ANALYSIS OF THE NEED FOR DIGITAL GAME-BASED LKPD TO IMPROVE PRIMARY SCHOOL STUDENTS' CRITICAL REASONING ABILITY

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Abstract.
The purpose of this article is to determine the level of need for using game-based digital LKPD in improving critical reasoning skills. The method used is descriptive qualitative. Data collection techniques used questionnaires and interviews. The data analysis technique uses descriptive through interview activities and quantitative based on the percentage of questionnaire distribution results via Google Forms. The results of the initial needs analysis of students regarding the need for game-based digital LKPD are (53.5%) of students strongly agree in using Wordwall media, (46.5%) of students agree with using Wordwall media, (0%) students do not agree in using media Wordwall, (0%) of Students show a high level of disapproval of the use of Wordwall media. However, in thematic learning using Wordwall media, its effectiveness can be seen from the majority of students who strongly agree or agree, reaching 98.2%. This is compared to the minority of students who disagree or strongly disagree, which is only 1.8%. and it was found that 85.3% of students were able to complete the evaluation of KKM questions and 14.7% still needed to receive special guidance from educators. From the results of this analysis, the need for game-based digital LKPD is very effective in learning activities to improve elementary school students' critical reasoning abilities.

Keywords * : *digital LKPD, critical reasoning, elementary school students.*

INTRODUCTION

Education aims to improve the development of abilities, both physically (technical abilities) and more flexible skills (interpersonal skills). In the current era of globalization, the aim of education in Indonesia is to prepare the nation's next generation who have the ability to live as individuals with character. The profile of Pancasila students is that they have noble character, global diversity, independence, mutual cooperation, critical reasoning and creativity and are able to contribute to society's life. Apart from that, curriculum development is expected to complement pedagogical abilities, life skills, collaboration abilities, critical thinking and creativity (Lase, 2019). The role of educators is the main key to sharpening students' skills in solving problems in a creative and innovative way and having effective communication skills. Students need to develop skills that will be a provision in the future to find solutions. This is closely related to high-level thinking abilities, namely the ability to relate, manipulate and transform existing knowledge and experience in order to think critically and innovatively in making decisions (Palupi Putri,

2018). Based on the researcher's opinion above, it can be concluded that students must have critical reasoning skills to be equipped to face the various kinds of problems they will face today. This cannot be separated from the collaboration of educators to provide the best innovation in improving students' critical reasoning abilities.

Learning innovations developed by educators are the key to making learning activities very enjoyable. Fun learning activities can make students active in learning activities. According to Minister of Education and Culture Regulation number 103 of 2014, 21st century learning emphasizes the need for a learning approach that focuses on students. However, in reality, the learning process still tends to be more focused on the role of the teacher, which results in many students becoming less active and participatory (Dalimunte et al., 2018). Students tend to lose motivation to learn, feel burdened with boredom during the learning process, and experience difficulty in understanding the concepts of material taught by the teacher (Apreasta et al., 2019). This results in students' critical reasoning abilities tending to decline. Therefore, teaching materials are needed that can create an interactive atmosphere in learning activities so that students become active thinkers in the learning process. One innovation that can be carried out by educators to improve students' critical reasoning abilities is by providing digital-based LKPD in learning activities.

The use of digital-based LKPD can make it easier for students to understand a concept of learning material and improve students' critical reasoning abilities. This is in line with the opinion of (Apreasta et al., 2019) stating that E-LKPD has the potential to expand students' conceptual knowledge as long as it is presented by teachers who are able to organize learning activities that maximize direct experience and encourage active thinking. (Tukan et al., 2020) said that E-LKPD is interactive teaching materials packaged using multimedia-based learning media with certain characteristics to support the process of achieving student competencies. However, there are several obstacles because not all teachers can immediately carry out the learning adaptation process using technology (Suryaningsih & Nurlita, 2021). Referring to the problem of educators who have not implemented digital-based learning innovations and this causes the level of critical reasoning abilities of elementary school students to remain low. The aim of this research is to determine the extent to which students need digital-based LKPD to improve critical reasoning skills.

The LKPD has been updated to involve a web platform based on online educational games, especially the Wordwall quiz type game. According to (Apreasta et al., 2019),

Wordwall is a web platform that offers a technological approach to learning materials or as an interesting assessment tool for students during the learning process. Although several types of games on this platform are paid, in general the Wordwall educational game can be accessed for free (Sun'iyah, 2020). This platform has eighteen types of games, and in this study the focus is on the quiz type. It is hoped that the use of this quiz type Wordwall educational game in 21st century LKPD can spark interest, enthusiasm and improve students' creative thinking skills. The strategy for implementing LKPD questions which is implemented through the quiz type Wordwall educational game aims to form students' concepts and mindset towards learning material that is relevant to everyday life, thus making the learning process easier for students. The use of creative thinking skills in this LKPD is focused on the use of the Wordwall educational game as part of thematic learning.

Students can develop critical reasoning skills through learning activities in the form of digital Student Worksheets (LKPD). Teachers are given the authority to design and develop their own LKPD, both conventional and digital. The LKPD in question is printed teaching material in tabular form which contains implementation materials, summaries and descriptions of learning tasks that students must complete according to Ariani in (Putu & Arimbawa, 2021). The development of LKPD underwent reform along with the digitalization of learning in schools, starting with the introduction of online platforms based on educational games which occurred starting in 2000.

The digital LKPD via the Wordwall-based online platform used in this research is a quiz type, namely by providing multiple choice or short answer questions. In multiple choice, students are asked to choose the correct answer with , while in short answer students simply provide an answer to the question using just 2 words or 2 phrases. The steps for this wordwall game based LKPD are: 1). The teacher gives participants a link or access code to access the quiz, 2). students start to open the quiz link, 3). students read instructions on how to answer questions from the quiz, 4). Students begin to answer quiz questions, according to instructions, 5). Students answer all questions to completion by paying attention to the allotted time. 6). Then, after completion, the score can be immediately seen, to see how well the students have achieved in answering questions correctly or not, then the results of this quiz are shared or discussed together for further learning.

The aim of this research is to determine the level of need for using game-based digital LKPD in improving critical reasoning skills. Researchers use the Wordwall application when implementing game-based digital LKPD, which is expected to build concepts of

understanding of learning material so that students' critical reasoning abilities can be well honed. Researchers carried out an analysis of the need for game-based digital LKPD on thematic lesson content in class III elementary school material.

RESEARCH METHODS
Place and time of research

The research location was carried out at the Kalibanteng Kulon 02 State Elementary School, Jalan Lebdosari VIII no. 1 Semarang City, Central Java. The research subjects studied were grade 3 students for the 2023/2024 academic year. The research object studied was the need to use digital-based LKPD assisted by the Wordwall application in thematic learning activities regarding material in the form of objects.

The method used is descriptive qualitative. Descriptive statistical design according to Sugiyono in (Purnamasari et al., 2022) reveals that data analysis is a method that includes ways of describing or illustrating the data that has been collected to reach general conclusions or generalizations. This approach is used to summarize research findings and provide answers to problems related to the description of each aspect. In this method, the collected data is processed to provide an accurate description through the use of tables or other visualizations. The data collection technique uses questionnaires via Google Form and interviews conducted by researchers at SDN Kalibanteng Kulon 02, Semarang City. The subjects in this research were students at SDN Kalibanteng Kulon 02. The research subjects filled out instruments based on the situation and facts that were happening. Sutrisno et al in (Purnamasari et al., 2022) reveal that data collection can occur in various environments, from various sources, and through different methods. This confirms that the process of collecting varied data, adapted to the context of the subject concerned, requires direct observation to strengthen the results of the analysis related to initial needs.

Data collection using a questionnaire is a technique where a number of questions are prepared by researchers and submitted in writing to respondents to be answered. These questionnaires often contain closed-ended questions, allowing respondents to provide quick answers, as well as making data analysis easier for researchers by compiling the results of all collected questionnaires. In this context, a questionnaire was used to explore students' responses to the use of Wordwall media in the final activity. The contents are in the form of statements that will be evaluated by students based on their experience in using Wordwall media. The following is a guide to constructing a questionnaire that leads to an initial needs

analysis.

Table. 1. Score scale

No	Alternative Answers	Score (+)	Score (-)
1	Strongly agree	4	1
2	Agree	3	2
3	Disagree	2	3
4	Strongly disagree	1	4

Sumber: Sulistyaningsih, Metodologi Penelitian Kebinanan: Kuantitatif-Kualitatif, (Yogyakarta: Graha Ilmu, 2011), hlm 127

Table 2. Questionnaire Instrument via Google Forms

No.	Question	Answer				Information
		ST	S	TS	STS	
1.	Are you happy with learning using *Wordwall* media?					
2.	I didn't face any problem while working on the questions using the Wordwall platform.					
3.	I feel happy when I participate in answering questions using Wordwall because it helps me increase my knowledge.					
4.	I am enthusiastic about working on questions using Wordwall media					
5.	The Wordwall platform helps me solve questions correctly.					

6.	Using the Wordwall platform is very interesting when solving problems.					
7.	The Wordwall platform makes it easier for me to solve questions.					
8.	Wordwall helps me solve problems more easily.					
9.	I really like the design of each question on Wordwall.					
10.	I can solve questions quickly using the Wordwall platform.					

his research questionnaire uses a score scale from 1 to 4, where 4 is the highest score and 1 is the lowest score. By referring to this information, it is known that the highest total score is 40 (4 x 10) and the lowest total score is 10 (1 x 10). To determine the interval for each level, you can use the following formula.

$$\text{Jarak interval} = \frac{skor\ tertinggi - skor\ terendah}{jumlah\ kelas\ interval}$$

From the formula to find the existing interval distance, the following calculation can be used:

$$\text{Jarak interval} = \frac{40 - 10}{4}$$
$$= 3$$

From the calculation to find the interval distance above, it can be grouped into the following categories:

Table. 3 Categories of Student Responses

Student Scores	Category	Ket.
31- 40	Strongly agree	Very effective
21- 30	Agree	effective
11- 20	Disagree	Less effective
10	Strongly disagree	Ineffective

The following is a grid of initial needs analysis questionnaire guidelines and interview guidelines.

Table 4. Interview questionnaire guidelines

No.	Observed Aspects	Question
1	Success in achieving the goal of using Wordwall at the end of the activity.	Can using Wordwall help you in your learning process?
2	The level of student interest in using Wordwall at the end of the activity.	Does using Wordwall increase your enthusiasm when working on questions? Do you enjoy learning math more with Wordwall?
3	Respon siswa terhadap penggunaan Wordwall pada bagian akhir kegiatan.	Student responses to the use of Wordwall at the end of the activity.

Interviews aim to obtain accurate responses from sources in order to strengthen the data obtained from questionnaires. From the results of this interview, descriptive analysis can be carried out based on the answers submitted by students as resource persons. Descriptive analysis of data from interviews is used to process information originating from the learning process which is the focus of the research.

Miles and Huberman (1984), stated that in qualitative data analysis, activities are carried out dynamically and continuously until all data has been fully explored so that it reaches the saturation stage (Sugiyono, 2012) in (Novita Sari & Listiadi, 2023)

The data analysis steps in this research follow the Miles and Huberman model approach, which includes: (1) data collection; (2) data shrinkage; (3) data presentation (data display); (4) verification/drawing conclusions. The results of the analysis can be in the form of a description or explanation that reveals an object that was initially not very clear becomes clearer after being examined, it can be in the form of a causal or interactive relationship, as well as a hypothesis or theory. (Sugiyono, 2012) in (Subagja, 2022). The following is a qualitative data analysis chart:
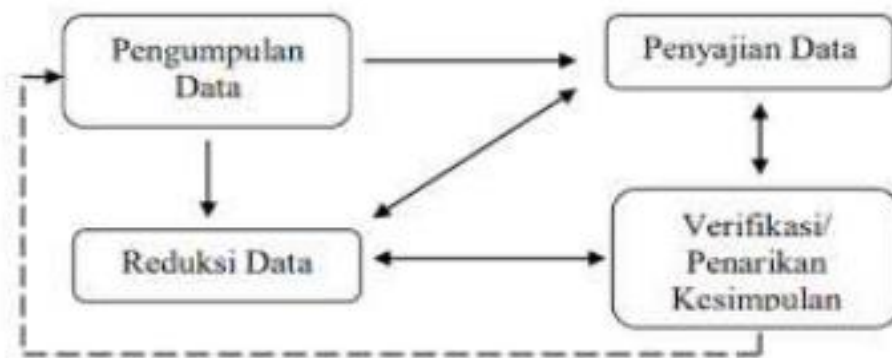
Qualitative Data Analysis Chart

The use of game-based digital media with the help of the wordwall application can be used for learning evaluation activities with the aim of training students' critical reasoning skills. Wordwall media can be used to measure student learning outcomes in thematic learning of material in the form of objects through game-based digital LKPD which is carried out at the end of providing material by educators. The assessment results obtained are based on the criteria below:

Table 7. Criteria for assessing quiz work

Score Intervals (%)	Mark
≥ 44	40
45 – 54	50
55 – 64	60
65 – 74	70
75 – 84	80
85 – 94	90
95 - 100	100

After that, an evaluation was carried out to assess the effectiveness of using Wordwall media in each learning session.

Table 8. Criteria for completing questions on wordwall-based digital LKPD

Acquisition value				Criteria
≥ 80	≥ 70	≥ 60	≥ 50	
≥ 75%				Very high
< 75%	≥ 75%			High
	< 75%	≥ 65%		Enough
		< 65%	≥ 65%	Low
			< 65%	Very low

The overall quiz work can be interpreted as follows:

a. If more than or at least 75% of the total students get a score of 80 or more (N ≥ 80), then it can be concluded that the efficiency in completing quizzes is very high.

b. If the percentage of students who get a score of more than or equal to 80 (N ≥ 80) is less than 75% and the percentage of students who get a score of more than or equal to 70 (N ≥ 70) is more than equal to 75%, then you can It is said that the effectiveness of quiz results is high.

c. If the percentage of students who get a score of more than or equal to 70 (N ≥ 70) is less than 75% and the percentage of students who get a score of more than or equal to 60 (N ≥ 60) is more than equal to 65%, then you can It is said that the effectiveness of the quiz results is sufficient.

d. If the percentage of students who get a score of more than or equal to 60 (N ≥ 60) is less than 75% and the percentage of students who get a score of more than or equal to 50 (N ≥ 50) is more than equal to 65%, then you can It is said that the effectiveness of quiz results is low.

e. If less than 75% of the total number of students get a score of 50 or more (N ≥ 50), and more than or at least 65% of the total number of students get a score of 40 or more (N ≥ 40), then it can be concluded that the efficiency of the quiz results is very low .

In the context of using Wordwall media in the learning process, its effectiveness can be measured by a minimum percentage of 75% of students who succeed in reaching or

exceeding the KKM (78). This means that students who get a score of 78 or more can be categorized as "Completed," while those who get a score of less than 78 fall into the "Incomplete" category.

RESULTS AND DISCUSSION

Information from questionnaires or questionnaires is rearranged through percentage techniques to provide a more detailed interpretation. The main goal is to provide a clearer meaning and explanation of the data collected. From the analysis of this data, researchers can make conclusions related to the issue being studied. The results of distributing questionnaires to students are summarized in the following table:

Table 9
Happy with the thematic learning of material in the form of objects using Wordwall media

No	Category	Frequency	Percentage %
1	Strongly agree	30	53,5 %
2	Agree	26	46,5 %
3	Disagree	0	0%
4	Strongly disagree	0	0%
Frequency		56	100%

According to the table above, 53.5% of students strongly agree with the use of Wordwall media, 46.5% of students agree, and no students disagree or strongly disagree with the use of Wordwall media in thematic learning. This shows that the use of Wordwall media in thematic learning is effective according to students, with a percentage of 100% of students responding strongly agree and agree, compared to 0% who disagree or strongly disagree. In conclusion, the use of Wordwall media was considered effective by students in working on questions.

Table 10
Students do not experience difficulty in using Wordwall media

No	Category	Frequency	Percentage %
1	Strongly agree	29	51,8 %
2	Agree	21	37,5%

3	Disagree	4	7,2%
4	Strongly disagree	2	3,5%
Frequency		56	100%

According to the data in the table, as many as 51.8% of students strongly agree that they do not experience difficulties in using Wordwall media, 37.5% of students agree, 7.2% of students disagree, and 3.5% of students strongly disagree that they do not experience difficulties in using Wordwall media. This shows that in thematic learning using Wordwall media, the majority of students do not experience difficulties, which is reflected in the percentage of 89.3% of students who responded strongly agree and agree, compared to the percentage of 10.7% of students who responded disagree or strongly disagree . From these results, it can be concluded that students do not experience difficulties in working on questions using Wordwall media.

Table 11
Students enjoy answering questions using Wordwall to increase their knowledge

No	Category	Frequency	Percentage %
1	Strongly agree	35	62,5%
2	Agree	19	33,9%
3	Disagree	1	1,8%
4	Strongly disagree	1	1,8%
Frequency		56	100%

According to the table, as many as 62.5% of students strongly agree that they like answering questions using Wordwall media, 33.9% of students agree, while 1.8% of students disagree, and 1.8% of students strongly disagree in answering questions using Wordwall media. From this data, it can be concluded that in thematic learning using Wordwall media, the majority of students responded that they were effective in answering questions, as seen from the percentage of 96.4% of students who responded strongly agree and agree, compared to the percentage of 3.6% of students who responded disagree or strongly disagree. Thus, it can be concluded that students enjoy answering questions when working on questions via Wordwall media.

Tabel 12

Siswa semangat mengerjakan soal menggunakan media Wordwall

No	Category	Frequency	Percentage %
1	Strongly agree	39	69,6%
2	Agree	16	28,6%
3	Disagree	0	0%
4	Strongly disagree	1	1,8%
Frequency		56	100%

Based on the data in the table, it can be concluded that 69.6% of students strongly agree with the use of Wordwall media to work on questions, 28.6% of students agree, while 0% of students disagree, and 3.6% of students strongly disagree. From the questionnaire analysis, it can be stated that students are very enthusiastic about thematic learning using Wordwall media, as seen from the percentage of students who responded strongly agree and agree as much as 98.2%, compared to the percentage of students who responded disagree and strongly disagree as much as 1, 8%. Therefore, it can be said that students feel enthusiastic about working on questions through Wordwall media, especially because the format resembles a quiz and offers a variety of online game-based question forms. This enthusiasm is believed to be able to improve students' critical thinking skills in understanding material concepts.

Table 13
Help students to do questions correctly

No	Category	Frequency	Percentage %
1	Strongly agree	26	46,5%
2	Agree	25	44,6%
3	Disagree	4	7,1%
4	Strongly disagree	1	1,8%
Frequency		56	100%

From this table, it can be seen that 46.5% of students strongly agree that using Wordwall media helps them always answer questions correctly, while 44.6% of students agree. Only a small portion of students, namely 7.1%, disagreed, and 1.8% strongly disagreed that using Wordwall media helped them always answer questions correctly. This shows that in thematic learning using Wordwall media, the majority of students, namely 91.1%, feel effective in using this media to answer questions correctly, compared to 8.9% of students who disagree or strongly disagree. In conclusion, students tend to feel that using Wordwall media helps them answer questions correctly consistently.

Table 14

The use of Wordwall media is very interesting in working on questions

No	Category	Frequency	Percentage %
1	Strongly agree	17	30,3%
2	Agree	31	55,3%
3	Disagree	4	7,14%
4	Strongly disagree	4	7,14%
Frequency		56	100%

From this table, it can be concluded that 30.3% of students strongly agree that the use of Wordwall media is very interesting when working on questions, while 55.3% of students agree. A small portion of students, namely 7.14%, disagreed, and 1.8% strongly disagreed that using Wordwall media was not interesting when working on questions. From this data, it can be concluded that in thematic learning using Wordwall media, as many as 85.6% of students felt effective in attracting interest when working on questions, compared to 14.3% of students who disagreed or strongly disagreed. In conclusion, students tend to be interested when using Wordwall media to work on questions, especially because of the appearance in the quiz.

Table 15

Using Wordwall media can make it easier for students to work on questions

No	Category	Frequency	Percentage %
1	Strongly agree	19	33,9%
2	Agree	30	53,7%
3	Disagree	5	8,9%
4	Strongly disagree	2	3,5%
Frequency		56	100%

From the data in the table, it can be seen that 33.9% of students strongly agree that using Wordwall media can make it easier for them to work on questions, while 53.7% of students agree. Only a small portion of students, namely 8.9%, disagreed, and 3.5% strongly disagreed that using Wordwall media could make it easier for them to work on questions. From this analysis, it can be concluded that in thematic learning using Wordwall media, as many as 87.6% of students felt it was effective in making problem solving easier, compared to 12.4% of students who disagreed or strongly disagreed. Thus, it can be said that students feel that using Wordwall media makes it easier to work on questions.

Table 16

Students find it difficult when working on questions using Wordwall media

No	Category	Frequency	Percentage %
1	Strongly agree	1	1,8%
2	Agree	21	37,5%
3	Disagree	18	32,14%
4	Strongly disagree	16	28,6%
Frequency		56	100%

From this table, it can be seen that 1.8% of students strongly agree that using Wordwall media feels difficult, 37.5% of students agree, 32.14% of students disagree, and 28.6% of students strongly disagree that using Wordwall media feels difficult . From this analysis, it can be concluded that in thematic learning using Wordwall media, around 39.3% of students felt effective or did not experience difficulties, compared to 60.7% of students who disagreed or strongly disagreed. Thus, the conclusion is that students feel they do not experience difficulties in using Wordwall media when working on questions.

Table 17

Students like the appearance of each question in Wordwall media

No	Category	Frequency	Percentage %
1	Strongly agree	30	53,6%
2	Agree	26	46,4%
3	Disagree	0	0%
4	Strongly disagree	0	0%
Frequency		56	100%

From this table, it can be seen that 53.6% of students strongly agree that the appearance of each question in Wordwall media is interesting, while 46.4% of students agree. There are no students who disagree or strongly disagree with the attractive appearance of each question in the Wordwall media. In this context, it can be concluded that in thematic learning using Wordwall media, 100% of students felt effective or interested in the appearance of each question, compared to 0% of students who disagreed or strongly disagreed. Therefore, it can be concluded that students are interested in the appearance of each question when using Wordwall media.

Table 18

Students quickly work on questions using Wordwall media

No	Category	Frequency	Percentage %
1	Strongly agree	22	39,3%
2	Agree	34	60,7%
3	Disagree	0	0%
4	Strongly disagree	0	0%
Frekuensi		Frequency	100%

From the table data, it can be seen that 39.3% of students strongly agree that the use of Wordwall media allows them to work on questions quickly, while 60.7% of students agree. There are no students who disagree or strongly disagree with the ability to quickly complete questions through the use of Wordwall media. From this analysis, it can be concluded that in thematic learning using Wordwall media, as many as 98.2% of students felt effective or fast in working on questions, compared to 1.8% of students who disagreed or strongly disagreed. In conclusion, students tend to be able to work on questions quickly when using Wordwall media.

CONCLUSION

Based on the implementation of research on the analysis of the need for game-based digital LKPD with the Wordwall application in learning the material "Shapes of Objects" at SDN Kalibanteng Kulon 02, there are several conclusions that can be drawn:

1. The use of Wordwall media in the final assessment of learning material "The Form of Objects" went smoothly and very well.

2. Digital LKPD with Wordwall game media improves students' critical thinking skills, which is reflected in the results of effective learning achievement with a student completion rate of 85.3%.

Berdasarkan kesimpulan tersebut, ada beberapa saran perbaikan yang dapat diajukan:

• For educators, the use of game-based digital LKPD through the Wordwall application is expected to facilitate and support enjoyable learning, as well as help educators to innovate in achieving effective learning goals.

• For students, it is hoped that using the Wordwall application can train critical thinking skills and deepen understanding of the concepts of material presented by educators.

• For researchers, it is recommended to make more use of the Wordwall application, especially in schools or students in urban areas. For areas with unstable signals, it is recommended not to apply this application because it requires a good and stable internet network.

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