



Wordwall Media and its Impact on Understanding Light Material in Class V Elementary School Science Subjects

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Abstract: Using technology for learning is really important. This research wants to see if using word wall media helps 5th-grade students understand light in science class. This research method is quantitative experimental quasi experimental design type *Post-test only control group design*. The sampling technique is purposive sampling. The results of this research show the influence of the use of *wordwall media* on the understanding of light at Benerwetan State Elementary School and Kaibon State Elementary School. The normality test showed that the experimental class had a significance of 0.15 and the control class had a significance of 0.15, both greater than 0.05. The homogeneity test showed a p-value of 0.47, which is higher than 0.05, and the hypothesis test showed a p-value of 0.000, which is lower than 0.05, so it can be concluded that there is an influence of the use of wordwall learning media on understanding of light material in subjects Science at Benerwetan State Elementary School and Kaibon State Elementary School.

Keywords: Elementary science; Light material; Media; *Wordwall*

Introduction

System has a significant impact on the nation's quality of life. Of course, every country always updates its education system by adapting to current developments (Jamshidovna et al., 2021). Quality education is of course related to the way educators carry out meaningful learning for all groups (Aydin et al., 2020). Meaningful learning among students is of course a challenge for educators to provide learning in the classroom and outside the classroom that is meaningful and useful for students. The learning that occurs does not only rely on lectures from educators, but in the current era, it prioritizes *student centers* (Kononets et al., 2020). As time goes by, apart from the methods used by educators which are still conventional, many educators also still use conventional methods to evaluate learning, namely still using paper or even only being given questions via files. just. Meanwhile, in an era like this, there are very various media that can be used to evaluate students.

Based on research conducted by Cheng et al. (Cheng et al., 2022), the learning that must be carried out in the 21st century is to prioritize the skills that must be possessed, namely *critical thinking, creativity, collaboration and communication*. Learning in this century must also emphasize the use of technology which is often called *tpack (technological pedagogic and content knowledge)* where every learning carried out must utilize existing technology. Mastery of technology use skills is also very important for elementary school students (Aquino et al., 2022). The goal of using technology in education is to help students stay current with new developments and changes, especially in technology (Beri et al., 2021).

Digital era learning like today is expected to utilize existing learning media. Learning media are of course very diverse, especially learning media that use technology (Adedoyin et al., 2020). There are many applications and websites that can be used for learning, ranging from paid and unpaid ones and in the form of *quizzes and games*, all of which are available on the internet (Chai-Arayalert et al., 2021; Daryanes et al., 2023). Examples of applications or *websites* that can be

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used as interesting learning media are teacher's room, quipper, smart class zenius, learning house, *quiziz*, *edmodo*, *kahoot*, *wordwall*, and others. The many *websites* and applications that can be used in learning certainly make it easier for an educator to convey learning, but in reality based on observations made on science and science subjects at Benerwetan State Elementary School and Kaibon State Elementary School, students still have difficulty using the existing learning media because in the middle of amidst the large number of students and less conducive classes, coupled with the minimal number of learning hours so that educators only use student books and teacher books as media so there is no innovation in varied learning media. Elementary science learning carried out in class also presents material that makes students very bored and uninterested in learning, even though this subject is very important for students to master.

The problems in learning are also in line with research conducted by Samsudin et al. (2019) that the use of learning media used in learning is still very lacking, so technology-based learning media is needed. Apart from that, in research conducted by Wahyudi et al. (2023) the learning carried out in learning carried out in educational units is still very simple, only using less innovative media and not yet using learning media that utilizes technology that is available on *websites* and applications.

Based on the problems faced above, one solution that can be implemented is to use innovative learning media that utilizes technology, because in the current era of learning, the use of technology is very important, technology is not just a tool, but is the main foundation in the learning process (González-Pérez et al., 2022). The use of technology enables broader and more inclusive access to education, overcoming geographic and economic barriers (Abubakir et al., 2023; Celik, 2023). This not only increases accessibility, but also enriches the learning experience by presenting material in engaging interactive and multimedia forms (Dahnial et al., 2022). Additionally, technology enables personalization of learning, where learning approaches can be tailored to individual needs, optimizing understanding and retention of information. Apart from providing critical digital skills, the use of technology also prepares oneself to face the challenges of a future that is increasingly connected and dependent on technological innovation (Yeni, 2022).

One of the media that can be used in learning innovations is *word walls*. *Wordwall* is a digital gamification application or web that is network-based and provides various game and quiz features that can be utilized by educators in delivering various materials (Marensi et al., 2023). *Wordwall* is useful as a media source, learning, and a very fun assessment tool. This

game can be used via *smartphone* or *laptop*. Apart from that, *the wordwall* presents animations, images, audio and interactive games that can attract someone who uses it (Hidayaty et al., 2022). The *k wordwall* learning media can improve students' abilities in mastering the material (Marensi et al., 2023). According to Zaen et al. (2022) the advantages of *wordwall* media is an application or web from *wordwall* that is not paid . There are many educational game features in it , apart from that, for ease of accessing this media, there is no need to download the application, but you only need to access the link or links that are shared. Apart from that, *wordwall* media can be printed in word or PDF form, making it easier for users who have *signal* or network problems. *Wordwall* media This has a flexible nature because it can be used during the face-to-face learning process and can be used during online learning. This *wordwall* learning media allows users to compete so they are more motivated to learn.

Wordwall learning media in light materials implemented in elementary school science learning is one of the important subjects in the elementary school curriculum (Alscher et al., 2022). A good understanding of science material is important for students. Therefore, it is very important to explore effective and efficient learning methods to improve students' understanding of science material in learning (De Schaepmeester et al., 2022). In essence, learning media has an important role in helping students understand the concepts being studied. One of the media that can be used is *wordwall*. *Wordwall* is a visual media that displays key words and important concepts from a learning topic. Using *wordwall media* can help students associate concepts with visualizations of words, making it easier for them to understand and remember the material. However, not much research has studied the influence of using *wordwall media* on understanding light in science subjects in grade V elementary schools. We noticed that there are not many different types of learning materials used in science classes. This research will look at whether using *wordwall media* can help students better understand science in elementary school. By exploring the influence of *wordwall media* for fifth grade students Elementary school.

Method

This study uses numbers and experiments to find answers. It compares a control group to another group after the experiment. This research has 2 groups of students - one group tries something new, and the other doesn't. The group that was trying a new way of learning used *Wordwall*, while the other group used Power Point for their learning.

Research was conducted at Benerwetan State Elementary School and Kaibon State Elementary School. The subjects of this research were fifth grade elementary school students. The technique used in sampling is purposive sampling. Then the samples used in this research were 34 class V students at Benerwetan State Elementary School as the experimental class and 33 students from Kaibon State Elementary School as the control class. The instruments used in this research were test questions in the form of multiple choices with data collection techniques in the form of *post-test questions* and were given at the end of the learning process. *The post-test* is used to find out whether there is an influence of *wordwall learning media* on understanding the material.

This research has three parts. First the researcher does a preliminary study by observing and gathering tools for teaching and research. They also test if the tools are accurate; and then in this step, we will teach class V at Benerwetan State Elementary School using wordwall, and the control class at Kaibon State Elementary School won't use powerpoint. After that, we will test the students to see how well they understand the material; Final stage, at this stage the researcher analyzes the research data, namely the normality test, homogeneity test, and hypothesis test, and draws conclusions. A hypothesis is a guess or temporary answer that needs to be tested for truth. The hypothesis in this research is $H_0 =$ There is no influence of the use of *wordwall learning media* on the understanding of light material in science subjects for fifth grade elementary school students. Meanwhile, $H_1 =$ There is an influence of the use of *wordwall learning media* on the understanding of light material in the science subject of fifth grade elementary school students.

Results and Discussion

The research results were obtained from *post-test scores* regarding learning outcomes in the experimental class and control class which can be seen in the table 1.

Table 1. Post Test Results for Experimental and Control Classes

	Descriptive Statistics				
	N	Min	Max	Mean	"S" Std.
Control	3	32	4	36.7	1.70
Experiment	3	37	4	41.3	1.89
Valid N	3				

According to the information in table 1. In the picture, you can see how the experimental class and the control class learned different things. The students in the experimental class did better on average than the students in the control class. Before checking the idea, we do some tests to make sure the data is okay. We check

for things like if it's normal and if all the groups are the same. The test was done using SPSS 25 for Windows. Here are the results of the normality test we did use the Shapiro-Wilk test:

Table 2. Normality Test

Post Test	Media Type	Tests of Normality			
		Statistics	Statistics	.df	Sig
		Experimental Class	.18	.95	34
Control Class	.17	.95	31	.15	

a. Lilliefors Significance Correction

Table 2 shows the test in the table shows that the data for the experimental and control groups are similar enough to come from a regular population. After testing normality, the homogeneity test is carried out. The homogeneity test is carried out with the aim of finding out whether the sample comes from a homogeneous population or not. This test was carried out using Fisher's test using the SPSS application. The results of the homogeneity test calculation can be seen in the table 3.

Table 3. Homogeneity Test

Post Test	Test of Homogeneity of Variances		""Sig.
	Based on Mean	Based on Median	
		Based on Median and with adjusted df	.56
		Based on trimmed mean	.47

Based on table 3 in the homogeneity test, a sig value of 0.477 was obtained, which is a large result at a significance level of 0.05. This means that the two groups of data are homogeneous. Based on the prerequisite tests that have been carried out, the results show that the populations of the experimental class and control class are normally distributed and homogeneous. Next, a hypothesis test was carried out using the Independent Sample T-test, with the test criteria that H_0 was accepted if the sig value was > 0.05 and H_1 was accepted if the sig value was < 0.05 . Test results are as follows:

Table 4. Hypothesis Testing

	"" Sig.
Experimental Class	"" .00
Control Class	.00

The results in table 4 show that the sig value is 0.000, which is less than 0.05. If H_0 is rejected, it can be said that using wordwall learning media affects how fifth grade students understand light in science class.

This study was done to find out if using wordwall media affects how fifth grade students learn about light

materials in science. The data obtained from this research is based on the results of *the post-test* given to students via *a form*. The study found that using wordwall learning helps fifth grade students understand light in science. This is because the use of *wordwall media* makes students interested in science learning, which at first makes students feel bored with the learning carried out in class. Using wordwall media can make students more interested, motivated, and curious. It can also make them more excited about learning. It helps students and teachers work together and use learning tools (Al-Ansi et al., 2023; Hamid, 2020).

The use of technology in the current era is indeed very important (Celik, 2023), as evidenced by the results of research that has been conducted that in implementing the use of *wordwall learning media* in experimental classes, there are visible differences compared to control classes. In the experimental class treatment, students appeared to be more active in learning activities, increasing interaction between teachers and students as well as students and students. So, by increasing positive interactions between one another, the level of understanding will increase. We use the wordwall website to help us learn with lots of technology. This is also in line with Taufik (2020) research that said educational content is presented in a visually appealing way on Android devices, it makes it easier for students to learn using technology. In science, you can learn better by using the word wall quiz website. This is supported by research Hwang et al. (Hwang et al., 2020) that this media can be accessed anywhere and makes it easier for users not to feel bored and easier to understand the material. So it is based on previous research on the use of technology-based learning media or can be used via *smartphones, laptops* and *computers*, it will be easy for students to use and learning is not boring so students can easily understand the existing material.

Conclusion

The study showed that use Wordwall helps students learn better. The post-test results show that the group that used wordwall learning media did better than the group that didn't use any learning media. Students are more courageous in expressing their opinions both in front of the class and when discussing with their group friends, as well as developing cooperation so that understanding of the material emerges. On the other hand, control class students tend to be passive and lack the courage to voice their opinions. Thus, it can be concluded that using *wordwall* has an influence on the understanding of light material

in the science subject of fifth grade elementary school students.

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Author Contributions

DW: Coming up with ideas, creating a plan, writing the first draft, analyzing data, doing research, and making visual representations. Woro Sri Hastuti, Supartinah, Anwar Senen: they write, check and fix mistakes, make sure everything is correct, supervise, and provide resources.

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Conflicts of Interest

The authors don't have any competing interests.

References

- Abubakir, H., & Alshaboul, Y. (2023). Unravelling EFL teachers' mastery of TPACK: Technological pedagogical and content knowledge in writing classes. *Heliyon*, 9(6), e17348. <https://doi.org/10.1016/j.heliyon.2023.e17348>
- Adedoyin, O. B., & Soykan, E. (2020). Covid-19 pandemic and online learning : the challenges and opportunities. *Interactive Learning Environments*, 0(0), 1–13. <https://doi.org/10.1080/10494820.2020.1813180>
- Al-Ansi, A. M., Jaboob, M., Garad, A., & Al-Ansi, A. (2023). Analyzing augmented reality (AR) and virtual reality (VR) recent development in education. *Social Sciences & Humanities Open*, 8(1), 100532. <https://doi.org/10.1016/j.ssaho.2023.100532>
- Alscher, P., Ludewig, U., & McElvany, N. (2022). Civic Education, Teaching Quality and Students' Willingness to Participate in Political and Civic Life: Political Interest and Knowledge as Mediators. *Journal of Youth and Adolescence*, 51(10), 1886–1900. <https://doi.org/10.1007/s10964-022-01639-9>
- Aquino, A. B., Dadayan, A. A., Rosel, M. E., & Francisco, M. J. V. (2022). Development of a TPACK-Based Professional Development Framework for the New Normal in Education. *International Journal of Information and Education Technology*, 12(10), 1012–1016. <https://doi.org/10.18178/ijiet.2022.12.10.1713>
- Beri, N., & Sharma, L. (2021). Development of TPACK for teacher-educators. *Linguistics and Culture*

- Review*, 5(S1), 1397-1418.
<https://doi.org/10.21744/lingcure.v5nS1.1646>
- Budiharso, T., & Tarman, B. (2020). Improving Quality Education through Better Working Conditions of Academic Institutes. *Journal of Ethnic and Cultural Studies*, 7(1), 99-115.
<https://doi.org/10.29333/ejecs/306>
- Celik, I. (2023). Computers in human behavior towards intelligent-TPACK: An empirical study on teachers' professional knowledge to ethically integrate artificial intelligence (AI) -based tools into education. *Computers in Human Behavior*, 138(May), 107468.
<https://doi.org/10.1016/j.chb.2022.107468>
- Chai-Arayalert, S., & Puttinaovarat, S. (2021). A Digital Micro-Game Approach to Improve the Learning of Hand-Weaving Art and History. *International Journal of Emerging Technologies in Learning (ijET)*, 16(08), 4.
<https://doi.org/10.3991/ijet.v16i08.19795>
- Cheng, P., Molina, J., Lin, M., Liu, H., & Chang, C. (2022). A New TPACK Training Model for Tackling the Ongoing Challenges of COVID-19. *Applied System Innovation*, 5(2), 32.
<https://doi.org/10.3390/asi5020032>
- Dahnial, I., & Syamsuyurnita, S. (2022). Educational Technology Resilience in Building Character in Elementary School Teacher Education Study Program in the 21st Century. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 2948-2958.
<https://doi.org/10.33258/birci.v5i1.3928>
- Daryanes, F., Darmadi, D., Fikri, K., Sayuti, I., Rusandi, M. A., & Situmorang, D. D. B. (2023). The development of articulate storyline interactive learning media based on case methods to train student's problem-solving ability. *Heliyon*, 9(4).
<https://doi.org/10.1016/j.heliyon.2023.e15082>
- De Schaepmeester, L., van Braak, J., & Aesaert, K. (2022). Teach what you preach? The relationship between teachers' citizenship beliefs and citizenship education in the classroom. *The Journal of Social Studies Research*, 46(4), 363-378.
<https://doi.org/10.1016/j.jssr.2021.10.001>
- González-Pérez, L. I., & Ramírez-Montoya, M. S. (2022). Components of Education 4.0 in 21st Century Skills Frameworks: Systematic Review. *Sustainability*, 14(3), 1493. <https://doi.org/10.3390/su14031493>
- Hamid, M. A. (2020). *Media Pembelajaran*. Yayasan Kita Menulis.
- Hidayaty, A., Qurbaniah, M., & Setiadi, A. E. (2022). The Influence of Wordwall on Students Interests and Learning Outcomes. *Jurnal Penelitian Ilmu Pendidikan*, 15(2), 211-223.
<https://doi.org/10.21831/jpipfip.v15i2.51691>
- Hwang, J., & Choi, L. (2020). Having fun while receiving rewards?: Exploration of gamification in loyalty programs for consumer loyalty. *Journal of Business Research*, 106, 365-376.
<https://doi.org/10.1016/j.jbusres.2019.01.031>
- Jamshidovna, B. M., & Bahodirovich, F. S. (2021). Innovative Methods And Techniques In The Education System. *Current Research Journal Of Pedagogics*, 02(11), 147-151.
<https://doi.org/10.37547/pedagogics-crijp-02-11-28>
- Kononets, N., Ilchenko, O., & Mokliak, V. (2020). Future Teachers Resource-Based Learning System: Experience of Higher Education Institutions In Poltava City, Ukraine. *Turkish Online Journal of Distance Education*, July, 199-220.
<https://doi.org/10.17718/tojde.762054>
- Marensi, V., Suarman, S., & Syahza, A. (2023). The Effectiveness of Using Word Wall-Based Learning Media In Increasing Students' Learning Activities on Economy Learning Subjects At Sma PGRI Pekanbaru. *Jurnal Pajar (Pendidikan Dan Pengajaran)*, 7(2), 407.
<https://doi.org/10.33578/pjr.v7i2.9165>
- Samsudin, A., Kelana, J. B., & Muftianti, A. (2019). Utilization of Internet-Based Learning Media in Enhancing Science Literacy Capabilities of Pgsd Students. *PrimaryEdu - Journal of Primary Education*, 3(2), 91. <https://doi.org/10.22460/pej.v3i2.1284>
- Taufik, A. (2020). Perancangan mobile learning untuk meningkatkan dan menarik minat belajar ilmu nahwu berbasis android. *SATIN - Sains Dan Teknologi Informasi*, 6(1), 28-36.
<https://doi.org/10.33372/stn.v6i1>
- Wahyudi, Mukmin, B. A., Sahari, S., & Salsabela, Q. (2023). Analysis of suitability of material aspects in articulate storylane based solution colligative learning media for PGSD students. *Jurnal Pendidikan Dasar Nusantara*, 8(2), 344-356.
<https://doi.org/10.29407/jpdn.v8i2.19524>
- Yeni, G. (2022). The Effect of 21st Century Skills Training on Foreign Language Teachers' Perceptions Regarding Their Educational Technology and Materials Development Competencies. *Bartın Üniversitesi Eğitim Fakültesi Dergisi*, 11(1), 118-136.
<https://doi.org/10.14686/buefad.777974>
- Zaen, F. N. W., & Fauzi Miftakh, I. P. (2022). The Use of Wordwall Media to Enrich Students Vocabulary Size in EFL Class. *Jurnal Ilmiah Wahana Pendidikan*, 8(19), 127-136.
<https://doi.org/10.5281/zenodo.7165499>