Al-Ishlah: Jurnal Pendidikan
Vol.17, 1 (March, 2025), pp. 73-89
ISSN: 2087-9490 EISSN: 2597-940X, DOI: 10.35445/alishlah.v17i1.6451

Development of Interactive E-LKPD Based on Live-Worksheets for Reading and Viewing Skills

Rizka Dwi Rahmayani[1], Atmazaki[2]

[1] Universitas Negeri Padang, Padang, Indonesia; rizkadwirahmayani663@gmail.com
[2] Universitas Negeri Padang, Padang, Indonesia; atmazaki@fbs.unp.ac.id

ARTICLE INFO

Keywords:

interactive E-LKPD;
live-Worksheets;
reading skills;
viewing skills;
student engagement

Article history:

Received 2024-11-02
Revised 2024-12-06
Accepted 2025-01-06

ABSTRACT

This study addresses the need for innovative digital learning tools by developing an interactive Electronic Student Worksheet (E-LKPD) based on the Live-Worksheets platform. It aims to enhance reading and viewing skills among Phase F students (Grade XI senior high school) in Indonesian language subjects, aligning with modern educational demands for critical thinking and digital literacy. A Research and Development (R&D) approach utilizing the 4-D model (Define, Design, Develop, and Disseminate) was employed. Data collection instruments included validation sheets for content, media, and language; practicality questionnaires; test instruments; and student activity observations. The E-LKPD was evaluated for validity, practicality, and effectiveness through expert reviews, small and large group trials, and assessments of students' learning outcomes and engagement. Expert validation yielded high scores for content (90%), media (86%), and language (86%). Practicality ratings were similarly high, with 89% for small groups and 91% for large groups. Students demonstrated significant learning improvements, with an average score of 92, while engagement levels reached 98%. Positive responses to the E-LKPD were reported by 91% of participants, highlighting its alignment with students' needs for interactive and creative learning. The findings confirm that the E-LKPD enhances students' reading and viewing skills, such as text comprehension and visual media analysis, while fostering a student-centered learning environment. Its integration of interactive technology promotes adaptive learning and supports digital education goals. The E-LKPD is an effective tool for improving learning outcomes and engagement, advancing literacy, and meeting the demands of digital-era education.

Corresponding Author:
Rizka Dwi Rahmayani
Universitas Negeri Padang, Indonesia; rizkadwirahmayani663@gmail.com

1. INTRODUCTION

The Student Worksheet (LKPD) is a tool widely used to enhance interaction between students and teachers and to support academic success (Istiqomah & Suparman, 2020). Although LKPD can encourage

independent learning and support material comprehension (Marshel & Ratnawulan, 2020), conventional LKPD often has a monotonous design and is less effective in engaging students. Furthermore, conventional LKPDs have not fully addressed the diverse learning needs of students (Prastowo, 2013). These limitations are increasingly evident with the growing emphasis on the development of Higher Order Thinking Skills (HOTS) in education, which requires more innovative and interactive learning resources (Yuanita et al., 2021). One gap identified in this research is the low utilization of E-LKPD in interactive learning, particularly in enhancing students' reading and viewing skills, and its alignment with the demands of the Merdeka Curriculum.

As a solution to these challenges, Electronic Student Worksheets (E-LKPD) offer a more flexible and engaging learning experience through digital media. Supported by technology, E-LKPD provides a more interactive alternative by using various types of media, such as text, images, and videos. This aligns with the principles of 21st-century learning, supports independent learning, and increases student engagement (Alexon & Handayani, 2024). In the context of the Merdeka Curriculum, E-LKPD plays a crucial role in developing reading and viewing skills, which are essential components of the Language subject (Linder & Falk-Ross, 2024). Viewing skills, which encompass students' ability to understand and interpret messages conveyed through visual and audiovisual media, are highly relevant in this context. By integrating various media such as images, videos, and text, E-LKPD provides a more engaging alternative compared to conventional LKPD, making learning more interactive and profound.

However, despite the significant potential of E-LKPD to improve the quality of learning, its use remains limited in some schools, reducing its benefits in enhancing student motivation and decreasing reliance on paper-based learning materials (Nenggala et al., 2024). To address this, the Live-Worksheets platform offers a solution by enabling the creation of more interactive E-LKPD. This platform integrates various types of media and allows real-time monitoring of student progress, thereby enriching the learning experience based on students' individual needs (Yuniastuti et al., 2021; Khikmiyah, 2021). Therefore, Live-Worksheets can enhance the quality of learning, support student-centered activities, and improve students' focus and understanding (Ha Le & Prabjandee, 2023; Nurjanah & Mukarromah, 2021).

This study aims to develop a valid, practical, and effective E-LKPD using the Live-Worksheets platform to improve students' reading and viewing skills. This research addresses the limitations of traditional LKPD by integrating interactive and multimedia-rich resources that support a more engaging and effective learning experience, with a focus on developing viewing skills in accordance with the needs of the Merdeka Curriculum.

2. METHODS

This study employs a Research and Development (R&D) methodology, utilizing a three-stage approach derived from the 4-D development model. This model was selected for its structured and systematic process, which encompasses identifying, formulating, refining, developing, producing, and evaluating a product's validity, effectiveness, and feasibility. The 4-D model was preferred over alternative models due to its clarity and comprehensive framework, ensuring a structured pathway for product development, iterative testing, and necessary revisions—crucial aspects in the creation of educational products. This approach aligns with the study's objective: to develop an E-LKPD utilizing the Live-Worksheets platform, designed to enhance students' reading and viewing skills through the material "Finding Accurate and Current Information in News Texts." The study specifically targets the F phase of the 2024/2025 academic year to ensure its relevance and applicability.

According to Sugiyono (2013), the R&D method is applied to develop new products and test their effectiveness. In this study, the use of the 4-D model (Thiagarajan et al., 1974) was chosen because of its clear and comprehensive structure, which allows for a focus on product development as well as repeated testing and revisions, crucial steps in the development of educational products. This model consists of four main stages: Define, Design, Develop, and Disseminate.

This research was conducted at SMA Negeri 2 Padang from June to August 2024. The product produced is an E-LKPD based on the Live-Worksheets platform, focusing on the reading and viewing elements for the material "Finding Accurate and Current Information in News Texts" for the F phase.

2.1 Development Procedure

The development of this E-LKPD follows the 4-D model proposed by Thagarajan et al. (1974), which consists of four stages: define, design, development, and disseminate. The development procedure is illustrated in Figure 1 as follows:

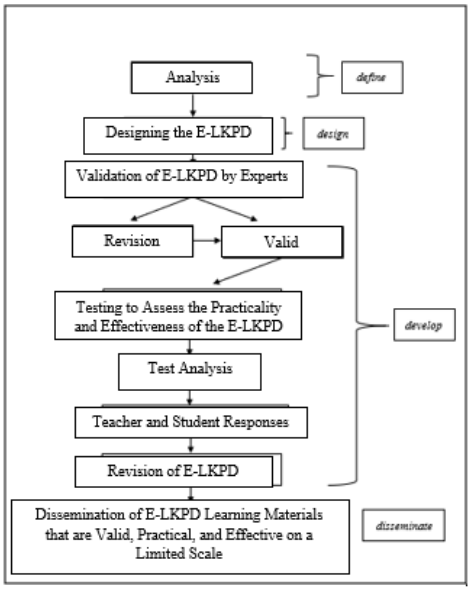

Figure 1. 4-D Model Development Procedure (Source: Adapted from Thiagarajan, 1974)

2.1.1 Definition

The definition stage serves to identify and explain the needs, as well as gather relevant information related to the aspects that will be developed in the product to be created (Haviz, 2016). In this study, the definition stage has been carried out through several phases, including front end analysis, learner analysis, task analysis, concept analysis, and the formulation of learning objectives.

2.1.2 Design

The initial design consists of several components, including the cover page, preface, learning achievements and objectives, learning material, Activity 1: Finding Current News, Activity 2: Identifying Media That Provide Current News, Activity 3: Let's Find the Words, Activity 4: Viewing Audio-Visual Content, Activity 5: Reading News Texts, Activity 6: Evaluation, reflection, and finally, the conclusion. This E-LKPD design refers to Daryanto et al. (2014).

2.1.3 Development

In this study, the development stage includes the E-LKPD Validation phase, small-scale testing, practicality testing of the E-LKPD by teachers and students, and the effectiveness testing of the E-LKPD.

E-LKPD Validity Test

The design of the E-LKPD will be evaluated by each expert to identify its strengths and weaknesses. The E-LKPD will be validated by experts in media and language. The validators who are willing to conduct the validation of the E-LKPD are listed in Table 1.

Table 1. Validator of E-LKPD Assisted by the Live-Worksheets Platform in the Reading and Viewing Elements Phase F

Field	Validator	Affiliation
Material	Dr. Nursaid, M,Pd.	Universitas Negeri Padang
	Vivi Indriyani, M.Pd.	
Media	Prof. Darmansyah, M.Pd.	
Language	Herlin Triana, M.Hum.	

The validator provides an assessment of this E-LKPD by evaluating the statements provided on the validation sheet, referring to the following rating scale.

Table 2. Assessment Criteria for E-LKPD Statement

Symbol	Statement	Value
SS	Strongly Agree	4
S	Agree	3
TS	Disagree	2
STS	Strongly Disagree	1

Practicality Test

The practicality test was conducted after the product was revised based on the suggestions from the validators. The purpose of this test is to assess the responses from both teachers and students. The practicality trial was carried out in two stages: a small-scale trial and a large-scale trial. In the first stage, the practicality questionnaire was distributed to one teacher, Mrs. Rani Mahendra, S.Pd., and six students from a small class. These six students were selected purposively based on inclusion criteria relevant to the product being tested, such as varying levels of reading and observation skills. This sample was chosen to provide constructive feedback on the product, identifying strengths, weaknesses, and offering suggestions for improvement. The small-scale trial aims to identify potential issues with the product before moving on to the large-scale trial.

Based on the positive results from the small-scale trial, the product was further refined, and the trial continued with a large-scale trial involving 32 students from class XI F.11 at SMA Negeri 2 Padang. The students were selected based on the class recap, ensuring a diverse representation of the larger population in terms of background, skills, and learning needs. This selection process allows for a more generalizable result, reflecting a broader range of conditions and characteristics. The larger sample size was chosen to ensure the validity, reliability, and effectiveness of the product across various contexts.

The inclusion criteria and purposeful sampling in both small-scale and large-scale trials are designed to enhance the replicability of the study. By ensuring that the selected samples are relevant and representative, the research can test the product in a wider context with diverse conditions, thus making the findings easier to replicate in future studies or practical applications.

Effectiveness Test

Effectiveness testing is an evaluation process aimed at assessing the extent to which a developed product is effective (Sari & Susanti, 2016). The effectiveness of this E-LKPD development is measured through student learning activities and achievement of learning outcomes.

2.2 Data Analysis

The research data were analyzed using both qualitative and quantitative approaches. Data from the defining and design stages were analyzed qualitatively and presented descriptively. Meanwhile, data from the development stage, including validity, practicality, and effectiveness, were analyzed using quantitative methods.

2.2.1 Qualitative Data Analysis Method

In this Research and Development (R&D) study, qualitative data analysis is focused on understanding the thoughts of participants, interpreting the meaning behind the data, and addressing emerging issues.

The qualitative data is obtained from interviews, observations, and reviewing the LKPD (*Lembar Kerja Peserta Didik*) used in the reading and viewing lessons by students. The analysis follows four key stages: data collection, data reduction, data presentation, and drawing conclusions and verification.

Data Collection

Data collection involves conducting interviews with teachers and students, observing the use of LKPD (including textbooks accessible via the SIBI website), and reviewing the LKPD materials used during reading and viewing lessons. The gathered data is recorded and transcribed for further analysis.

Data Reduction

In this stage, the data collected is filtered to retain only the most relevant and significant information. The data is then grouped into categories such as experiences with printed LKPD, challenges in digital literacy education, and features required for the E-LKPD.

Data Presentation

The categorized data is presented in a structured manner that aids further analysis. This stage is aimed at identifying patterns or trends, such as students' preference for interactive elements in the E-LKPD, which will be a key consideration in the development of the final product.

Drawing Conclusions and Verification

The analysis leads to the drawing of conclusions about the limitations of printed LKPD and the opportunities for improving learning through E-LKPD. Verification of the findings is conducted by referring to literature to ensure the results align with existing research and theoretical frameworks.

The insights gained from this qualitative analysis will inform the initial development of the E-LKPD using the Live-Worksheets platform. The findings will provide essential guidance in designing an E-LKPD that aligns with the needs of both teachers and students.

2.2.2 Analysis of Validity Data

The validation data of the E-LKPD is analyzed to assess the feasibility and relevance of the developed product. The validity scores obtained from the validation sheets filled out by the experts in content, media, and language are tabulated. After that, the validity value is calculated using the following percentage formula.

$$Validity\ Score = \frac{Total\ Score}{Maximum\ Score} x\ 100\%$$

The validity value is then interpreted based on the validity criteria table 3, which is modified from (Riduwan, 2014) , as follows.

Table 3. Criteria for Validity of E-LKPD

Percentage	Validity Criteria	Description
0-20	Not Valid	Total Revision
21-40	Less Valid	Partial Revision
41-60	Sufficiently Valid	Somewhat Revised
61-80	Valid	No Revision Needed
81-100	Very Valid	No Revision Needed

2.2.3 Practically Data Analysis

The practicality data was obtained through the analysis of practicality questionnaires filled out by Indonesian language teachers and students. Data regarding the practicality of using the E-LKPD was analyzed in percentage form. The results of the practicality analysis were then interpreted based on the modified practicality criteria in table 4 from (Purwanto, 2012) as follows.

Table 4. Practicality Criteria for E-LKPD

Percentage	Practicality Criteria
86-100%	Very Practical
76-85%	Practical
60-75%	Quite Practical
≤54%	Very Impractical

2.2.4 Effectiveness Data Analysis

The analysis of the effectiveness of E-LKPD consists of an analysis of student activities and an analysis of student learning outcomes.

Analysis of Student Activities

The data from the observation of the learning implementation is presented in Table 5 to find the percentage of implementation. The percentage value of the implementation is then interpreted based on the modified assessment scale from (Sudjana, 2005) as follows.

Table 5. Qualifications of Learning Implementation

Percentage	Category
$k \geq 90\%$	Very well implemented
$80 \leq k \leq 90$	Well implemented
$70 \leq k \leq 80$	Fairly implemented
$60 \leq k \leq 70$	Poorly implemented
$\boldsymbol{k < 60}$	Very poorly implemented

Analysis of Student Learning Outcomes

The E-LKPD is considered successful if more than 80% of students achieve learning completeness (Hobri, 2010). Learning completeness depends on the Minimum Completeness Criteria (KKM) set by the school, which is 80.

3. FINDINGS AND DISCUSSION

The results of the development of the E-LKPD Assisted by the Live-Worksheets Platform for Students' Reading and Viewing Skills based on the 4-D Model are as follows.

3.1 Define Stage

In the definition stage of developing an interactive E-LKPD using the Live-Worksheets platform, three main analyses were conducted, resulting in crucial data to design a learning media that meets students' needs.

First, the front-end analysis identified students' need for interactive learning media that enhances reading, viewing, and critical thinking skills in evaluating the accuracy of information. To address this need, the design features of the E-LKPD include interactive elements such as educational videos that present news from various perspectives, and application-based exercises requiring students to assess the accuracy of information through fact-checking. Automated feedback is included to provide immediate corrections, allowing students to fix their mistakes and gain a deeper understanding of the concepts.

Second, the task analysis determined the types of tasks based on problem-solving and information analysis, such as evaluating news texts and assessing information sources, to support the learning objectives. These tasks were chosen to train students in evaluating the accuracy and credibility of information they encounter, which supports the development of critical thinking skills. For example, in the E-LKPD, students are provided with news texts to analyze and are asked to verify the truth of the information by cross-checking sources, directly addressing their need to understand how to critically evaluate news.

Third, the concept analysis identified key concepts that students need to master, including information literacy, analytical skills, and the ability to connect text content with personal experiences. To support the mastery of these concepts, the E-LKPD design includes tasks asking students to relate information in the texts to their personal experiences, as well as analyze visual elements in the texts to assess their credibility. The concept of digital literacy is also incorporated by providing exercises that teach students how to evaluate the credibility of news sources in the digital world, which is in line with their need to develop media literacy skills.

The findings from these three analyses will be used to design the E-LKPD, which not only meets students' needs but also supports broader learning objectives, including the development of students' digital and media literacy skills, as well as their ability to assess the accuracy and credibility of information in the technological era.

3.2 Design Stage

The development stages of the E-LKPD (Electronic Student Worksheets) assisted by the Live-Worksheets platform for the reading and viewing elements of the topic "Finding Accurate and Up-to-Date Information in News Texts" involve several key steps. The main concept of this development emphasizes understanding information, cross-checking sources, analyzing current information, digital literacy, and critical viewing to help students identify and evaluate information from various sources.

In the design stage, the construction of test standards is based on reading and viewing assessment indicators, which measure students' abilities to identify key information, analyze the accuracy of information, and evaluate news sources. Media selection, including news texts and the Live-Worksheets platform, is made to enhance students' skills in these areas.

The initial design of the E-LKPD includes key components such as the cover page, which reflects the topic and learning objectives. Figure 2. Cover Page introduces students to the material they will learn, emphasizing the importance of finding accurate and up-to-date information.

Figure 2. Cover Page

Key learning activities in the E-LKPD include both reading and viewing activities. In the reading activity, students will engage in finding accurate and up-to-date information in news texts. **Figure 3. Reading News Texts** will illustrate how students interact with the news material, where they are tasked with identifying main ideas and evaluating the relevance of the information. For example, an activity could ask students to highlight the key points in a news article, helping them focus on accuracy and currency. In the viewing activity, students will analyze visual elements related to the news. **Figure 4.**

Viewing Audio-Visuals will demonstrate how students engage with visual media, such as news infographics or videos. For instance, students might be asked to analyze an infographic that accompanies a news story, assessing how visual components like color and layout contribute to the overall message. This activity helps students build their media literacy skills by evaluating how visuals support the written content.

Figure 3 Reading News Texts

Figure 4 Viewing Audio-Visuals

After completing each activity, students will engage in an evaluation to assess their understanding of the material. **Figure 5. Evaluation** will illustrate how students review their learning outcomes, reflect on their performance, and receive feedback for improvement. In this section, students may answer a set of multiple-choice or short-answer questions to assess their comprehension and critical thinking. For example, one question might ask students to compare the accuracy of two news sources and justify their conclusions.

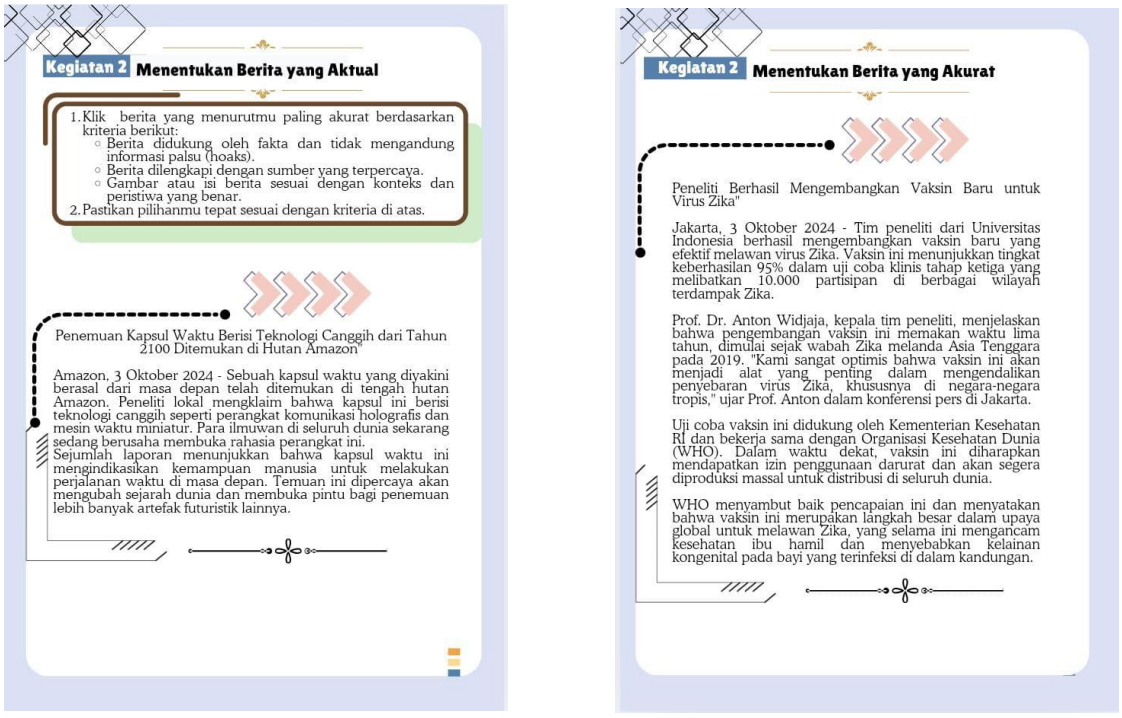

Figure 5. Evaluation

To reinforce learning, an interactive word-search game is included to help students find key terms related to news accuracy. **Figure 6. Let's Find the Words** will show how students search for relevant vocabulary from the news articles, improving their understanding of essential concepts such as "credibility," "bias," and "relevance." This game adds an interactive element that engages students in a fun, educational way..

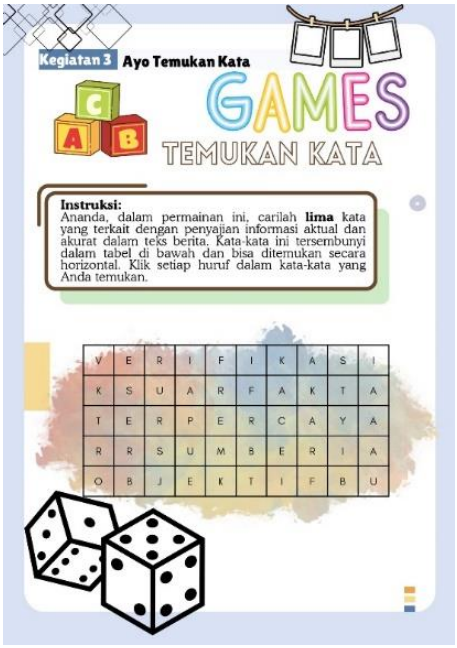

Figure 6. Let's Find the Words

Additionally, the worksheet includes a reflection section to help students critically evaluate their learning progress. **Figure 7. Reflection** provides space for students to reflect on their learning process and consider how they can apply their new skills in real-life situations. For example, students might be prompted to write about how they would evaluate the credibility of a news source in the future. Finally, **Figure 8. Conclusion** summarizes the key takeaways from the lesson, reinforcing the learning objectives. This section serves as a recap, helping students solidify their understanding of the material before moving on to the next lesson.

Figure 7. Reflection

Figure 8. Conclusion

3.3 Development Stage

At this stage, the developed product goes through several stages as follows.

3.3.1 Validation

The following table 6 presents the assessment results from the content expert, media expert, and language expert.

Table 6. Validation Results from the Experts

Validator	Percentage	Qualification
Content Expert	90%	Highly Valid
Media Expert	86%	Highly Valid
Language Expert	86%	Highly Valid

Based on Table 6. above, which includes validation from material, media, and language experts, the E-LKPD received an overall average validity score of 87.3% (categorized as "Very Valid"). Below are the details of the individual validation results for material, media, and language.

Material Expert Validation

The validation results from material experts indicate a validity score of 90%, categorized as "Very Valid." This confirms that the E-LKPD effectively supports the elements of reading and viewing while aligning with learning objectives and providing content relevant to daily life. However, certain aspects require improvement, such as content relevance and critical thinking skills, which received a score of 75% or "Fairly Valid." To enhance the quality of the E-LKPD, several detailed improvement recommendations were provided and implemented.

The recommendations included enhancing visual appeal by adjusting the color composition and lighting. Bright yet balanced colours were used to improve visual attractiveness without compromising readability, while the contrast between the background and text was refined to be more user-friendly. Additionally, language use was refined, replacing terms like "adapun" with more natural expressions to align with the familiar style of the learners and italicizing foreign terms like "headline" to clearly denote them as borrowed words.

The learning steps in the E-LKPD were synchronized with the applied instructional model, comprising five stages that range from introducing concepts to analyzing news. This adjustment ensures a more structured and easily followed learning process for students. These modifications also aim to provide a deeper learning experience through group discussion activities. To ensure content accuracy, additional references were incorporated, including direct quotes from reliable sources, giving students a robust foundation for critically evaluating information. News elements were presented in greater detail, such as defining headline, lead, and body in a tabular format, allowing students to better understand the structure of news reports.

Every suggestion from the validators was meticulously implemented to enhance the overall quality of the E-LKPD. Revisions to language and visuals not only improved aesthetics but also helped students focus more effectively on the material's content. The addition of references and detailed news elements was specifically designed to support the development of students' critical thinking skills. The implementation of these recommendations demonstrates that the E-LKPD has been optimized to support meaningful, relevant, and effective learning processes.

3.1.3.1 Media Expert Validation

The validation results from media experts indicate a validity level of 86%, which falls into the "Highly Valid" category. Positive feedback was provided regarding the layout and navigation of the E-LKPD, which were considered excellent in facilitating material comprehension. Supporting media, such as images, videos, and audio, were deemed relevant and varied, enhancing the interactive learning experience tailored to the cognitive levels of the students. However, the validators offered several suggestions for improvement, including the selection of more relevant images to enhance content appeal and adjustments to the margins and text spacing to align with academic writing standards for better readability.

To implement these suggestions, the following revisions were applied: Selection of more relevant images was made by replacing images that did not support the material context with those that are more appropriate and directly related to the topic. For instance, in discussions on specific concepts, the images chosen now more directly illustrate the topic, which not only boosts visual appeal but also helps clarify the concepts being taught. Adjustment of margins and text spacing was carried out in accordance with academic writing guidelines, aiming to improve readability, ensure the text appears more organized, and make it easier for students to read and comprehend the material comfortably.

Following the implementation of these revisions, the E-LKPD layout showed significant visual improvement. The more relevant images increased the content's appeal, while the adjustments to margins and text spacing made the design cleaner and more aligned with academic standards. These revisions not only met the validators' recommendations but also enhanced the learning experience for students, making the E-LKPD more effective and engaging in supporting material comprehension. Thus, the implementation of the validator feedback not only resulted in visual improvements but also ensured the E-LKPD is more structured and optimized for use in interactive learning processes.

Language Expert Validation

The validation by the language expert indicates a validity level of 86%, categorizing it as "Highly Valid." The language used adheres to Indonesian grammar rules, is clear, and free from ambiguity. Additionally, the presentation of the language has been tailored to align with the age and ability levels of the students.

In response to the validator's feedback, several adjustments were made to enhance the interactivity and relevance of the content. The validator recommended incorporating elements of language that would actively engage students, thereby encouraging their participation in the learning process. To address this, interactive elements such as discussion prompts, collaborative tasks, and engaging vocabulary exercises were added. These adjustments were designed to foster student involvement and to make the learning experience more dynamic.

Furthermore, the formulation of questions was revised to ensure they are directly aligned with the learning objectives, making them more purposeful and relevant to the students. The revisions aimed to

make the content not only linguistically sound but also pedagogically effective in promoting active learning.

Although the language was initially identified as a strength of the E-LKPD, these modifications were essential in further supporting student engagement. The refinements made to increase interactivity and clarify the connection between questions and learning goals were integral in enhancing the overall validity of the content.

3.3.2 Practicality

The trial was conducted in two stages: a small-scale and a large-scale phase. In the first stage, the practicality questionnaire was distributed to one teacher and six students from a small class. Based on the positive results, the trial continued with a large-scale phase involving 31 students from class XI F.11 at SMA Negeri 2 Padang.

Responses from the Teacher and Students in the Small Group

The analysis of the practicality data was based on four main aspects: Ease of Use, Time Efficiency, Student Engagement, and Interpretation and Assessment. Overall, the results of the trial showed that the E-LKPD was well received by all respondent groups, with very positive evaluations as follows.

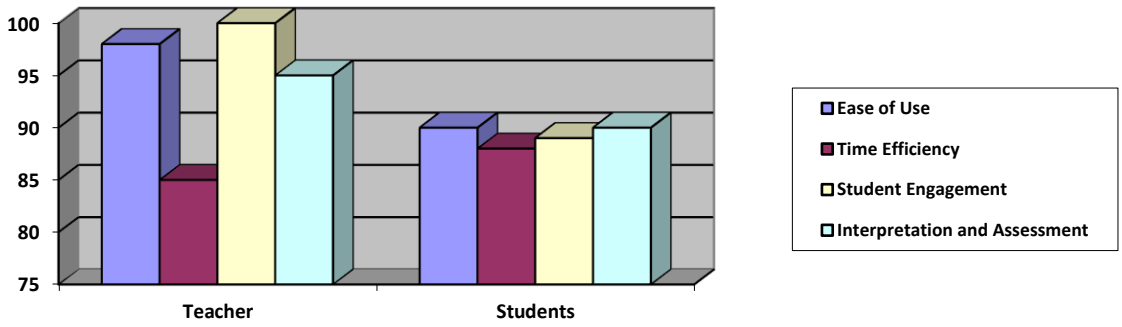

Figure 15. Student Learning Outcomes

Based on Figure 15 above, The E-LKPD platform received high ratings for ease of use, with 98% of teachers and 90% of small group students finding it intuitive. Time efficiency was also well-rated, with 85% of teachers and 88% of students noting its effectiveness, though some suggested a more balanced time distribution. In terms of engagement, 100% of teachers and 89% of students found the multimedia features engaging, with suggestions for adding discussion forums. Feedback on interpretation and assessment was positive (95% for teachers, 90% for students), though some requested more detailed, rubric-based feedback.

Large-Scale Trial

After a successful small-scale trial, a large-scale trial was conducted with 31 students from class XI F.11 at SMA Negeri 2 Padang, resulting in an average practicality score of 91%. This demonstrates the high practicality of the E-LKPD and its positive impact on enhancing the effectiveness of learning, particularly in reading and observing elements. However, areas for improvement were identified, including increasing student engagement in collaborative activities and the development of critical thinking skills. Although engagement was good, further strengthening of group discussions, collaborative projects, and debates is recommended. Additionally, some students suggested more balanced time allocation for activities to avoid rushing or over-spending time on certain tasks, with flexible time management as a potential solution.

Effectiveness of E-LKPD Assisted by the Live-Worksheets Platform in Reading and Viewing Elements

The effectiveness of the E-LKPD in Reading and Viewing is assessed through student learning outcomes and the observation of student activity during the learning process. The development of the

E-LKPD using the Live-Worksheets platform has proven to be effective and interactive, as shown by improvements in student learning outcomes and active participation. The following is the analysis:

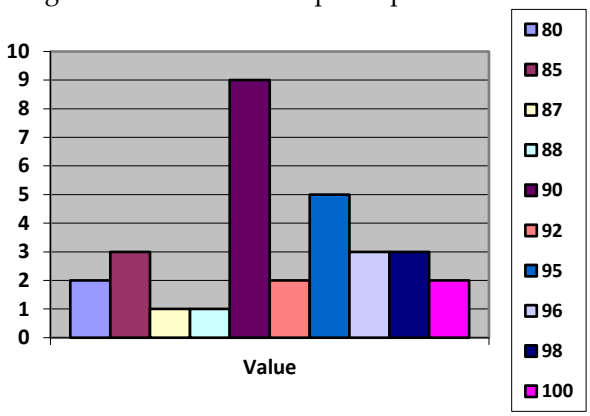

Figure 16. Student Learning Outcomes

Based on Figure 16 above, the use of the E-LKPD supported by the Live-Worksheets platform led to an average student learning outcome score of 92, with most students scoring between 90 and 95. This improvement in learning outcomes reflects the effectiveness of the platform in enhancing student achievement.

Observations of student activities revealed a very high level of engagement. Below is the percentage of student activities based on their categories.

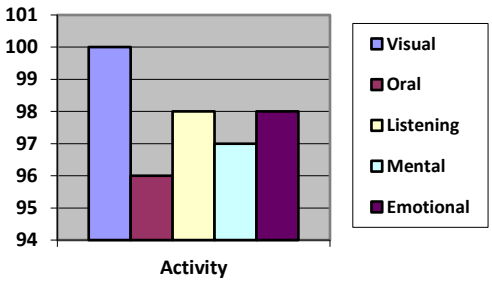

Figure 16. Students Activity

Figure 16 above shows that over 95% of students are highly engaged in the learning process, demonstrating strong visual, auditory, and mental involvement. This high level of engagement contributes to improved learning effectiveness and academic outcomes.

Discussion

Using the Live-Worksheets platform, this study successfully developed a valid E-LKPD (Electronic Student Worksheet). This research aimed to create a valid, practical, and effective E-LKPD based on this platform to enhance students' reading and viewing skills. Evaluation of learning outcomes and observation of student activities showed that the use of this digital platform-based E-LKPD significantly improved students' abilities to analyze information and think critically, as evidenced by their improved academic results.

The results of this study are consistent with the research conducted by Fitriyah & Ghofur (2021), which indicated that over-reliance on textbooks as the sole learning source could hinder students' ability to process information effectively. This study also emphasizes the crucial role of teachers in designing instructional materials that incorporate technology, such as the Live-Worksheets-based E-LKPD. These findings are supported by the research of Tressyalina et al., (2023) which found that interactive E-LKPDs with engaging content and easy-to-understand language can boost student interest and learning motivation, while strengthening their reading and viewing skills through the

analysis of provided texts and images. Moreover, this research highlights the importance of using interactive media to help students identify key information and evaluate the accuracy of information in news texts, which aligns with recommendations from prior studies.

The validation process by experts showed that the developed E-LKPD achieved a very high level of validity. This is consistent with the findings of Yuniati et al. (2022), who reported similar validation results for the Live-Worksheets-based E-LKPD. In both studies, content, media, and language validity were highly rated, with positive evaluations of the content and design. The results from both small and large group trials indicated that this E-LKPD is user-friendly, time-efficient, and capable of engaging students in interactive activities. However, some suggestions for improvement emerged, such as adjustments to time allocation and enhancing student engagement in each activity.

Suboptimal time allocation for some activities may be due to the complexity of tasks that require more time than initially planned. Some interactive activities that require in-depth analysis or group discussions may need additional time to ensure better understanding. To address this, it is recommended that the E-LKPD include more flexible time management guidelines, as well as additional time for more complex tasks. For example, tasks requiring analysis or group discussions could be allocated extra time to allow students to formulate their thoughts more thoroughly.

Additionally, although collaborative activities are highly engaging, they may receive less favorable evaluations due to differences in participation levels among students. Some students may feel less involved if their roles are unclear or if there is an imbalance in task distribution. To enhance involvement in collaborative activities, these tasks could be designed with more structured and clear roles for each group member (Johnson et al., 1998). For example, each student could be assigned a specific responsibility to ensure that all group members actively participate and have an equal experience.

In addition to adjusting time allocation and collaborative roles, it is important to consider reducing activities that may be too lengthy or repetitive. Therefore, simplifying overly complex tasks or providing more varied activity options could be ways to maintain students' focus while ensuring that learning objectives are met within the allocated time.

Although conventional worksheets are effective in some aspects, a study by Elfina & Sylvia (2016) indicates that these worksheets have limitations in developing critical thinking skills and independence. Therefore, innovations such as technology-based E-LKPD (Electronic Student Worksheets) are essential to meet the learning needs in the digital age and create more engaging learning experiences. The findings of this research show that the use of digital platform-based E-LKPD can enhance students' critical thinking skills, particularly in identifying relevant information and evaluating the accuracy of presented data. These results support the research of Hurrahma & Sylvia (2022), which demonstrates that digital tools can increase student engagement and analytical skills.

This study aligns with Chan's (2020) thinking (in Webb et al., 2019) who emphasizes the importance of viewing skills due to the advancement of the internet and technology. Furthermore, these findings are consistent with Prabowo (2021), which shows that the use of digital platforms such as E-LKPD can significantly improve students' academic performance. This supports the view that technology, through platforms like E-LKPD, not only enhances students' viewing skills but also contributes to the development of digital literacy and critical thinking skills. However, despite the great potential of technology to enhance reading and viewing skills, the interest in reading in Indonesia remains very low—only around 0.001%, meaning only one in a thousand people is actively engaged in reading. Therefore, the application of technology in learning is crucial to support viewing skills as the fifth macro skill in language communication and address the low reading interest in Indonesia (Meliyanti et al., 2021).

Although technology offers many benefits in education, challenges such as limited internet access remain obstacles. Research by Smith (2020) (in Aldyandra et al., 2024) shows that many teachers lack the skills to use educational technology effectively, highlighting the need for more training in digital literacy. The varying levels of digital skills among teachers can affect the success of online learning,

with less skilled teachers struggling to design and deliver digital content effectively. Furthermore, limited internet access becomes a significant barrier, especially for students with lower technology skills. Therefore, it is important to develop flexible E-LKPD that can be accessed offline on various devices to ensure inclusivity and support successful learning in the digital era for all students.

This research demonstrates the great potential of E-LKPD in modern education, especially in teaching critical literacy and digital competence. The integration of multimedia elements, such as video and interactive texts, encourages active learning and provides a more meaningful learning experience. These findings have significant implications for improving students' information literacy, which is increasingly important in the digital age, where the spread of inaccurate information is common.

This research paves the way for further studies to explore the long-term impact of E-LKPD usage on students' critical thinking skills and academic performance. Future research could also focus on how to address existing technical challenges, such as ensuring offline functionality and optimizing E-LKPD for environments with limited technology access.

4. CONCLUSION

This study successfully developed a valid, practical, and effective E-LKPD (Electronic Student Worksheet) using the Live-Worksheets platform to enhance students' reading and viewing skills in Indonesian language instruction. The research followed three key phases: define, design, and develop. The needs analysis in the definition phase highlighted that traditional print-based learning media no longer meet students' expectations, as they prefer interactive tools that support digital literacy. The design phase integrated interactive features such as news analysis, media reflection, and educational games to foster critical thinking and engagement. Validation tests showed high content, media, and language validity (87.3%), while small-scale and large-scale trials demonstrated significant effectiveness, with an average practicality score of 91% and learning outcome improvements reaching 92%. The findings indicate that the E-LKPD enhances both student understanding and engagement, as 95% of students actively participated in learning activities. However, challenges emerged, particularly in time allocation (85%) and collaborative activities, suggesting a need for better management of group interactions. These results have important implications for the development of technology-integrated learning, offering an innovative solution to bridge the gap between traditional print materials and digital learning demands. Despite its success, the study has limitations, particularly regarding technical barriers such as internet connectivity and device accessibility. To ensure broader adoption, future research should explore offline access solutions and compatibility with various devices. Additionally, expanding the implementation of E-LKPD in other subjects and educational levels could further assess its impact on critical thinking, digital literacy, and student performance. Addressing these aspects will improve the scalability and inclusivity of digital learning tools in diverse educational settings.

REFERENCES

Aldyandra, Marlina, & Sirozi, M. (2024). Mengatasi tantangan pembelajaran berbasis digital dengan prinsip-prinsip dan tahapan perencanaan yang tepat. *Unisan Jurnal*, *3*(5), 71–82.

Alexon, & Handayani, D. (2024). The development of e-LKPD with a culture-based integrated learning model (MPTBB) to improve student learning outcomes on buffer solution material. *International Journal of Information and Education Technology*, *14*(1), 141–150. https://doi.org/10.18178/ijiet.2024.14.1.2034

Daryanto, Dwicahyono, A., & Purwanto, D. (2014). *Pengembangan perangkat pembelajaran (silabus, RPP, PHB, bahan ajar)*. Gava Media.

Elfina, S., & Sylvia, I. (2016). *Pengembangan lembar kerja peserta didik (LKPD) berbasis problem based learning (pbl) dalam meningkatkan kemampuan berpikir kritis siswa pada mata pelajaran sosiolofi di SMA Negeri 1 Payakumbuh*. *2*(1), 1–23.

Fitriyah, I. M. N., & Ghofur, M. A. (2021). Pengembangan E-LKPD berbasis android dengan model

pembelajaran problem based learning (PBL) untuk meningkatkan berpikir kritis development of android-based e-lkpd with problem based learning (PBL) learning model to improve critical thinking. *Jurnal Ekonomi & Pendidikan*, *18*(1), 2021.

Ha Le, V. H., & Prabjandee, D. (2023). A review of the website liveworksheets.com. *Call-Ej*, *24*(1), 269–279.

Haviz, M. (2016). Research and Development; Penelitian Di Bidang Kependidikan Yang Inovatif, Produktif Dan Bermakna. *Ta'dib*, *16*(1). https://doi.org/10.31958/jt.v16i1.235

Hobri. (2010). *Metodologi penelitian pengembangan*. Pena Salsabila.

Hurrahma, M., & Sylvia, I. (2022). Efektivitas E-LKPD Berbasis liveworksheet dalam meningkatkan hasil belajar sosiologi peserta didik di kelas XI IPS SMA N 5 Padang. *Jurnal Sikola: Jurnal Kajian Pendidikan Dan Pembelajaran*, *4*(1), 14–22. https://doi.org/10.24036/sikola.v4i1.193

Istiqomah, A. N., & Suparman. (2020). Design of e-student worksheet for linier equation based on discovery learning to improve creative thinking. *International Journal of Scientific and Technology Research*, *9*(4), 2579–2584.

ohnson, D., Johnson, R., & Smith, K. (1998). Cooperative learning center directors : roger t . johnson and. *The Annual Report of Education Psychology in Japan*, *July 2016*, 0–29. https://doi.org/10.5926/arepj1962.47.0

Khikmiyah, F. (2021). Implementasi web live worksheet berbasis problem based learning dalam pembelajaran matematika. *Pedagogy: Jurnal Pendidikan Matematika*, *6*(1), 1–12. https://doi.org/10.30605/pedagogy.v6i1.1193

Khoerunnisa, N., Badruzzaman, N., & Gani, R. A. (2023). Pengembangan lembar kerja peserta didik elektronik (e-lkpd) berbasis liveworksheets pada subtema lingkungan tempat tinggalku. *DWIJA CENDEKIA: Jurnal Riset Pedagogik*, *7*(1), 391. https://doi.org/10.20961/jdc.v7i1.71718

Kristanto, W., Harun, Syamsudin, A., & Hendrowibowo, L. (2025). Student engagement and digital literacy in knowledge acquisition in seamless learning. *Ubiquitous Learning*, *18*(1), 113–133. https://doi.org/10.18848/1835-9795/CGP/v18i01/113-133

Linder, R., & Falk-Ross, F. (2024). Multimodal resources and approaches for teaching young adolescents: a review of the literature. *Education Sciences*, *14*(9). https://doi.org/10.3390/educsci14091010

Marshel, J., & Ratnawulan. (2020). Analysis of students worksheet (lkpd) integrated science with the theme of the motion in life using integrated connected type 21st century learning. *Journal of Physics: Conference Series*, *1481*(1). https://doi.org/10.1088/1742-6596/1481/1/012046

Meliyanti, M., Raraswati, P., Nuruddin Hidayat, D., & Aryanto, S. (2021). Kajian literatur: perkembangan literasi dan numerasi di lingkungan keluarga. *Jurnal Pendidikan Tambusai*, *5*(3), 6504–6512. https://jptam.org/index.php/jptam/article/view/1973

Nenggala, M. P., Razi, P., Hidayati, & Sari, S. Y. (2024). Electronic student worksheet for solving problems in physics material based on problem-based learning. *International Journal of Information and Education Technology*, *14*(7), 945–954. https://doi.org/10.18178/ijiet.2024.14.7.2121

Nurjanah, N. E., & Mukarromah, T. T. (2021). Pembelajaran berbasis media digital pada anak usia dini di era revollusi industri 4.0: studi literautur. *Ilmiah Potensia*, *6*(1), 66–77.

Okra, R., & Novera, Y. (2019). Pengembangan media pembelajaran digital IPA Yulia Novera. *Journal of Educational Studies*, *4*(2), 121–134.

Prabowo, A. (2021). Penggunaan liveworksheet dengan aplikasi berbasis web untuk meningkatkan hasil belajar peserta didik. *Jurnal Pendidikan Dan Teknologi Indonesia*, *1*(10), 383–388. https://doi.org/10.52436/1.jpti.87

Prastowo, A. (2013). *Panduan kreatif membuat bahan ajar inovatif: menciptakan metode pembelajaran yang menarik dan menyenangkan* (D. Wijaya (ed.)). Diva Press.

Purwanto. (2012). *Statistika untuk Penelitian*. Pustaka Pelajar.

Riduwan. (2014). *Dasar-dasar statistika* (P. D. Iswarta (ed.); Ed. rev. C). Alfabeta.

Sari, L. Y., & Susanti, D. (2016). Uji efektivitas media pembelajaran interaktif berorientasi

konstruktivisme pada materi neurulasi untuk perkuliahan perkembangan hewan. *Bioconcetta*, *2*(1), 158–164. https://doi.org/10.22202/bc.2016.v2i1.1806

Sari, R. N., Rosjanuardi, R., Herman, T., Isharyadi, R., & Balkist, P. S. (2024). Development of mathematics interactive e-worksheet. *The Eurasia Proceedings of Science Technology Engineering and Mathematics*, *28*, 317–325. https://doi.org/10.55549/epstem.1521959

Sudjana. (2005). *Metode Statistika*. Tarsito.

Sugiyono. (2013). *Metode penelitian kuantitaitf, kualitatif, dan R&D*. Alfabeta.

Tressyalina, T., Noveria, E., Arief, E., Wulandari, E., & Ramadani, N. T. (2023). Analisis kebutuhan e-lkpd interaktif berbasis kearifan lokal dalam pembelajaran teks eksposisi. *Educaniora: Journal of Education and Humanities*, *1*(1), 23–31. https://doi.org/10.59687/educaniora.v1i1.1

Uddin, M. M., & McNeill, L. J. (2025). Flipping the traditional classroom in teaching classical literature in higher education: an experiment with oedipus rex by sophocles. *Ubiquitous Learning*, *18*(1), 1–26. https://doi.org/10.18848/1835-9795/CGP/v18i01/1-26

Webb, S., Massey, D., Goggans, M., & Flajole, K. (2019). Thirty-five years of the gradual release of responsibility: scaffolding toward complex and responsive teaching. *Reading Teacher*, *73*(1), 75–83. https://doi.org/10.1002/trtr.1799

Yuanita, P., Maimunah, & Arnellis. (2021). The effectiveness of student worksheet based on 4'cs skills to improve higher order thinking skills students' SMP Pekanbaru. *Journal of Physics: Conference Series*, *1742*(1). https://doi.org/10.1088/1742-6596/1742/1/012019

Yuniastuti, Miftakhuddin, & Khoiron, M. (2021). Media pembelajaran untuk generasi milenial Tinjauan Teoretis dan Pedoman Praktis. In *Media Pembelajaran untuk Generasi Milenial* (Issue April). https://doi.org/10.17605/OSF.IO/WPXMA

Yuniati, S., Murniviyanti, L., & Prasrihamni, M. (2022). Pengembangan E-LKPD berbasis liveworksheet pada pembelajaran menulis puisi siswa kelas IV SD. *Journal of Educational Review and Research*, *6*(2), 94–100. https://journal.stkipsingkawang.ac.id/index.php/JERR/article/view/3494