experiments. Therefore, the internet is better able to satisfy students' curiosity.

In addition to having advantages, the Quizizz application also has disadvantages. The following are some of the disadvantages of the Quizizz app:

- 1) Since the amount of time it takes to process questions has an impact on results,
- 2) there has been a decrease in rewards Requires a strong internet connection to prevent disconnections that can slow down operations.

## **METHOD**

This study used a type of descriptive qualitative research. This research approach is a case study. Case Study Research consists of four main stages, Case Selection, Data Collection, Refinement and Report Writing. Data accuracy is obtained through 2 data sources, namely primary and secondary data. The data collection techniques used in this study used environmental observation, participatory observation openly (overt) and structured observation with instruments to collect data, namely interviews and documentation. Data analysis methods used using the miles & Huberman scheme include data analysis, data reduction, data presentation, and conclusion drawing or verification. . The main research subjects studied include all grade V students of SD Negeri Jatiasih X Bekasi consisting of grade V A levels for the 2021/2022 school year and respondents who provide information about the desired data related to the research conducted through in-depth interviews with the in-depth interview method with 6 resource persons including 2 teachers, 2 parents or guardians of students and with special consideration of 2 VA class students, each of whom is male and women.

Qualitative research is research that aims to obtain a comprehensive understanding of the phenomena experienced by the subject and describe them. Based on these statements, this qualitative research contains data quotations to illustrate a picture of presentation for the report. The data can come from interview scripts, observations and documentation. The reason why researchers choose to use descriptive qualitative methods is because this method is in accordance with the problems posed by researchers, this method makes it easier for researchers to get in-depth information with the subjects to be studied, this method can help present descriptive data that researchers want to find and that researchers want to develop.

## **FINDINGS AND DISCUSSION**

Based on the observation of the school environment, information was obtained that SD Negeri Jatiasih X Bekasi is a school that has a noble vision and mission and has been accredited A, with educators who are experts in their respective fields. Complete facilities and infrastructure so that they fully meet the feasibility standards in facilitating learning that takes place in schools. Researchers also carry out active participatory observation by paying attention to social behaviors, student attitudes, student interests and student discipline. So that it can be obtained in class V at SD Negeri Jatiasih X, students' social behavior is very good, there is no discrimination or bullying, and they are able to socialize well. The attitude of students when learning online and offline seems enthusiastic in learning. Student interest in offline learning is also very visible.

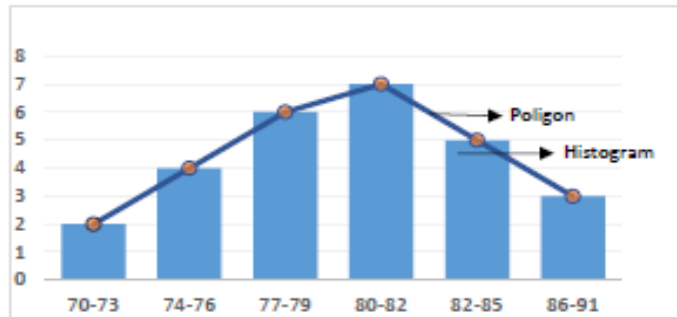
Based on random interviews with class teachers during online classes, class teachers said that quizizz game material will be discussed during offline classes. So that students are more motivated to follow the learning so that they are able to apply the knowledge they get in the quizizz educational game. So that the level of student discipline also increases, because students are motivated, students are able to do homework and schoolwork on time.

Based on structured observations about the effectiveness of quizizz educational game media by paying attention to indicators of cost, inventory, fit, conciseness of time and influence. So that the results were obtained that the quizizz educational game was considered very effective for student learning because it was considered able to increase student interest, motivation and learning outcomes. In addition to learning activities, researchers also observed an increase in mathematics learning outcomes in the cognitive realm through recaps of learning outcomes.

By analyzing and presenting a comparison of report cards before the implementation of the quizizz educational game and after the implementation of the quizizz educational game. So that the average score data of learning outcomes before using the quizizz educational game is 79.7 when compared to the ideal score, a percentage of 53.13% is obtained. So it

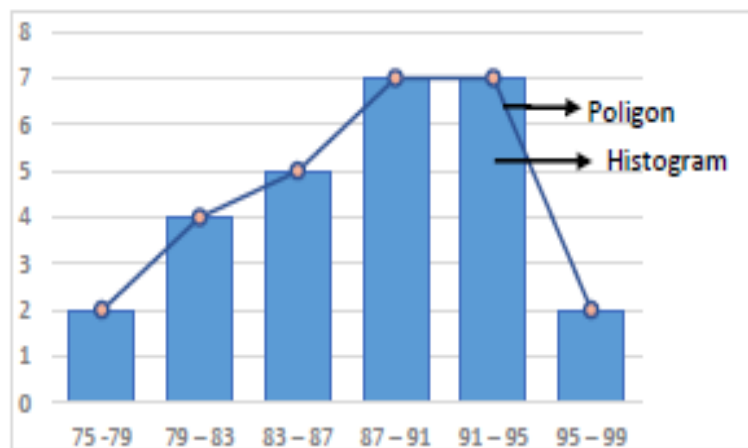
is quite good. Here's a polygon diagram and data histogram before applying the quizizz educational game.

Figure 1:  
Histogram and Polygon images before applying Quizizz



After using the quizizz educational game, student learning outcomes increased significantly, the average score of learning outcomes in student report cards was 86.14 when compared to the ideal score, a percentage of 60.3% was obtained which was classified as good. Here's a polygon diagram and data histogram after applying the quizizz educational game

Figure 2:  
Histogram and Polygon Images After Quizizz



Based on the observations above, data were obtained that assessments on cognitive aspects are easier to measure / assess than the other two aspects. Applications used by teachers in carrying out cognitive assessment online include whatsapp, zoom meetings and quizizz educational games. The quizizz educational game application features Online Assignments, Online Learning, PTS (Midterm Assessment), TAS (End of Semester Test), and attendance that can be used to support the implementation of assessments. In addition to cognitive data, researchers also observe the psychomotor and affective domains of students From

structured observation data in the psychomotor realm, it was found that teachers carried out psychomotor assessments even though they were not entirely carried out online.

This is because teachers have not found the right media and methods to carry out online skill assessments. Therefore, teachers change the assessment to offline on a scheduled basis using applicable health protocols. A number of students are scheduled to come to the school to carry out the assessment. Class V teachers are already aware of the importance of skill assessments to be carried out. This is in line with what Nurhidayah (2020: 115) said that the skill aspect is very important because it will determine the absorption of learning in the real world, so skill assessments must always be carried out. As for the application used For the implementation of online skill assessments at SDN Jatiasih X Bekasi are quizizz games, whatsapp, zoom meeting and email. Of the several applications used, teachers predominantly use quizizz games and whatsapp to conduct psychomotor assessments online. Performance practice tests and project assessments are forms and assessment techniques that teachers often use in online and offline skill assessments. Meanwhile, in the affective realm assessment, grade V teachers of SDN Jatiasih X Bekasi already understand the importance of attitude assessment, where this assessment is usually carried out asynchronously.

However, even when learning synchronously, teachers also assess student attitudes as seen from student attendance, student activity, student assignment collection, student enthusiasm in answering questions from the teacher, how to express opinions, how to respect the opinions of friends, and supported by student work attitudes when brought to school on psychomotor assessments.

From the results above, it was found that grade V teachers of SDN Jatiasih X had carried out all three aspects of learning assessment even though it was still carried out in a hybrid manner (online and offline). A thorough assessment of both cognitive, affective, and psychomotor aspects is very necessary because all three are equally important and contribute to providing a thorough and complete learning experience to students. In addition to observation, researchers also conducted interviews to obtain accurate information. The interview was conducted using the in-depth interview method with 6 speakers who have been determined with certain conditions. In accordance with the predetermined focus of the problem.

So that the results of interviews that have been conducted in this study found that quizizz educational game media is considered influential and provides significant results to improve learning outcomes. So that teachers feel satisfied with the achievement of learning objectives, parents feel proud and happy with the development of children's results and students feel motivated and challenged to continue to develop mathematics learning outcomes. Teachers also work with parents to maximize student learning and always try to fix obstacles in online and offline learning.



## CONCLUSION

After conducting research at Jatiasih X Bekasi State Elementary School, researchers can conclude about the role of quizizz educational games on student mathematics learning outcomes. The quizizz educational game is considered true to be able to develop student learning outcomes in both cognitive, affective and psychomotor aspects. The effectiveness of the quizizz educational game media has also received approval with 6 main indicators and the most important thing is that it can be used by students and increase learning comfort. The results of interviews that have been conducted in this study obtained that educational media quizizz educational games provide significant results. Mathematics is an exact science and needs deep reasoning in online learning mathematics can still be developed with various special learning strategies. In quizizz educational games to improve mathematics learning, teachers have applied cognitive foundations seen through the results of report cards obtained by students increased by 4.29% and affective aspects can be seen from social attitudes, interests and student motivation when learning online and offline. Psychomotor aspects require more in-depth treatment with the application of offline classes. With quizizz educational game media, these three aspects can develop and provide quality results. The role of educators is very important for the development of student learning outcomes through teacher innovation to solve the problem of declining student learning outcomes, students lack discipline due to online learning, student interest in schools is reduced it all happened during the COVID-19 pandemic where all school residents were still feeling system updates.

However, with the innovation of the quizizz educational game, researchers found facts based on observations, interviews, and documentation showing that the game media was able to improve the mathematics learning outcomes of grade V students at SDN Jatiasih X Bekasi.

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