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The Development of Liveworksheets as Interactive Instructional Media for Teaching Reading Descriptive Texts at X Grade

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A B S T R A C T

Technology's integration in education has transformed pedagogical approaches, particularly in the field of language acquisition. This research explores the use of Liveworksheets as an interactive educational resource for teaching Grade X students in descriptive texts. The aim is to create an effective and engaging learning tool to improve student understanding and motivation, while overcoming the limitations of conventional teaching approaches. This study uses the ADDIE model (Analysis, Design, Development, Implementation and Evaluation), excluding the Implementation phase. Experts in materials, media, and pedagogy evaluated the final product's quality to confirm its appropriateness. The validation results indicated that Liveworksheets is a highly valid educational tool, obtaining an average expert validation score of 3.5 and classified as "Highly Valid." The results indicate that the integration of technology in educational settings enhances interactive learning and sustains student engagement. Moreover, the fully online format of Liveworksheets supports environmental sustainability by minimizing paper usage. This technology provides educators with an environmentally friendly alternative to traditional worksheets and fosters student-centered digital learning. Further study is required to investigate the implementation phase and measure its efficacy in educational contexts.

1. Introduction

In the 21st century, integrating technology into education has become necessary. It has changed traditional teaching methods into more interactive and interesting ones. The recent advancement of digital learning environments has significantly impacted teaching of the English language, where reading comprehension continues to be a vital ability for student achievement (Fitriani, 2024; Kencana, 2024). Descriptive texts are often hard for students because they need to be able to recognize detailed information and make visual representations of the things or events being described.

Traditional methods, like printed textbooks and reading tasks that focus on the teacher, tend to lower student motivation and limit chances for active participation (Nuralisaputri & Megawati, 2023; Syahputra et al., 2022)

Studies in the area of technology is becoming increasingly recommended as a way of solving challenges in English language acquisition, particularly to improve reading proficiency. Several studies have shown that integrating instructional technology can significantly enhance student engagement, motivation, and comprehension (Pramono et al., 2023; Wastira et al., 2025). For instance, Fahruddin et al. (2022) examined students' impressions of online learning media platforms during the COVID-19 pandemic. Their findings indicated that students prioritize clarity and interactivity in media tools. However, most previous research has concentrated on broader English language skills, such as vocabulary, grammar, or speaking rather than on reading descriptive texts (Ratri Budiwati, 2024; Ria Elviana, Rita Inderawati, 2020). Furthermore, while digital learning platforms are widely used, few studies target interactive web-based platforms that allow contextual reading and immediate feedback. This gap highlights the need for developing an innovative instructional medium such as Liveworksheets to support descriptive text learning.

In addition, although the Merdeka Curriculum (Kepmendikbudristekdikti, 2022) emphasizes learner autonomy, creativity, and contextualized learning, not all digital instructional media have been systematically developed to reflect these principles. The curriculum requires the integration of interactive and adaptable resources to provide individualized instruction and encourage learners to learn independently. Current research rarely examines the design of digital platforms in relation to curriculum objectives, particularly for the teaching of descriptive texts at the senior high school level. This study seeks to develop and validate Liveworksheets as an interactive instructional tool in accordance with the Merdeka Curriculum for Grade X students.

Another important aspect of this study is environmental sustainability. Traditional paper-based worksheets raise environmental issues, particularly due to the large amount of paper in educational environments. The use of digital media enhances teaching methods and aligns with the global movement towards sustainable education and eco-friendly classroom practices. Studies demonstrate that digital worksheets or eco-learning media (e-worksheet flipbooks) significantly lower paper resource consumption while improving environmental literacy and teaching effectiveness (Fadilah et al., 2024; Sumarmi et al., 2021). Electronic student worksheets focused on ecology and biodiversity showed efficacy in enhancing critical thinking and digital literacy (Anggraini et al., 2024). The implementation of digital worksheets enables educators to decrease paper usage while providing students with a modern, interactive learning experience that aligns with sustainable education principles.

Based on these issues, this research is designed to develop and validate Liveworksheets as interactive instructional media for teaching descriptive texts to X Grade students. The research employs the ADDIE development model, focusing

on the Analysis, Design, and Development and Evaluation phases to enable systematic product creation and expert validation. The findings aim to improve English teaching methodologies in Indonesian high schools by providing a realistic, practical, and ecologically sustainable educational resource.

2. Methodology

Research Design

This study utilized the Research and Development (R&D) methodology to design, develop, and validate Liveworksheets as interactive instructional media for teaching descriptive texts to Grade X students. The ADDIE model (Analysis, Design, Development, Implementation, and Evaluation) was chosen because it is a systematic framework that is widely used for instructional design (Sugiyono, 2020). The ADDIE model was systematically adapted to meet the research objectives, taking consideration of the needs of the students and the requirements of the Merdeka Curriculum. The implementation stage was not conducted, as the study focused only on the development and validation of the instructional media. The ADDIE model is shown in Figure 1.

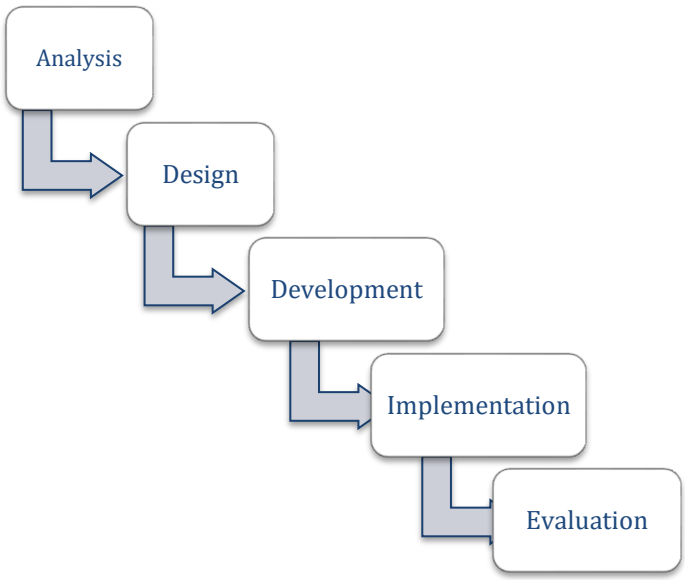

Figure 1. ADDIE Model

Procedure

1. Analysis Stage
   The analysis phase involves identifying pedagogical needs through interviews with teachers and questionnaires for students. These tools are used to collect data on the difficulties encountered in teaching and learning descriptive texts, preferred teaching methods, and the impact of technology on increasing engagement and understanding. Curriculum analysis is

conducted to ensure its suitability with the Merdeka program, which prioritizes creativity, independence, and student-centered learning.

2. Design Stage
   The design stage starts with the creation of storyboards and flowcharts that define the framework for Liveworksheets-based materials. The main layout, color palette, and visual elements are created using Canva to ensure an engaging and consistent visual experience. Multimedia components, including videos, audio segments, and interactive activities, are then integrated into Liveworksheets in accordance with the approved pedagogical structure. This stage emphasizes pedagogical alignment and visual consistency to ensure that the media is functional and engaging for students.

3. Development Stage
   During the development phase, Liveworksheets teaching materials were created and integrated into various features, including drag-and-drop exercises, multiple-choice questions, and audio components. This product was reviewed and approved by three experts specializing in subject matter, media, and pedagogy. Validation forms and Likert scales (Sugiyono, 2020) used to collect feedback from the experts, which formed the basis for iterative revisions of the product to improve its quality and ease of use.

4. Evaluation Stage
   The purpose of the evaluation phase is to determine whether the Liveworksheets teaching materials created are valid in terms of content, teaching materials, and pedagogical factors. For the validation process, three experts will be required, the material, media, and pedagogical. The validators are asked to rate the validity on a scale of one to four, with 4 = "Very Valid," 3 = "Valid," 2 = "Less Valid," and 1 = "Invalid." Quantitative data from the validation sheets are converted into percentages to assess the overall product quality using the following formula:

$$\bar{x} = \frac{\sum x}{N}$$

   Where:
   $\bar{x}$ = The average score obtained from the transfer of media or materials.
   $\sum x$ = Total value given by validator.
   N = Number of statements on the expert questionnaires.
   The cumulative scores from each validator are subsequently combined in order to determine the validity level for each aspect. The interpretation of average scores fits to the standards set stated by Riduwan (2022), the criteria for validation are presented in Table 1.

Table 1. Validity Criteria

The Average Score Interval	Validity Category
$3.25 \leq x \leq 4$	Very Valid
$2.5 \leq x \leq 3.25$	Valid
$1.75 \leq x \leq 2.5$	Less Valid
$1 \leq x \leq 1.75$	Invalid

The validation sheets also provide space for qualitative comments, which are used as the basis for revising the product before final approval. This stage ensures that the developed media not only meets quantitative validity standards but also reflects expert feedback for pedagogical and technical improvement.

Data Collection and Analysis

This study uses various data collection strategies to ensure a deep understanding of pedagogical needs and the effectiveness of teaching materials. A needs analysis will be conducted by interviews with teachers and questionnaires for students to identify challenges faced in learning descriptive texts and preferences for teaching materials. This stage provided significant insights into current pedagogical methods, student learning challenges, and the impact of technology on enhancing engagement and comprehension.

Second, validation sheets are distributed to three experts specializing in materials, media design, and pedagogy. The results from the validators are used as data to answer the research questions. These sheets evaluate various aspects of the Liveworksheets media, including content validity, interactive features, quality of design, and alignment to pedagogical standards. The validation process ensures that the media matches with educational standards and meets the needs of students and teachers. Finally, quantitative data from the validation sheets are analyzed using descriptive statistics. The scores are converted into percentages to evaluate the validity and quality of the media. The following scale is applied: 80–100% (valid), 60–79% (sufficiently valid), and below 60% (less valid). This systematic analysis evaluates the effectiveness of media and informs future revisions.

3. Results and Discussion

The development of Liveworksheets as an interactive instructional media for teaching descriptive texts was carried out in five phases following the ADDIE model: analysis, design, development, implementation, and evaluation. Each stage contributed to the development of a digital learning product that was valid, engaging, and pedagogically relevant. Analysis shows that students often have difficulty understanding descriptive texts due to the repetitive nature of the teaching materials used in class, which also lack interactive components. Teachers claim that their reading sessions rely heavily on printed exercises, which results in low participation from students. These findings indicate a need for technology support to improve student motivation and understanding.

In the design and development stages, the researcher created visual and interactive layouts using Canva and Liveworksheets. The design included the main interface, learning objectives, and interactive exercises that combined visual, auditory, and kinesthetic elements. Figure 2 presents the interface and design flow of the developed Liveworksheets, which illustrate how the learning activities were structured and navigated by students.

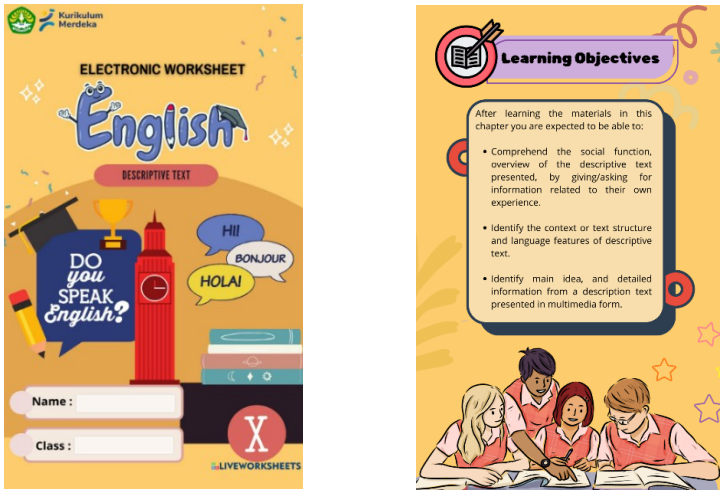

Figure 2. The Interface and Design Flow of Liveworksheets

The developed product incorporated multimedia elements such as interactive videos, listening activities, and drag-and-drop tasks to improve learning interactivity. The worksheets included materials and exercises aimed at describing people, places and objects, in accordance with the Merdeka Curriculum. Examples of interactive features are presented in Figure 3.

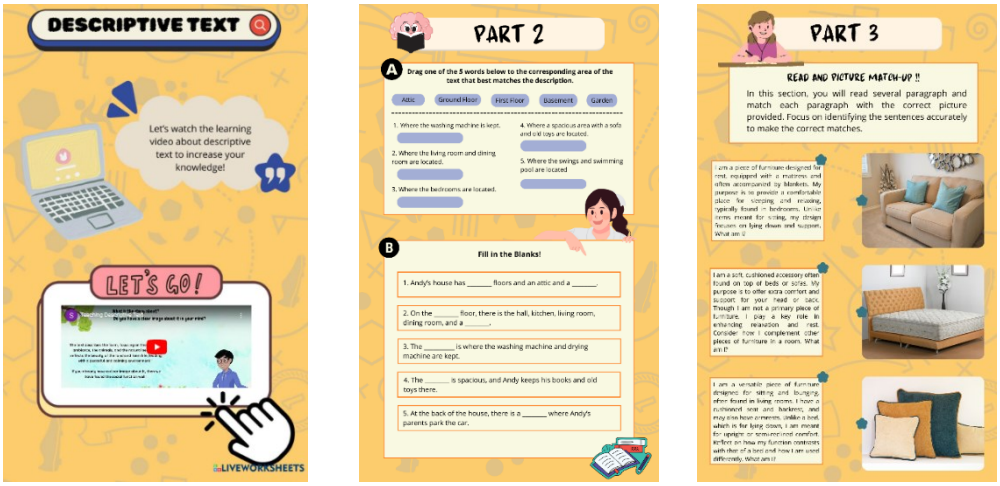

Figure 3. Example of Interactive Features in Liveworksheets

The implementation phase is excluded as this research focused on the development and validation stages. The study seeks to create valid and useful educational media instead of assessing its effectiveness in classroom environments. The evaluation phase prioritizes expert validation to determine the quality and viability of the

developed product. Three experts specializing in material, media, and pedagogy provide their assessments and recommendations, resulting in several revisions to enhance color balance, task clarity, and design consistency. After the validation process, the media obtains a mean validation score of 3.5, categorizing it as Highly Valid. The validators agree that Liveworksheets effectively integrates digital media features with instructional design principles, encouraging student-centered learning and improving comprehension through active participation. The summary of results is presented in Table 2.

Table 2. Validation Results

Validation Aspect	Criteria Assessed	Average Score	Final Score
Material Validation	Suitability with Curriculum	3.6	3.89
	Comprehensiveness	4	
	Alignment with Current Technology	4	
	Readability	4	
Media Validation	The Benefits of Media	3.66	3.5
	The Media Design	3.33	
	The Operation of Media	3.6	
Pedagogic Validation	Content Quality	3.75	3.76
	Pedagogical Design	3.75	
	Usability and Technical Quality	3.66	
	Overall Effectiveness	3.76	

The results of this study provide strong evidence that the development of Liveworksheets as interactive instructional media effectively addresses the challenges in teaching descriptive texts to Grade X students. Validation outcomes across material, media, and pedagogical aspects confirm its effectiveness in fostering active learning and improving comprehension (Alyanabila et al., 2025; Astuti et al., 2022). The clarity, relevance, and alignment of the content with curriculum objectives demonstrate that Liveworksheets successfully meets the primary goal of creating a practical and engaging instructional medium. Furthermore, its ease of use and accessibility for both students and teachers make it a user-friendly tool that overcomes the common challenges associated with traditional non-interactive resources (Haryati et al., 2023)

The results of this study are consistent with those of previous studies that highlight the positive impact of interactive media on student engagement. Sofyan & Ridwan (2022) developed Prezi-based media for teaching the Indonesian language, which demonstrated significant validity and received positive feedback regarding its appeal and usability. Monica et al. (2023) found that animated videos with subtitles can significantly improve students' vocabulary mastery. Valentina ‘Ainur Rofiqoh & Dina Kartikawati (2024) investigated the use of animated video media for teaching descriptive texts, finding enhancements in students' interest and comprehension. This research builds upon previous work by incorporating various interactive features into a single platform designed specifically for the learning of descriptive text.

This study makes a significant contribution by focusing on descriptive texts, an area often overlooked in previous research on media development. It enriches the literature by proposing a genre-specific approach, unlike other studies that focus more on general language skills. In addition, Liveworksheets supports environmentally friendly learning practices, in line with green education and eco-literacy programs (Baharuddin S et al., 2025; Khusnul Khotimah et al., 2024; Zuhriyah, 2023). The digital format reduces paper usage, making it both educationally effective and environmentally friendly.

Overall, the integration of multimedia components in Liveworksheets increases student motivation, independence, and understanding through interactive learning experiences. This is also in line with the concepts of flexibility and contextual learning in the Merdeka program, which allows teachers to tailor content to different needs in the classroom. Although classroom implementation was not the focus of this study, the results show that Liveworksheets is a viable, innovative, and sustainable learning tool that is suitable for use in classrooms in the future.

4. Conclusion

This study aims to develop and validate Liveworksheets, an interactive learning resource focused on expository texts for 10th grade students. This technology-based learning tool, featuring multimedia elements, is designed to improve student engagement and comprehension through interactive exercises and rapid feedback. This study focuses on the analysis, design, and development phases using the ADDIE paradigm. Validation by experts in content, media, and pedagogy shows that Liveworksheets is fully valid and suitable for classroom use. The findings demonstrate that Liveworksheets effectively address the challenges of traditional teaching methods, which often fail to maintain student interest.

In addition, this platform supports environmental education by reducing dependence on paper-based teaching materials. The results of the study show that this digital learning tool is feasible, attractive, and in line with modern curriculum standards, making it a practical and sustainable solution for teaching English. Although the implementation phase has not yet been carried out, future research should explore the application of this tool in the classroom to measure its impact on student learning outcomes. Other studies could also expand its use to various types of texts and subjects, ensuring a broader contribution to technology-integrated education.

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