

Developing Interactive Worksheet Using Augmented Reality for Writing Descriptive Text

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Abstract

Writing descriptive text is still challenging for vocational high school students because they often have difficulty generating ideas and staying motivated. This study aimed to develop interactive worksheet using Augmented Reality (AR), evaluate their feasibility, and identify the challenges during implementation. This research used the Research and Development (R&D) method with the ADDIE model, including Analysis, Design, Development, Implementation, and Evaluation. The participants were 26 tenth-grade students at a vocational high school in Cimahi, West Java. Data were collected through documentation, validation sheets, and field notes. The findings showed that the interactive worksheet were successfully developed using Canva and Assemblr Edu. The validation results reached 97.92%, indicating that the product was highly feasible for classroom use. Students showed positive responses and actively participated in the learning activities. In conclusion, integrating Canva and Assemblr Edu into interactive worksheet provides an engaging learning experience and effectively supports students in writing descriptive texts.

Keywords: Worksheet; Augmented Reality; Descriptive Text; Assemblr Edu; Canva

INTRODUCTION

Writing is the process of expressing ideas, thoughts, and feelings in written form using clear and meaningful language. Writing is a process of sharing knowledge, ideas, or information with others through written words and sentences (Surya & Wau, 2022). Writing is important because it allows writers to provide information to others who need it (Rofi', 2022). Writing is an important skill because it helps students think carefully and critically before they express their ideas in written form (Harefa et al., 2023). Writing helps students develop their analytical, logical, and critical thinking skills while organizing and expressing their ideas (Bora, 2023). According to Batuah et al. (2025) many students still face difficulties in writing, especially when organizing their ideas and making their writing clear and connected. Likewise, Hamdani & Abid (2025) explain that students often produce paragraphs with weak coherence and cohesion, making their writing difficult to understand.

In tenth grade at vocational high school, students are required to study descriptive texts as part of the curriculum. According to Hanafi & Safitri (2024) descriptive text is intended to deliver meaning to the reader through sensory details and provides image to the readers. With good writing skills and adequate technological support, quality writing can be produced or become very high quality as cited in (Santika et al., 2024). In addition, the development of technology in the 21st century has encouraged teachers to integrate digital tools into the learning process. One of the technologies that can support learning is Augmented Reality (AR), which allows students to see virtual objects in a real environment.

In education, this technology helps students visualize objects more clearly, which can support them in generating ideas. According to Khan et al. (2023) AR has garnered interest in education because AR helps students practice real-life experiences during their learning process. According to Rejekiningsih et al. (2023) this is based on some of the support provided by interactive learning media for increased awareness, satisfaction, and self-confidence factors that arise within students. Platforms like Assemblr Edu make it easier for teachers to create interactive 3D learning content. Furthermore, Canva is also widely used to design visually attractive worksheet making the learning material more engaging and easier to understand.

According to Anggraini et al. (2024) worksheet contains activities and exercises to help students understand the lesson more easily. Worksheet are useful teaching materials because they provide students with meaningful activities that support the learning process (Fathan et al., (2023). Worksheet serve as learning materials that guide students while encouraging the development of knowledge, practical abilities, and positive attitudes in (Azmi et al., 2022). Worksheets are effective tools for improving students' English writing skills because can be adjusted to suit different levels of student ability (Basurto et al., 2024). In addition, attractive and interactive worksheet can increase students' motivation and interest in understanding the learning material more effectively.

However, in current learning processes, teachers mostly use conventional worksheet that contain only written tasks and exercises. These worksheet are often less engaging and do not fully support students' motivation or creativity, especially in writing descriptive texts. As a result, students tend to feel bored and have difficulty generating ideas for their writing. On the other hand, several previous studies have shown that AR media helped learners develop their vocabulary skills (Khan et al., 2023). In addition, using the Canva application can improve learning abilities, as shown by the increased interest in reading (Rahmah et al., 2023). However, previous studies generally examined these technologies separately, leaving limited research that combines them within one instructional medium. Therefore, there is still a gap in combining interactive worksheet using Canva with Augmented Reality through Assemblr Edu to support students' writing skills, especially in writing descriptive text.

According to Sayyidah et al. (2025) Assemblr Edu, an AR-based learning platform that facilitates the creation of interactive content and provides access across various devices. The application offers various features such as 3D objects, animations, and interactive scenes that can be accessed via a smartphone. According to Arnidha et al. (2025) Assemblr Edu is an interactive learning application that uses 3D models and AR to make learning more interesting and enjoyable for students. For example, when a user scans a QR codes using a smartphone camera, a 3D model appears as cited in (Majeed & Ali, 2020) .

Meanwhile, visual design tools such as Canva are known to increase students' motivation and interest because the learning materials become more attractive and easier to understand. According to Mitrenko et al. (2024) it allows users to design other materials that can be used to support writing activities. Canva provides many ready-to-use templates that help teachers create attractive and effective learning media more easily (Rahmah et al., 2023). With the introduction of innovative learning methods, students' interest in learning will increase because they will gain new knowledge and have the opportunity to develop their personal skills (Gurning et al., 2024). In line with Widiarti & Jamilah (2024) Canva offers educators and learners a straightforward and innovative method for designing digital content.

Based on the explanation above, this research aims to develop interactive worksheet using AR for writing descriptive text, determine the feasibility of the developed worksheet, and identify

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the obstacles in using the product during the development process for 10th grade students at a vocational high school. This study uses the Research and Development method with the ADDIE model, which includes Analysis, Design, Development, Implementation, and Evaluation stages. The expected contribution of this research is to provide an innovative and practical learning medium that can help students improve their descriptive writing skills.

METHOD

This research used a Research and Development (R&D) method. This method was applied to design the product and evaluate its effectiveness throughout the development process by Reiser and Mollanda, as cited in (Naezak et al., 2021). The research design follows the ADDIE model, which consists of Analysis, Design, Development, Implementation, and Evaluation stages. This model provides an approach that focuses on providing feedback for continuous improvement to produce valid, practical, and effective teaching materials (Branch, 2009) as cited in (Suwartini et al., 2022). This research was conducted at a vocational high school in Cimahi, West Java, Indonesia, during the 2026/2027 academic year. The participants were 26 tenth-grade vocational high school students.



Figure 1. ADDIE Model Steps

Three instruments were used in this study: documentation, validation sheets, and field notes. Documentation was used to record every stage of developing the interactive worksheet, including the needs analysis, product design using Canva, development of Augmented Reality content through Assemblr Edu, product revisions, and the final version of the worksheet. Validation sheets were distributed to three expert validators to evaluate the quality of the developed product. Validator 1 assessed the content, Validator 2 assessed the media design and visual appearance, while Validator 3 assessed the practicality of the interactive worksheet. The suggestions from all validators were used to revise and improve the product before implementation. Finally, field notes were collected to identify the obstacles.

The first stage was the analysis stage. The researcher identified students' learning needs and classroom problems through discussion with the English teacher. The results showed that students had difficulty generating ideas when writing descriptive texts and needed more interactive learning media. In the design stage, the researcher designed the interactive worksheet. The worksheet layout, learning activities, pictures, writing exercises, and instructions were designed using Canva. The researcher also prepared 3D objects that would later be developed using Assemblr Edu. During the development stage, the researcher developed the interactive worksheet using Canva and integrated Augmented Reality through Assemblr Edu by inserting QR codes into the worksheet. During this stage, every development process was recorded through documentation. After the product was completed, it was evaluated using validation sheets completed by three expert validators. Validator 1 evaluated the learning content, Validator 2 evaluated the media design, and Validator 3 evaluated the

practicality. The worksheet was revised based on the validators' suggestions. The revised interactive worksheet was implemented in a tenth-grade vocational high school classroom. The final evaluation was conducted by reviewing the documentation, validation results, and field notes. The evaluation determined whether the developed worksheet was appropriate, practical, and ready to be used in teaching descriptive text writing.

The data were collected using three research instruments. Documentation was used throughout the product development process to record every stage of designing and developing the interactive worksheet using Canva and Assemblr Edu. Validation sheets were used to obtain expert judgments regarding the quality of the developed worksheet. Three validators assessed different aspects of the product, including learning content, media design, and practicality. Field notes were used during classroom implementation to record challenges that occurred while using the interactive worksheet.

The documentation and field notes were analyzed descriptively. The researcher described the product development process, and the challenges encountered during the research. The validation sheets were analyzed using percentage calculations. The scores given by the three validators were calculated to obtain the average validity percentage. The results were then interpreted based on the product validity criteria to determine whether the interactive worksheet was feasible for classroom implementation (Sugiyono, 2022).

RESULTS AND DISCUSSION

Results

1. The Process of Developing Interactive Worksheet using Augmented Reality for Writing Descriptive Text

The first research instrument was documentation. It was used to record every stage of developing the interactive worksheet based on the ADDIE model. The documentation showed the complete process, starting from needs analysis, worksheet design using Canva, development of Augmented Reality content through Assemblr Edu, product revisions, and the final version of the worksheet. The final product included colorful layouts, attractive illustrations, writing activities, vocabulary exercises, descriptive text tasks, and QR codes that connected students to three-dimensional AR objects. This systematic process helped ensure that the worksheet was suitable for students' learning needs and learning objectives. It also allowed the researcher to identify and improve several aspects of the worksheet before it was implemented in the classroom.

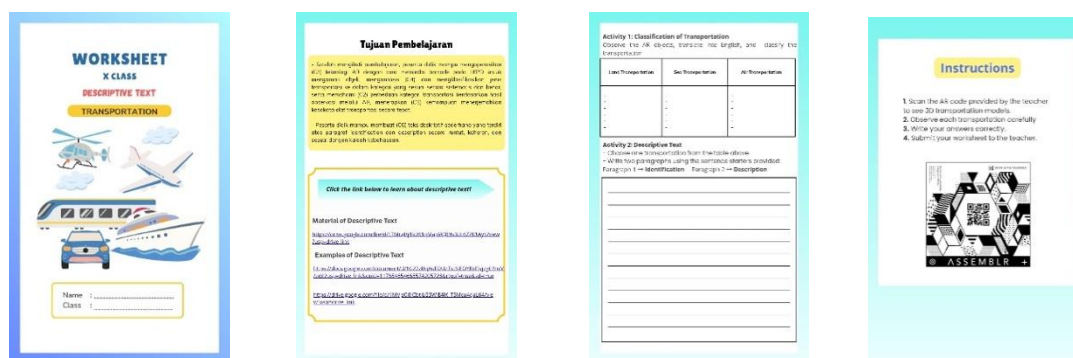


Figure 2. Interactive Worksheet Using AR After Revision

2. The Feasibility of Developing Interactive Worksheet using Augmented Reality for Writing Descriptive Text

The second research instrument was validation sheets. Three expert validators evaluated the quality of the interactive worksheet. Validator 1 assessed the learning content, Validator 2 assessed the media design, and Validator 3 assessed the practicality. The validation results showed an average score of 97.92%, which was categorized very feasible. These findings indicate that the interactive worksheet is highly valid and suitable for teaching descriptive text writing. These results indicate that the developed worksheet meets the criteria of a good learning medium and can be used to support English writing instruction. The positive validation also shows that integrating Canva and Assemblr Edu can produce an effective and practical learning resource for teaching descriptive text.

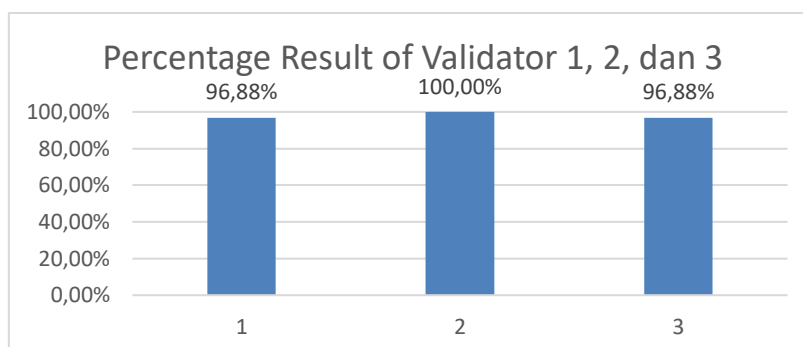


Figure 3. Results of The Validators

3. The Obstacles of Developing Interactive Worksheet using Augmented Reality for Writing Descriptive Text

The third research instrument was field notes. During the implementation stage, the researcher recorded classroom activities and several challenges encountered throughout the research process. Some students experienced unstable internet connections when accessing the AR features, while others needed additional guidance to scan QR codes and use Assemblr Edu because it was their first experience with AR. Despite these challenges, students showed enthusiasm, actively explored the AR objects, participated in classroom discussions, and completed the writing activities confidently. These observations indicate that the developed interactive worksheet was practical and engaging for classroom learning.

Discussion

The results showed that the interactive worksheet using Canva and Assemblr Edu was successfully developed and achieved a validation score of 97.92%, indicating that the product was highly feasible for classroom use. During the implementation, students showed enthusiasm and actively participated in the learning activities. The interactive worksheet helped students observe objects through Augmented Reality (AR), understand descriptive text more easily, and generate ideas before writing. Although several technical problems were found, such as unstable internet connections and slow loading during AR access, these challenges did not significantly affect the overall learning process.

Furthermore, the findings of this study are consistent with previous studies. Khan et al. (2023) explained that AR creates meaningful learning experiences because it allows students to interact directly with virtual objects. In addition, the results also support the findings of Rahmah et al. (2023), who stated that Canva provides various templates that help teachers design attractive

and organized learning materials. Likewise, Oktania and Hidayat (2024) explained that Canva encourages students to observe, analyze, and participate more actively in classroom learning. In this study, Canva helped produce colorful and well-organized worksheets, making the instructions easier to understand and increasing students' interest in completing the writing activities. However, this study also has a different contribution compared with previous studies. Earlier research generally focused only on the use of AR or Canva as separate learning media. In contrast, this study integrated Canva and Assemblr Edu into one interactive worksheet specifically designed for teaching descriptive text writing. The worksheet not only provides attractive learning materials but also combines writing activities with three-dimensional (3D) visualization, allowing students to observe an object before describing it. This integration offers students a more complete learning experience because they receive visual support and structured writing guidance in the same learning material.

The similarities between this research and previous research may be explained by the fact that both AR and Canva encourage active learning and increase students' motivation. Interactive visual media help students understand learning materials more easily than conventional worksheets. When students can observe objects directly through AR and complete attractive worksheet activities, they become more confident in generating ideas and organizing descriptive sentences. On the other hand, the difference lies in the learning product developed. Previous research mainly investigated the effectiveness of AR applications or Canva separately, whereas this research developed an interactive worksheet that integrates both technologies into a single learning medium. Therefore, this research contributes not only to the use of educational technology but also to the development of innovative teaching materials that support descriptive writing in vocational high schools.

Finally, the findings have important implications for English language teaching. Teachers can use interactive worksheets integrated with Canva and Assemblr Edu to create more engaging, student-centered, and technology-based learning activities. The combination of visual design and AR visualization helps students generate ideas, enrich their vocabulary, and improve their confidence in writing descriptive texts. Although technical limitations such as internet connectivity and device compatibility should still be considered, this learning medium can serve as an effective alternative for supporting writing instruction in vocational high schools

CONCLUSION

This research successfully developed an interactive worksheet using Canva and Assemblr Edu to support the teaching of descriptive text writing for tenth-grade vocational high school students. The product was developed through the ADDIE model and achieved a validation score of 97.92%, indicating that it was highly feasible for classroom use. Although several challenges were found during the implementation, such as unstable internet connections and limited experience in using AR, the worksheet was able to create a more engaging learning experience and encourage students to participate actively in writing activities. Therefore, the integration of Canva and Assemblr Edu into interactive worksheets can be used as an effective alternative learning medium to support students in developing their descriptive writing skills and to help teachers implement more interactive and technology-based English learning. This research also contributes to the development of technology-integrated teaching materials by providing an interactive worksheet.

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