



## The Influence of WordWall Game on the Conceptual Understanding of Force among Fourth Grade Elementary School Students

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### ABSTRACT

One of the main programs emphasized in the Merdeka Curriculum is the digitalization of education, which offers broad opportunities to create more interactive and engaging learning environments. The current educational paradigm places students at the center of the learning process, recognizing them as individuals with the potential to actively seek, construct, and develop knowledge. Learning is no longer limited to information delivered by teachers; instead, teachers are expected to design student-centered instruction that accommodates students' needs and fosters deeper conceptual understanding. However, preliminary observations show that many teachers still rely on monotonous and traditional instructional media, which do not fully support educational digitalization or provide meaningful learning experiences. The use of WordWall in science learning, particularly in understanding the effects of forces on objects, offers an innovative alternative. This study, conducted at SD Negeri Sedati Agung, aimed to examine the impact of WordWall on students' conceptual understanding. The findings indicate that WordWall significantly enhances students' understanding by facilitating relevant, interactive, and enjoyable learning activities, while also supporting effective classroom management. Therefore, integrating WordWall into classroom instruction is strongly recommended to improve student engagement and learning outcomes.

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## INTRODUCTION

Education in Indonesia continues to evolve, especially with the implementation of the Merdeka Curriculum, which focuses on more flexible learning and is directed towards the development of student competencies. The Merdeka Curriculum introduces various innovative approaches, where teachers have the freedom to determine teaching methods that suit the needs and characteristics of the students. (Fajri et al., 2023; Permendikbud No. 56/M/2021). Merdeka Curriculum provides flexibility and freedom to schools in its implementation, tailored to the needs and characteristics of the students. (Jannah, 2023; Rahman & Fuad, 2023). In implementing Merdeka Curriculum, innovative learning is necessary to encourage better changes. The Merdeka Curriculum is expected to create meaningful, enjoyable, and relevant learning so that students can think critically, creatively, and independently. (Arinasari, 2022; Masfufah et al., 2022).

One of the main programs that is a focus in Merdeka Curriculum is the digitalization of education. Digitalization of education has provided significant opportunities in creating a more interactive and engaging learning environment. Technology-based learning allows students to participate more actively and explore materials through various digital media, thereby enhancing their understanding and interest in learning. (Iskandar et al., 2023; Syaputra et al., 2023). Digital technology in education has a positive impact on student engagement, accelerates the learning process, increases student interest, and helps them understand concepts more efficiently. (Sitepu, 2021; Subroto et al., 2023).

The new paradigm of contemporary education is expected to focus more on students as individuals with the potential to learn and grow. (Marzuki & Oktariato, 2022). Students are required to be active in the exploration and development of knowledge. The truth of knowledge is not limited to what is conveyed by the teacher in the classroom. Teachers are required to create student-centered learning by facilitating all of the students' learning needs. Teachers need to change their role to become facilitators who guide students towards the formation of knowledge by themselves. (Arinasari, 2022). By the creation of student-centered learning, it is hoped that it will be able to enhance students' conceptual understanding. (Hafizah, 2023). Based on the observations conducted by the researcher, teachers still use monotonous and non-innovative learning media, and even traditional learning media, which have not yet maximized the process of educational digitalization and provided meaningful understanding to students. In this digital era, digital learning media greatly supports the implementation of the Merdeka Curriculum, where such media can be adapted to meet students' needs to strengthen concept understanding independently and purposefully (Atiyah & Nugroho, 2020; Depita, 2024).

## METHODS

The planning, action, observation, and reflection cycles are all part of the Classroom Action Research (CAR) approach, which is based on the Kemmis and McTaggart (1988) model. Every cycle is carried out to assess and refine learning tactics in order to increase students' learning abilities. While instruction is taking place, classroom action research is conducted. The purpose of classroom action research is to raise or improve the standard of instruction.

This research examines the learning problems that occur in the classroom by conducting self-reflection in an effort to solve the problems through various actions designed in real situations and analyzing the impact of the given actions. This research aims to determine the effect of WordWall on students' understanding of the concept of the influence of force on objects.

The study was carried out at SD Negeri Sedati Agung. Twenty-four students from class IV B at SD Negeri Sedati Agung served as the study's subjects. Evaluation questions, teacher activity observation sheets, and student activity observation sheets were the study tools utilized. To ascertain the efficacy of learning management throughout the teaching and learning process, observations of instructor activities are made. The table below shows the scale that was used to analyze the teacher's activities

**Tabel 1.** Skor Aktivitas Guru

Score	Description
0	Not done
1	There are 2 aspects that are not met
2	There is 1 aspect that is not met
3	All requirements are satisfied, and the teacher executes the learning activities' phases skillfully but not sequentially.
4	All requirements are satisfied, and the teacher executes the learning activities' phases skillfully and sequentially.

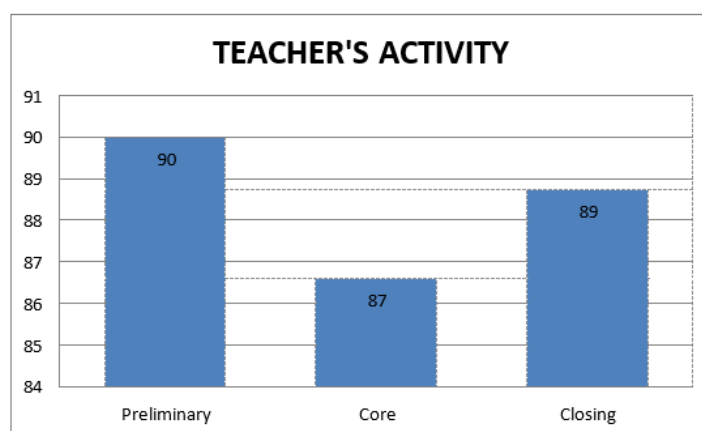
## FINDINGS AND DISCUSSION

The results obtained from the research have to be supported by sufficient data. The research results and the discovery must be the answers, or the research hypothesis stated previously in the introduction part. For ease of reading and comprehension, findings are presented first followed by discussion. The Findings sub-title and Discussion sub-title are presented separately. This section should occupy the most part, length 40-60% of the total length of the whole body of the article.

### *Findings*

#### **Teacher's Activity**

The teacher's activities during the learning process were analyzed using a teacher activity observation sheet. The observation was conducted by two observers. The teacher activity observation sheet is used to determine the quality of the learning management carried out by the teacher. Based on Figure 1, the results of the teacher activity observation can be seen.



**Figure 1.** Percentage of Teacher's Activity

Learning management can be considered effective if it is at a percentage  $\geq 61\%$  with a good and very good category (Riduwan, 2015). The average percentage and criteria of teacher activity at each stage of learning have been well executed, so it can be said that the teacher has effectively managed the learning process.

### Student's Activity

A student activity observation sheet, which was reviewed by two observers every ten minutes, was used to analyze student activity during the learning process. While students were utilizing WordWall, the observers kept an eye on their activities. Student activities pertaining to concept knowledge were identified using the student activity observation form. It is evident from Figure 2 that concept knowledge was attained throughout the learning process.

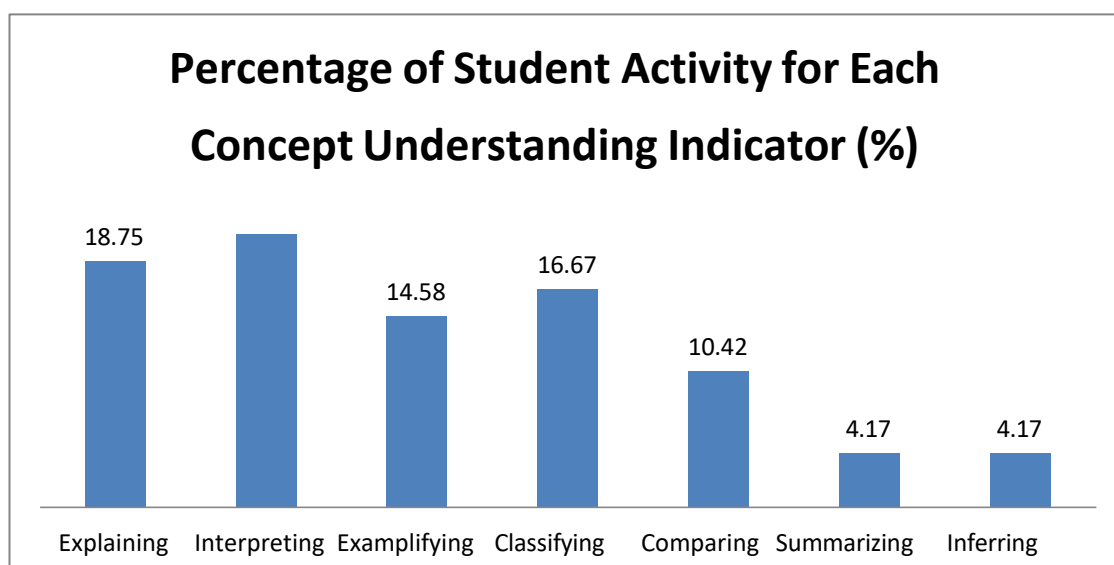


Figure 2. Percentage of Student Activity for Each Conceptual Understanding Indicator

The outcomes of the activities for each conceptual comprehension indicator are shown in Figure 2 as follows: 18.75% of student activity time is spent practicing explanation, 18.75% is spent practicing interpretation, 10.42% is spent practicing exemplification, 16.67% is spent practicing classification, 10.42% is spent practicing comparison, 4.17% is spent practicing summarizing, and 4.17% is spent practicing drawing inferences. If at least 61% of the student activities are pertinent, the activities can be deemed good (Riduwan, 2015). It can be concluded that the learning was executed effectively because Figure 3 displays a 94% percentage of relevant activities and a 6% percentage of irrelevant actions.

### Percentage of Student Activity (%)

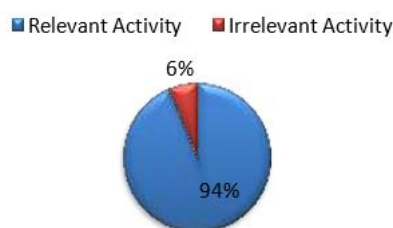


Figure 3. Percentage of Student Activity

### Student Learning Completeness

The responses that pupils receive from the teacher's evaluation questions serve as a gauge of their completeness. Twenty-five multiple-choice questions about force and its effects on things make up the evaluation questions, which take into account seven indicators of conceptual understanding. Table 2 shows the results of student learning completeness where the criteria for learning mastery (KKTP) used is 75.

**Table.2. Student Learning Completeness Result**

Student	Score	Completeness
Ab	72	Failed
Ai	88	Passed
As	92	Passed
Arj	80	Passed
Ary	80	Passed
Dv	76	Passed
Fr	92	Passed
Gb	76	Passed
Ia	76	Passed
Iq	72	Failed
Jv	80	Passed
Li	96	Passed
Mr	92	Passed
Mq	96	Passed
Ni	88	Passed
Nk	60	Failed
Ra	96	Passed
Re	72	Failed
Sa	88	Passed
Sh	88	Passed
Th	92	Passed
Ts	84	Passed
Va	80	Passed
Za	76	Passed

83% of students finished the subject, while 17% did not, according to Table 2. These findings show that after utilizing the WordWall media to study, students have a conceptual comprehension of the information on force and how it affects objects.

### Discussion

This research shows that the management of learning using WordWall media can be categorized as effective with a relevant student activity level of 94% and a student learning completeness level of 83%. This percentage exceeds the effectiveness criteria set by Riduwan (2015), which is  $\geq 61\%$ . This suggests that engaging with WordWall content enhances students' conceptual knowledge, especially when it comes to force and how it affects objects.

Through a variety of game-based activities, WordWall media is an interactive learning tool that encourages active student interaction. Students are more engaged and find it easier to comprehend abstract ideas when WordWall media is used in science classes. Students get more engaged and attentive during the learning process thanks to these engaging game-based exercises (Isma Wulandari & Irwan Jaelani, 2023; Rahmasari et al., 2024; Yanti et al., 2023).

WordWall significantly enhances students' understanding of science subjects, especially concepts that require logical thinking and classification skills (Ibrahim et al., 2024). This aligns with the student activities identified in this study, such as explaining (18.75%), interpreting (18.75%), and classifying (16.67%).

WordWall and other technology-based media can be integrated to improve student learning outcomes, especially when it comes to supporting student-centered learning. Furthermore, this media increases the number of opportunities for students to practice comparing concepts (10.42%) and giving examples (10.42%) (Ramanda et al., 2024).

Students can practice higher-order thinking abilities like summarizing (4.17%) and making conclusions (4.17%) using WordWall-based learning activities (Haliza et al., 2024). These activities contribute to achieving a good understanding of concepts.

## CONCLUSION

The use of WordWall media greatly enhances students' conceptual understanding, according to the research findings and evidence from previous studies. This media supports efficient learning management by facilitating engaging, interactive, and relevant learning activities. It is strongly advised that WordWall be used in the classroom to improve learning results and student engagement.

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