Volume 8 (1) (2025): 12-22

The Indonesian Journal of Social Studies

Available at https://journal.unesa.ac.id/index.php/jpips/index

DEVELOPMENT OF AN E-WORKSHEET SUPPORTED BY LIVEWORKSHEET AND WORDWALL TO IMPROVE ELEMENTARY STUDENTS' COGNITIVE COMPETENCE ON THE TOPIC OF NATURAL FEATURES

Dina Suci Ramadhani [1)], Dhiniaty Gularso [2)]

1) Universitas PGRI Yogyakarta, Indonesia, dinasucirmdh@gmail.com

2) Universitas PGRI Yogyakarta, Indonesia, dhiniaty@upy.ac.id

Abstract

This study aims to determine the feasibility, practicality and effectiveness of E-LKPD assisted by Liveworksheet and Wordwall to improve the cognitive competence of elementary school students in the material of natural features. Research and development of the ADDIE model developed by Robbert Mariabe Branch is the type of research used in this study. The model consists of five steps, namely Analyze, Design, Development, Implementation, Evaluation. This study was implemented on 26 fourth-grade students of SD Masjid Syuhada Yogyakarta. Research data were collected through observation, interviews, questionnaires and tests. Meanwhile, data analysis used the paired sample t-test. Based on the study, it shows that E-LKPD assisted by Liveworksheet and Wordwall is very feasible to use. This assessment refers to the results of the assessment of the media expert validator with a percentage of 85.33% and the validation of the material expert which reached 99.13%. In addition, the results of student responses showed a percentage of 77% categorized as practical, while the teacher's response reached 95% categorized as very practical. E-LKPD assisted by Liveworksheet and Wordwall was also declared effective in terms of the average pretest score of 57.40 increasing to 78.07 in the posttest after using E-LKPD. This increase was proven significant based on the results of the paired sample t test which produced a significance value (Sig. 2 tailed) of 0.000 (<0.05)

Keywords: E-LKPD, Liveworksheet, Wordwall, Cognitive, Natural Features

How to Cite: Ramadhani, D. S., & Gularaso, D. (2025). Development Of An E-Worksheet Supported By Liveworksheet And Wordwall To Improve Elementary Students' Cognitive Competence On The Topic Natural Features. *The Indonesian Journal of Social Studies*, Vol 8 (1): 12-22

*Corresponding author:

E-mail:dinasucirmdh@gmail.com, dhiniaty@upy.ac.id

e-ISSN 2615-5966 (Online)

INTRODUCTION

The rapid advancements in technology, communication, and computers have ushered society into the era of globalization. In the education sector, the emergence of digital education involves a transformation in the learning process by adopting a concept that utilizes the internet and computers as supporting tools (Hidayati et al., 2019). In learning activities, teachers need to prepare teaching materials that are capable of explaining both subject matter and concepts, as well as applying them through worksheets or the development of students' skills. Teaching materials can enhance the quality of learning, accelerate the learning process, and support students' understanding (Khoiron et al., 2021). Student Worksheets (Lembar Kerja Peserta Didik or LKPD) are a type of teaching material that can be used both as a medium for delivering content and for training students' skills. LKPD serves as a learning guide for students that functions to develop cognitive abilities, while also acting as a reference for fostering various other aspects of learning. Additionally, LKPD is used as a guide in solving problems in alignment with the indicators for achieving learning objectives (Trianto, in Effendi et al., 2021)

One of the subjects that requires an active and contextual learning approach is IPAS (Natural and Social Sciences). IPAS is an integrated subject within the *Kurikulum Merdeka* (Independent Curriculum), combining elements from both Natural Sciences (IPA) and Social Sciences (IPS). The IPS curriculum at the elementary school level covers various fields of knowledge, including geography, history, sociology, and economics. In general, Social Studies aims to enhance students' understanding, values, attitudes, and interpersonal skills (Utami & Gularso, 2024). Therefore, teaching materials such as LKPD (Student Worksheets) must be designed in an engaging manner and connected to everyday life in order to encourage enthusiasm for learning and help students better understand IPAS content.

Based on the researcher's observation in a fourth-grade class, it was found that during the learning process, particularly in the IPAS subject, some students often played by themselves, and some caused disruptions that affected their classmates. In addition, when given the LKPD, students appeared unmotivated and unfocused; several did not complete the worksheets. Interviews with students revealed that these behaviors were due to the LKPD being perceived as uninteresting. Furthermore, interviews with the teacher showed that the LKPD used thus far had only been in printed form, and digital LKPD had never been implemented. This was due to the teacher's limited understanding of how to use technology in the learning process. This is further supported by the results of students' formative assessments, which remain low. Out of 27 students, only 10 (37.04%) met the Minimum Competency Criteria (KKM), while 17 students (62.96%) did not, largely due to a lack of engagement and interest while working on the LKPD, which hindered their ability to fully grasp the material.

In line with Herawati's opinion (in NF et al., 2022), printed LKPDs are considered less effective as learning media, both in terms of visual appeal and ease of use. Therefore, teachers are required to develop alternative methods of task delivery to better engage students. According to Apriyanto (in Apreasta et al., 2023), the use of E-LKPD (Electronic LKPD) in the teaching and learning process has a positive impact on students' academic activity. It creates a more enjoyable learning atmosphere, increases interactivity, provides students with opportunities to practice skills, and boosts their motivation to engage in learning. According to Sari & Yarza (in Widianti et al., 2022), Wordwall is a web-based platform that incorporates educational games and can be utilized both as a learning resource and an engaging digital assessment tool for students throughout the learning process.

Based on the aforementioned issues, the implementation of learning requires the support of electronic worksheets (E-LKPD) as a solution to help teachers provide more engaging and motivating learning materials. Teachers can utilize information technology as a means to design and develop electronic worksheets using platforms such as Liveworksheet and Wordwall. According to Nurafriani & Mulyawati (2023), Liveworksheet is a website that can be applied to create online interactive materials and worksheets. According to Sari & Yarza (in Widianti et al., 2022), Wordwall is a web-based platform that offers educational games and can serve as both a learning resource and an effective digital assessment tool to enhance student interest throughout the teaching and learning process.

Empirical evidence of the success of these tools has been demonstrated in various studies, including one by Maulani et al. (2022), in which the E-LKPD developed using Liveworksheet was validated by media experts, subject matter experts, and practitioners, and was declared feasible and capable of optimizing students' cognitive learning outcomes. Another study by Apreasta et al. (2023) found that Wordwall-based learning was valid and practical for implementation in the learning process, and the developed product showed an increase in student academic achievement. Furthermore, research by Widianti & Sari (2022) showed that digital learning using Wordwall was suitable for fourth-grade students and contributed to enhancing their motivation, enthusiasm, and creative thinking skills.

Based on this background, it can be concluded that low student motivation and engagement when using conventional LKPDs negatively affects their cognitive learning outcomes. Therefore, there is a need for interactive and engaging teaching materials to improve students' cognitive competencies. Thus, the researcher intends to conduct a study entitled "Development of E-LKPD Assisted by Liveworksheet and Wordwall to Improve the Cognitive Competence of Elementary School Students on the Topic of Natural Features."

LITERATURE REVIEW

Cognitive Learning Theory

According to the framework of cognitive theory, learning is defined as a process of transformation and understanding that does not always manifest in observable or measurable behavior. This theory assumes that each individual possesses experiences and knowledge organized within their cognitive schema. Learning will occur effectively when new material or data can be integrated with the individual's existing cognitive structures. Cognitive theory emphasizes the learning process over the final outcome. Piaget proposed that cognitive development is a natural process, based on the biological growth of the nervous system. As neural structures become more complex with age, thinking abilities also develop (Muhaimin et al., in Nurhadi, 2020). Piaget divided the learning process into three stages: (1) Assimilation – a cognitive process where individuals incorporate perceptions and concepts into their existing knowledge structures. (2) Accommodation – the process of forming new knowledge or adjusting existing knowledge to fit new information or stimuli. (3) Equilibration – a natural drive within an individual to organize new knowledge in order to achieve adaptation or balance (Sardi et al., 2024).

Cognitive Competence

Competence refers to the knowledge, skills, and abilities that an individual has mastered, enabling them to demonstrate behaviors encompassing cognitive, affective, and psychomotor aspects. Competence is a fundamental ability that can be acquired and applied by students in various

activities (Mc Ashan in Anjani, 2019). The cognitive domain relates to mental activities or brain functions. According to Bloom, all efforts involving brain work fall under the cognitive domain (Sudijono in Widyastuti & Agung, 2018:14). Cognitive competence is a crucial aspect connected to the achievement of learning objectives and focuses on the development of thinking skills (Bujuri in Gularso et al., 2021). Furthermore, cognitive competence refers to the ability related to memory retention or recognition concerning knowledge, as well as the development of intellectual capacity and thinking skills (Amaliyah, 2020). The cognitive domain consists of six hierarchical levels, from the lowest to the highest, each symbolized by the letter C (cognitive). In 2001, Anderson and Krathwohl revised Bloom's taxonomy into: remembering, understanding, applying, analyzing, evaluating, and creating.

E-LKPD

E-LKPD is an electronic worksheet-based teaching material that serves as a guide for students, aiming to assist both teachers and students in understanding learning content through devices such as smartphones, laptops, and computers, either online or offline (Puspita & Dewi, 2021). According to Kosasih (2021), E-LKPD can be defined as digital worksheet-based learning material for students, which includes components such as content, basic competencies, learning objectives, indicators, and procedural steps. Triana (2021) explains that E-LKPD includes activity guidelines designed to enable students to participate actively and focus on achieving the targeted basic competencies.

A well-designed LKPD should meet four main components: content, structure, language, and visual design, each of which includes several key characteristics: (1) It incorporates process skills that direct students toward systematic and detailed activities aligned with learning objectives. (2) It provides a variety of learning activities aligned with intended goals. (3) It offers measurable activities that can be adapted to students' abilities, interests, and talents. (4) It accommodates different learning styles, including visual, auditory, and kinesthetic types. (5) It ensures that each procedure aligns with accurate scientific concepts and principles. (6) It includes activities that engage knowledge, skills, and attitudes while considering available time. (7) It uses language that is appropriate for students' comprehension levels. (8) It includes engaging illustrations and layout elements to prevent boredom (Kosasih, 2021:36). According to Andi Prastowo (in Pawestri & Zulfiati, 2020), a minimum standard LKPD should consist of eight elements: title, basic competencies, learning time allocation, tools and materials, content summary, procedural steps, tasks, and report**.**

RESEARCH METHOD

The method used in this study is Research and Development (R&D)**.** It refers to the model developed by Robert Maribe Branch, which consists of five research steps: analysis, design, development, implementation, and evaluation (Sugiyono, 2019:38). The implementation phase involved 26 fourth-grade students from Sekolah Dasar Masjid Syuhada Yogyakarta. Data were collected through direct observation, interviews, questionnaires, and tests. Statistical analysis was conducted using the paired sample t-test method to determine the difference in results before and after the intervention.

RESULTS AND DISCUSSION

The output produced from this research and development study is an electronic student worksheet (E-LKPD) for the topic *Natural Features and Their Utilization*, with the learning objective: "students are able to identify types of land and water natural features found in

Indonesia and their appropriate uses." The E-LKPD was developed with the aim of improving students' cognitive competence, particularly in this subject area. The development process in this study followed the model proposed by Robert Maribe Branch, which includes the following steps: analysis, design, development, implementation, and evaluation.

In the analysis phase, three main aspects were analyzed: needs analysis, curriculum analysis, and student characteristics analysis. The needs analysis indicated that the school's facilities and infrastructure are relatively well-equipped. Teachers and students have access to textbooks, teaching aids, whiteboards, projectors, computer labs, and internet connectivity. However, these facilities have not been optimally utilized in the learning process. Teachers still predominantly use printed worksheets (LKPD), which are less engaging for students. The curriculum analysis showed that the school applies the *Kurikulum Merdeka* (Independent Curriculum). The student characteristics analysis revealed that students tend to be passive. Some students paid little attention to the teacher's explanations, while others were preoccupied with their own activities or chatting with friends.

In the design phase, the structure of the E-LKPD was developed, including creating a flowchart, designing a storyboard, selecting tools for creating the E-LKPD, gathering materials, organizing the content, creating teaching modules, and developing questionnaires and test instruments.

In the development phase, the product was created and tested—an E-LKPD assisted by Liveworksheet and Wordwall. The product creation process began with designing the layout of each E-LKPD page using Canva. This design included organizing visual elements such as text, images, icons, and the layout of learning activities as previously planned in the storyboard. Once the Canva design was complete, the files were uploaded to the Liveworksheet website and further enhanced by adding interactive elements such as answer fields, voice recordings with explanations, and links to educational games created using Wordwall. The resulting product design is shown in Figure 1.

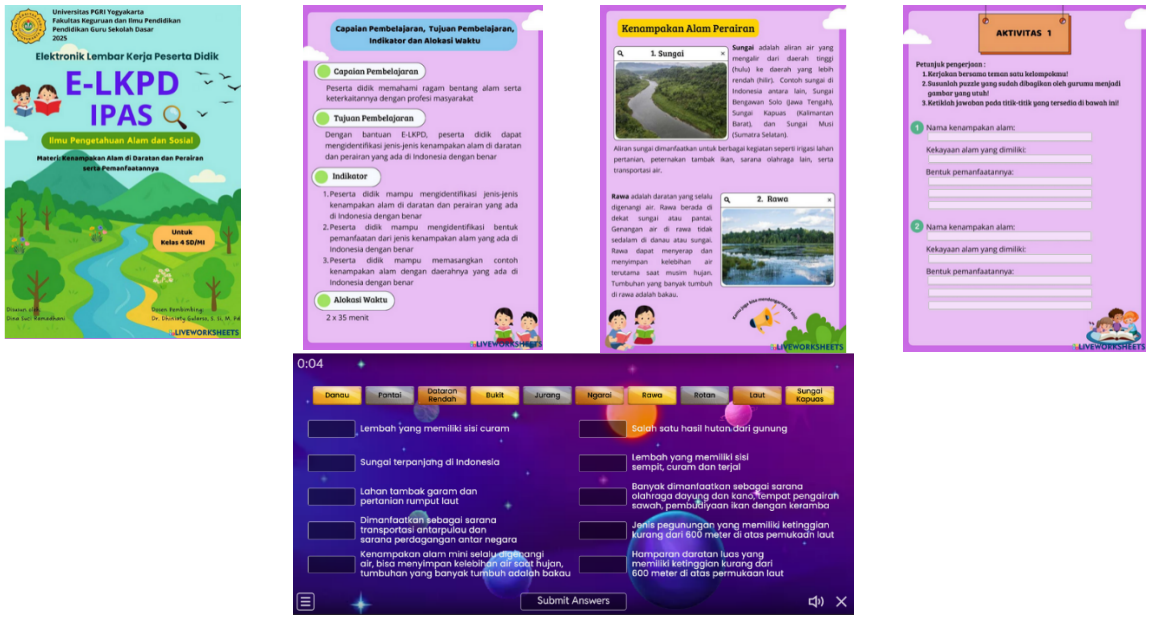

Figure 1. Interface of the E-Worksheet (E-LKPD) on the topic *Natural Features*

After completion and consultation with the academic advisor, the product was then validated by a media expert and a subject matter expert to assess the feasibility of the developed E-LKPD before its implementation with students. The product development was validated by a lecturer from the Primary School Teacher Education (PGSD) program who specializes in instructional media and served as the media validator. The following section presents the results of the media expert validation analysis.

Table 1
Result of Media Expert Validation Test Analysis

Assessed Component	Score Obtained	Percentage	Criteria
Content	34	85%	Highly Feasible
Structure	9	90%	Highly Feasible
Language	9	90%	Highly Feasible
Appearance	12	80%	Suitable
Total skor	**64**	**85,33%**	**Highly Feasible**

The analysis table above shows a total overall percentage of 85.33%, indicating that the E-LKPD assisted by the Liveworksheet and Wordwall websites is categorized as "Highly Suitable" for use. Subsequently, material validation was carried out by an elementary school teacher who is an expert in the subject. The following section presents the results of the validation test conducted by the subject matter expert.

Table 2
Result of Subject Matter Expert Analysis

Assessed Component	Score Obtained	Percentage	Criteria
Content	35	100%	Highly Feasible
Language	39	97,5%	Highly Feasible
Presentation	40	100%	Highly Feasible
Total skor	**114**	**99,13%**	**Highly Feasible**

Based on the analysis results above, the total percentage score reached 99.13%, indicating that the material presented in the E-Worksheet (E-LKPD) supported by Liveworksheet and Wordwall is categorized as “Highly Feasible” for use. The utilization of Liveworksheet transforms traditional worksheets into interactive digital worksheets (Murtalib et al., 2022), featuring tools such as audio, response icons, and automatic correction. Meanwhile, Wordwall offers a variety of educational games with engaging and fun displays, aligning with the characteristics of elementary school students who are typically attracted to competitive and visually stimulating activities (Widianti & Sari, 2022).

In this study, feasibility aspects refer to the theory of good worksheet (LKPD) criteria as outlined by Kosasih (2021:36), which include four aspects: content, structure, language, and appearance. From the content aspect, this E-Worksheet has been designed to present material that aligns with the learning objectives of Grade IV IPAS (Science and Social Studies), specifically the topic of natural features and their utilization. According to the Ministry of Education, Culture, Research and Technology (Kemendikbudristek, 2024:197), one of the learning objectives of IPAS is to foster students’ curiosity about natural and social phenomena, as well as to instill environmental awareness. This E-Worksheet was developed to support these goals by including

contextual and exploratory learning activities that encourage students to recognize and identify natural features in their surroundings.

This aligns with Kosasih's (2021:36) criteria for a good worksheet, which emphasize the inclusion of process skills, varied activities, measurable outcomes based on student capabilities, and support for diverse learning styles such as visual, auditory, and kinesthetic. In this E-Worksheet, students are engaged in a variety of learning activities, such as assembling natural feature puzzles and matching games using Wordwall. These activities were selected based on the characteristics of elementary students who enjoy playing and being physically active, as noted by Sumantri (in Agustian, 2022). Additionally, to support auditory learning styles, this E-Worksheet utilizes the audio features available on the Liveworksheet platform, as explained by Haryati & Rachmadyanti (2022).

From the structure aspect, the developed E-Worksheet has been systematically arranged with a logical and coherent sequence of activities. The structure of the E-Worksheet refers to the eight essential components of a worksheet proposed by Andi Prastowo (in Pawestri & Zulfiati, 2020), namely: title, basic competencies, learning time, tools and materials, brief information, work steps, tasks to be completed, and reports to be submitted. These components are included in the E-Worksheet to ensure that students receive clear guidance and information throughout the learning process. The activity flow in this E-Worksheet is designed based on the syntax of the cooperative learning model, Numbered Head Together (NHT), starting with numbering, question delivery, group discussion, and answer presentation. The implementation of this model within the E-Worksheet structure aims to encourage collaboration among students through discussion and individual responsibility within the group. This approach is suitable for elementary school students who generally prefer collaborative learning, as stated by Sumantri (in Agustian, 2022). Furthermore, the structured activities are aligned with Kosasih's (2021:36) criteria for a good worksheet, which emphasize alignment with scientific concepts and balanced inclusion of cognitive, skill, and attitude dimensions.

From the language aspect, this E-Worksheet is written using a clear and easy-to-understand language style appropriate for fourth-grade students. The vocabulary and sentence structures are tailored to the comprehension level of elementary students, ensuring they are not confused and can engage effectively with the learning process. The use of communicative and age-appropriate language aligns with Kosasih's (2021:36) feasibility criteria, which highlight the importance of understandable language to ensure that content and instructions in the worksheet can be easily accessed by students.

From the appearance aspect, the E-Worksheet is designed with visual principles that attract attention and match the characteristics of elementary school students. The page layout is neat and consistent, using a combination of bright and appealing colors. Supporting illustrations, such as images of natural features, instructional icons, and uncluttered layouts, are used to enhance visual appeal and aid student understanding of the content. This aligns with Kosasih's (2021:36) criteria for a good worksheet appearance, which recommend including attractive illustrations and layouts to prevent boredom.

During the implementation stage, the E-Worksheet was tested on 26 fourth-grade students at SD Masjid Syuhada Yogyakarta. In this stage, students first completed a pre-test to assess their prior knowledge. They then participated in lessons using the E-Worksheet supported by Liveworksheet and Wordwall. At the end of the lesson, students completed a post-test to

evaluate cognitive improvement after using the E-Worksheet. Afterwards, both students and the teacher filled out response questionnaires to assess the practicality of the E-Worksheet. The following is the result of the practicality based on the teacher's response questionnaire.

Table 3
Summary of Teacher and Student Response Questionnairs

Respon Questionnaire	Average Percentage of Responses	Category
Teacher	95%	Very Practical
Students	77,65%	Pracrical

The summary table above shows that the average percentage of teacher response questionnaires reached 95%, which is categorized as very practical. This indicates that the E-Worksheet (E-LKPD) is highly practical for use in learning, in line with the statements of Wulandari et al. (2023) and Haryati & Rachmadyanti (2022), who noted that the Liveworksheet website facilitates teachers in delivering questions and managing results, as it offers attractive templates that can be customized according to their needs. Wordwall also provides flexibility for teachers to choose from various types of evaluative games that can be adapted to the characteristics of IPAS content (Elyas Putri et al. in Nisa & Susanto, 2022). Meanwhile, the average student response reached 77.65%, which is categorized as practical. This result shows that the developed E-Worksheet is practical for students to use and supports the learning process effectively. This is supported by research from Haryati & Rachmadyanti (2020), which states that the Liveworksheet website is flexible, allowing the integration of various media such as videos and audio, and enabling students to answer questions directly and receive immediate feedback. Additionally, Wordwall contributes to practicality as an evaluation tool by presenting engaging educational games (Sun'yah, 2020; Elyas Putri et al. in Nisa & Susanto, 2022).

A cognitive competency test was used to determine the effectiveness of using the E-Worksheet in improving students' cognitive competence in the IPAS subject, specifically the topic of natural features and their utilization. This test involved 26 fourth-grade students at SD Masjid Syuhada Yogyakarta The summary of the pre-test and post-test results can be seen in the following table

Table 4
Summary of Pre-Test and Post-Test

Test	Average Score	Lowest Score	Highest Score
Pre-test	57,40	34,3	93,7
Post-test	78,07	62,5	100

Based on the analysis results above, it is evident that there was an increase of 20.67 points from the pre-test to the post-test scores after the use of the E-Worksheet (E-LKPD). This increase is shown by the pre-test average score of 57.40, which rose to 78.07 in the post-test. Next, a normality test was conducted. The test was performed using the Shapiro-Wilk test, analyzing students' pre-test and post-test scores with the assistance of SPSS version 25. The Shapiro-Wilk test was chosen because the sample size in this study is relatively small, consisting of 26 students (<50). The following table presents the results of the normality test.

Tabel 5
Normality Test Analysis Result

Data	Nilai Sig.	α = 0,05	Description
Pre-test	0,282	0,05	Normal (Sig. > 0,05)

Post-test	0,779	0,05	Normal (Sig. > 0,05)

Based on the analysis results above, the significance value obtained for the pre-test was 0.282 and for the post-test was 0.779**.** Since both values exceed 0.05**,** the data is considered to be normally distributed**.**

The next step was to perform a parametric statistical test, namely the paired sample t-test, to determine whether there is a significant difference in students' cognitive competence based on the pre-test and post-test scores. In this study, the hypotheses tested were formulated as follows:

H_0 (null hypothesis): There is no difference in cognitive competence between the data before and after the treatment using the E-Worksheet (E-LKPD).

H_a (alternative hypothesis): There is a difference in cognitive competence between the data before and after the treatment using the E-Worksheet (E-LKPD).

The table below presents the results of the paired sample t-test:

Table 6
Paired Sample T Test Result

Data	**Nilai Sig. (2-tailed)**	**α = 0,05**	**Decision**
Pre-test-Post-test	0,000	0,05	H_o rejected (Sig. < 0,05)

Based on the analysis above, the Sig. (2-tailed) value obtained was 0.000**.** Since this value is less than 0.05**,** H_0 is rejected and H_a is accepted. This indicates that there is a **s**ignificant difference between students' pre-test and post-test scores after using the E-Worksheet (E-LKPD).

These findings are in line with a study conducted by Septonanto et al. (2024**)**, which reported the effectiveness of the Liveworksheet-based E-Worksheet in improving elementary students' learning outcomes. Similarly, Apreasta et al. (2023) developed a worksheet supported by the interactive website Wordwall using the ADDIE R&D model. Their study concluded that the developed product was categorized as highly feasible and effective in enhancing students' learning outcomes, although the subject matter and participants were different. Thus, the results of this study not only reinforce previous findings but also contribute new insights by combining two interactive websites for elementary school learning.

Fourth-grade students in elementary school are categorized in the concrete operational stage according to Piaget's cognitive development theory, in which children begin to think logically about real objects and events, though they are not yet capable of abstract thinking (Piaget in Rahyubi, 2014:126). Therefore, concrete and visual-based learning such as that provided by the E-Worksheet is highly appropriate, as it presents the material on natural features in the form of images, sounds, and interactive exercises offered through the Liveworksheet platform, along with matching games and puzzle activities on Wordwall**.** These activities support the way students learn at this developmental stage, where learning becomes more effective when it involves visual media and direct sensory experiences (Oemar Hamalik in Isti'adah, 2020).

The evaluation stage during the development of the E-Worksheet was carried out throughout the development process. This stage served to make improvements based on input and feedback from media and content experts. After the product was implemented, evaluation continued through the collection of teacher and student responses to assess its practicality.

CONCLUSION

Based on the results of the study, the use of an E-Worksheet (E-LKPD) supported by Liveworksheet and Wordwall on the topic of natural features and their utilization was proven to be feasible, practical, and effective in improving the cognitive competence of fourth-grade students at SD Masjid Syuhada Yogyakarta. Both students and teachers gave positive responses to the use of the E-Worksheet, and there was a notable improvement in students' understanding following the learning process. The findings of this study open the door for similar developments in the future across different topics to support more engaging and meaningful digital learning. Nevertheless, this study faced several challenges, such as limited devices in some student groups and time constraints during implementation. Although these issues did not significantly affect the outcomes, they remain important considerations for future development. Therefore, it is recommended that similar research be conducted in a wider range of schools with diverse characteristics, include higher-level cognitive assessments, and take into account device readiness and more optimal time management, so that the results can be generalized more broadly.

REFERENCES

Agustian, S. (2022). Kebijakan Pendidikan Dasar Perspektif Karakteristik Peserta Didik. Shanun: *Jurnal Pendidikan Madrasah Ibtidaiyah*, 1(1), 10-22.

Amaliyah, L. (2020). Pengaruh Kemampuan Numerik Dan Sikap Siswa Pada Matematika Terhadap Kompetensi Kognitif Matematika (Survei Pada Siswa SMP Negeri Di Kota Tangerang). *Alfarisi: Jurnal Pendidikan MIPA*, 1(2).

Apreasta, L., Amril, A., & Yanti, U. D. (2023). Pengembangan E-LKPD Berbantu Situs *Word Wall* Pada Pembelajaran Bahasa Indonesia Tema 8 Subtema 2 di Kelas III SDN 146/VIII Rejosari Kabupaten Tebo. *Consilium: Education and Counseling Journal*, *3*(1), 253-262. https://doi.org/10.36841/consilium.v3i1.3250

Effendi, R., Herpratiwi, H., & Sutiarso, S. (2021). Pengembangan LKPD Matematika Berbasis Problem Based Learning di Sekolah Dasar. *Jurnal Basicedu*, *5*(2), 920-929. https://doi.org/10.31004/basicedu.v5i2.846

Gularso, D., Suryantari, H., & Rigianti, H. A. (2021). Dampak Pembelajaran Daring terhadap Kemampuan Anak Usia Sekolah Dasar. *Jurnal Pendidikan Dasar Nusantara*, *7*(1), 100-118. https://doi.org/10.29407/jpdn.v7i1.15890

Hariyati, D. P., & Rachmadyanti, P. (2022). Pengembangan Bahan Ajar berbasis *Liveworksheet* untuk Siswa Sekolah Dasar Kelas V. *Jurnal Penelitian Pendidikan Guru Sekolah Dasar*, 10(7), 1473-1483.

Hidayati, A., Mustaji, M., & Sugiharto, H. (2019). Pengembangan lembar kerja siswa berbasis praktikum model problem based pada pembelajaran IPS. *The Indonesian Journal of Social Studies*, *2*(1), 51-58. https://doi.org/10.26740/ijss.v1n1.p23-31

Isti'adah, Feida Noorlaila. (2020). *Teori-teori Belajar dalam Pendidikan. Tasikmalaya*: Edu Publisher.

Keputusan Kepala Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset dan Teknologi Nomor 032/H/KR/2024 tentang Capaian Pembelajaran pada Pendidikan Anak Usia Dini, Jenjang Pendidikan Dasar, dan Jenjang Pendidikan Menengah pada Kurikulum Merdeka. (2024). Jakarta: Kemendikbudristek.

Khoiron, M., Harmanto, H., Kasdi, A., & Wardani, A. R. (2021). Development of digital social studies teaching materials in the era of pandemic emergency learning. *The Indonesian Journal of Social Studies*, *4*(1), 36-44. https://doi.org/10.26740/ijss.v4n1.p36-44

Kosasih, E. (2021). *Pengembangan Bahan Ajar*. Jakarta: PT. Bumi Aksara.

Maulani, J., Kelana, J. B., & Jayadinata, A. K. (2022). Pengembangan LKPD berbantuan *Liveworksheet* untuk Meningkatkan Pemahaman Konsep IPA Siswa Kelas IV SD. *Jurnal Profesi Pendidikan (JPP)*, 1(2), 106-123. https://doi.org/10.22460/jpp.v1i2.11613

Murtalib, M., Gunawan, G., & Syarifuddin, S. (2022). Pengembangan Lembar Kerja Mahasiswa Elektronik (E-LKM) Interaktif Berbantuan Live Worksheet pada Perkuliahan Daring. *Supermat (Jurnal Pendidikan Matematika)*, 6(2), 130-145. https://stkipbima.ac.id/jurnal/index.php/SM/article/download/918/525

NF, I. A., Roesminingsih, M. V., & Yani, M. T. (2022). Pengembangan LKPD Interaktif Berbasis Liveworksheet untuk Meningkatankan Hasil Belajar IPS Sekolah Dasar. *Jurnal Basicedu*, *6*(5), 8153-8162. https://doi.org/10.31004/basicedu.v6i5.3762

Nisa, M. A., & Susanto, R. (2022). Pengaruh Penggunaan Game Edukasi Berbasis *Wordwall* Dalam Pembelajaran Matematika Terhadap Motivasi Belajar. *JPGI (Jurnal Penelitian Guru Indonesia)*, *7*(1), 140. https://doi.org/10.29210/022035jpgi0005

Nurafriani, R. R., & Mulyawati, Y. (2023). Pengembangan E-LKPD Berbasis *Liveworksheet* pada Tema 1 Subtema 1 Pembelajaran 3. *Didaktik: Jurnal Ilmiah PGSD STKIP Subang*, 9(1), 404-414. https://doi.org/10.36989/didaktik.v9i1.711

Nurhadi, N. (2020). Teori Kognitivisme serta Aplikasinya dalam Pembelajaran. Edisi, 2(1), 77-95. https://ejournal.stitpn.ac.id/index.php/edisi/article/download/786/541

Pawestri, E., & Zulfiati, H. M. (2020). Pengembangan lembar kerja siswa (lkpd) untuk mengakomodasi keberagaman siswa pada pembelajaran tematik kelas II di SD Muhammadiyah Danunegaran. *Trihayu: Jurnal Pendidikan Ke-SD-an*, *6*(3), 903-913.

Rahyubi, Heri. (2014). *Teori-Teori Belajar dan Aplikasi Pembelajaran Motorik*. Majalengka: Penerbit Referens.

Sardi, E. T., Masayu, N. O., Triningsih, T., Marini, A., & Yunus, M. (2024). Kajian Literatur: Teori Belajar Kognitif Jean Piaget dalam Pembelajaran IPS di Sekolah Dasar. *Sindoro: Cendikia Pendidikan*, 7(9), 91-100. https://doi.org/10.9644/sindoro.v7i9.6502

Septonanto, D., Nugrahani, F., & Widayati, M. (2024). PEngembangan Media E-LKPD *Liveworksheet* Soal HOTS untuk Menguatkan Hasil Belajar Siswa Sekolah Dasar. *Jurnal Ilmiah Pendidikan Citra Bakti*, 11(1), 124-138. https://doi.org/10.38048/jipcb.v11i1.2315

Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif dan R&D.* Bandung: Alfabeta.

Utami, D. T., & Gularso, D. (2024). Kesulitan Belajar IPS pada Siswa Sekolah Dasar pada Kurikulum Merdeka: Studi pada SD Negeri Tukangan Yogyakarta. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, *9*(03), 276-286. https://doi.org/10.23969/jp.v9i03.17855

Widianti, A. Y., & Sari, P. M. (2022). Pengembangan LKPD berbasis Keterampilan Berpikir Kreatif menggunakan Maze Chase *Wordwall* pada Pembelajaran IPA Kelas IV SD. *Research and Development Journal of Education*, *8*(2), 617-626. http://dx.doi.org/10.30998/rdje.v8i2.13664

Widyastuti & Agung Putra W. (2018). *Dasar-Dasar dan Perencanaan Evaluasi Pembelajaran.* Yogyakarta: Graha Ilmu.

Wulandari, N. R., Aka, K. A., & Mukmin, B. A. (2023). Pengembangan LKPD Berorientasi Pendekatan Saintifik dengan Aplikasi *Liveworksheet* untuk Siswa Kelas IV Sekolah Dasar. *DIAJAR: Jurnal Pendidikan dan Pembelajaran*, 2(1), 20-27. https://doi.org/10.54259/diajar.v2i1.1295