

USING AUGMENTED REALITY-BASED WORKSHEETS IN LEARNING TO WRITE DESCRIPTIVE TEXTS: VOCATIONAL HIGH SCHOOL STUDENTS' VOICES

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Received: July 2026; Accepted: July 2026

Abstract

Conventional worksheets often provide limited visual support for students who are learning to write descriptive texts. To address this limitation, Augmented Reality (AR) was integrated into worksheets to enable students to visualize three-dimensional objects and interact with them during writing activities. This study explored vocational high school students' perceptions of using AR-based worksheets to support descriptive writing. A qualitative descriptive approach was employed, supported by questionnaire data, semi-structured interviews, and classroom observation. The participants were 26 tenth-grade students at a vocational high school in Cimahi, West Java, Indonesia, and three students were selected for follow-up interviews. The findings showed that students generally perceived the AR-based worksheets positively. The visualizations made the learning activities more engaging, helped students generate ideas, and supported more detailed descriptions of objects in terms of color, shape, and dimensions. Students also reported increased confidence and motivation during the writing process. Nevertheless, unstable internet connectivity and delays in scanning AR objects occasionally interrupted learning. Overall, AR-based worksheets provided meaningful support for descriptive writing and offered an interactive alternative for technology-enhanced English instruction.

Keywords: Augmented Reality; Descriptive Text; Worksheet; Writing

Abstrak

Lembar kerja konvensional sering kali belum memberikan dukungan visual yang menarik bagi siswa dalam pembelajaran menulis teks deskriptif. Untuk mengatasi keterbatasan tersebut, teknologi Augmented Reality (AR) diintegrasikan ke dalam lembar kerja agar siswa dapat memvisualisasikan objek tiga dimensi dan berinteraksi dengan objek tersebut selama kegiatan menulis. Penelitian ini bertujuan mengeksplorasi persepsi siswa sekolah menengah kejuruan terhadap penggunaan lembar kerja berbasis AR dalam pembelajaran menulis teks deskriptif. Penelitian menggunakan pendekatan deskriptif kualitatif yang didukung data angket, wawancara semi-terstruktur, dan observasi kelas. Partisipan penelitian terdiri atas 26 siswa kelas X pada salah satu SMK di Cimahi, Jawa Barat, Indonesia, dengan tiga siswa dipilih untuk wawancara lanjutan. Hasil penelitian menunjukkan bahwa siswa secara umum memberikan respons positif terhadap lembar kerja berbasis AR. Visualisasi AR membuat pembelajaran lebih menarik, membantu siswa menghasilkan ide, serta mendukung penyusunan deskripsi objek yang lebih rinci berdasarkan warna, bentuk, dan dimensi. Siswa juga menunjukkan peningkatan kepercayaan diri dan motivasi dalam proses menulis. Meskipun demikian, koneksi internet yang tidak stabil dan keterlambatan pemindaian objek AR terkadang mengganggu

pembelajaran. Secara keseluruhan, lembar kerja berbasis AR memberikan dukungan yang bermakna dalam pembelajaran menulis teks deskriptif dan dapat menjadi alternatif interaktif dalam pembelajaran Bahasa Inggris berbantuan teknologi.

Kata Kunci: Augmented Reality; Teks Deskriptif; Lembar Kerja; Menulis

How to Cite: Irawan, A. F., Apsari, Y., & Parmawati, A. (2026). Using augmented reality-based worksheets in learning to write descriptive texts: Vocational high school students' voices. *Journal of Educational Experts (JEE)*, 9(2), 255-261

INTRODUCTION

Writing is an essential skill in English language learning because it enables students to express ideas, describe experiences, and communicate meaning in written form. Among the genres commonly taught at the senior high school level, descriptive text is important because it requires students to observe an object carefully and represent its characteristics through appropriate vocabulary and organized sentences. Visual support can facilitate this process by giving learners a more concrete basis for language production. Research on picture-based language activities has shown that visual description can support students in producing language more confidently, although linguistic accuracy may still require teacher guidance (Pratiwi & Ayu, 2020). Similarly, Rahmawati (2023) reported the use of digital learning media in descriptive-writing instruction, indicating the potential of technology to support students' writing experiences.

In the observed learning context, students were generally provided with conventional worksheets consisting mainly of written instructions, questions, and exercises. Although such worksheets can organize classroom tasks, they offer limited interactive visualization for students who need concrete stimuli before developing a description. Digital teaching materials can provide richer modes of presentation and can be designed to match students' characteristics and learning needs (Martatiyana et al., 2023). Therefore, integrating interactive technology into worksheets offers a potential way to create a more engaging and meaningful writing environment.

Augmented Reality (AR) is one technology that can enrich learning materials by overlaying digital information or three-dimensional objects onto the real environment. In language education, AR can provide contextual and interactive experiences that make abstract or unfamiliar content easier to visualize. Azimova and Solidjonov (2023) describe AR as a technology with potential applications across vocabulary, pronunciation, grammar, reading, and writing. Salehi (2025) further found that English teachers perceived AR as engaging and useful for language learning, while also identifying technical and logistical challenges that may affect classroom implementation. For descriptive writing in particular, the ability to rotate, inspect, and observe a 3D object may give students concrete details from which to generate vocabulary and organize descriptions.

Previous research has examined AR and digital worksheets in several educational contexts. Sari et al. (2024) reported positive learning experiences when AR was used to support writing-related activities among vocational high school students. Anggraini et al. (2024) identified a need for AR-assisted student worksheets to support critical-thinking activities, while Jiwani et al. (2024) found that AR-based learning media received positive responses from vocational

high school students. At the same time, Satria et al. (2025) showed that digital worksheets designed within a technology-supported learning model could improve students' writing performance. Nevertheless, studies focusing specifically on students' voices regarding AR-based worksheets for descriptive-text writing remain limited. Accordingly, this study aimed to explore how vocational high school students perceived the clarity, usability, engagement, writing support, and technical challenges of AR-based worksheets in learning to write descriptive texts.

METHOD

This study employed a qualitative descriptive approach to explore students' perceptions and learning experiences when using Augmented Reality (AR)-based worksheets for writing descriptive texts. The qualitative approach was selected because the study focused on students' experiences, opinions, and responses in a natural classroom setting. Questionnaire data were used descriptively to complement the qualitative interpretation rather than to test a statistical hypothesis.

The participants were 26 tenth-grade students from a vocational high school in Cimahi, West Java, Indonesia, during the 2025/2026 academic year. Participants were selected purposively because they had directly used the AR-based worksheet during descriptive-writing lessons. All 26 students completed the questionnaire, while three students were selected for semi-structured interviews to provide more detailed accounts of their experiences.

Data were collected through a questionnaire, semi-structured interviews, and classroom observation. The questionnaire consisted of 15 statements rated on a four-point Likert scale ranging from strongly agree to strongly disagree. It examined students' perceptions of instructional clarity, ease of use, engagement, motivation, writing support, collaboration, confidence, and the usefulness of AR-based worksheets. Semi-structured interviews consisted of eight questions concerning benefits, challenges, learning experiences, and students' expectations for future AR use. Classroom observation was used as supporting contextual evidence of students' participation and interaction with the worksheet. Observation is useful for documenting learning activities and behavior directly in context (Barrios et al., 2022), while questionnaires provide a structured means of collecting respondents' views and attitudes (Ranganathan & Caduff, 2023).

The data were analyzed through systematic qualitative categorization. First, the researcher familiarized herself with the questionnaire responses, interview transcripts, and observational notes. Second, important statements related to students' perceptions were identified and coded. Third, similar codes were grouped into categories, including instructional clarity, AR usability, visualization support, writing assistance, engagement and motivation, collaboration and confidence, and technical challenges. Fourth, the categories were organized into broader themes and interpreted in relation to the research objective. Descriptive percentages from the questionnaire were used to show response patterns, while interview excerpts and observational evidence were used to explain the meanings underlying those patterns.

RESULTS AND DISCUSSION

Results

The questionnaire responses from 26 students indicated generally positive perceptions of the AR-based worksheet for learning to write descriptive texts. Table 1 presents the distribution of responses for each questionnaire item.

Table 1. Students' Questionnaire Responses

No.	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
1	I understand the instructions in the worksheet.	15.4% (4)	84.6% (22)	—	—
2	I find it easy to follow the steps of the activity.	15.4% (4)	76.9% (20)	7.7% (2)	—
3	I can scan AR objects without any problems.	11.5% (3)	88.5% (23)	—	—
4	The AR images/objects help me understand the content.	15.4% (4)	80.8% (21)	3.8% (1)	—
5	I find it interesting to scan and observe AR objects.	11.5% (3)	80.8% (21)	7.7% (2)	—
6	The worksheet encourages me to think critically and creatively.	15.4% (4)	80.8% (21)	3.8% (1)	—
7	I know how to write a description after seeing the AR object.	11.5% (3)	76.9% (20)	11.5% (3)	—
8	I can write descriptions more easily using this worksheet.	11.5% (3)	76.9% (20)	11.5% (3)	—
9	I enjoy learning to write with this approach.	11.5% (3)	80.8% (21)	7.7% (2)	—
10	The material and activities are appropriate for my abilities.	11.5% (3)	88.5% (23)	—	—
11	There is enough time to complete the tasks.	11.5% (3)	84.6% (22)	3.8% (1)	—
12	I can discuss with my friends during the lesson.	11.5% (3)	84.6% (22)	3.8% (1)	—
13	I feel confident showing my writing.	11.5% (3)	80.8% (21)	11.5% (3)	—
14	I hope to use AR in other lessons.	11.5% (3)	76.9% (20)	11.5% (3)	—
15	This worksheet helps me write more complete and clear descriptions.	7.7% (2)	84.6% (22)	11.5% (3)	—

Across the first four items, students reported that the worksheet instructions and activity sequence were clear and that AR objects were generally easy to scan. All 26 students either agreed or strongly agreed that they understood the instructions, and 23 students agreed that they could scan AR objects without problems. The responses also indicated that the AR visualizations supported students' understanding of the learning content.

Positive responses were also found for engagement and writing support. Most students considered scanning and observing AR objects interesting, and most agreed that the worksheet encouraged critical and creative thinking. For the writing-related items, 23 students agreed or strongly agreed that the AR visualization helped them understand how to write a description, and the same response pattern was reported for the ease of writing descriptions using the worksheet.

Students also responded positively to enjoyment, appropriateness of materials, time allocation, peer discussion, and confidence. The questionnaire further suggested that most students were

interested in using AR in other lessons. The final questionnaire item also showed a generally positive pattern toward the role of the worksheet in supporting clearer and more complete descriptions; however, the response frequencies reported for this item require verification because the listed frequencies exceed the stated sample size of 26 students.

Discussion

The findings indicate that the AR-based worksheet was generally well received by students and supported the descriptive-writing process in several ways. First, students perceived the worksheet as clear and easy to follow. This instructional clarity is important because a technology-enhanced activity can only support learning when students understand how to access and complete the required tasks. Structured worksheets can help organize learning activities and make tasks easier to follow (Supriyadi et al., 2023). The interview data reinforced this pattern. Student 1 stated, “Yes, the worksheet clearly outlines the steps,” while Student 2 commented, “It’s really exciting, because learning becomes more realistic and not boring.” These responses suggest that the worksheet structure and AR component worked together to create an accessible and engaging learning experience.

Second, the AR visualization appeared to provide concrete support for idea generation. Students were able to observe the visual characteristics of an object before describing it, which reduced the need to rely solely on imagination. Student 1 highlighted the experience of scanning the AR object and seeing it rotate in three dimensions, while Student 2 explained that seeing the object made it easier to imagine what to write. This finding is consistent with Sari et al. (2024), who reported that AR can enrich writing-related learning experiences among vocational high school students through interactive visualization. More broadly, Jiwani et al. (2024) found positive student responses to AR-based learning media in vocational education, indicating that three-dimensional visualization can make learning content more interactive and accessible.

Third, students associated the AR-based worksheet with greater engagement, creativity, and writing confidence. The majority of students agreed that the worksheet encouraged critical and creative thinking and made descriptive writing easier. Student 1 stated that the activity helped with quick understanding, writing, and creativity, while Student 3 emphasized that the approach made the lesson enjoyable. These perceptions are relevant to Anggraini et al. (2024), whose study highlights the perceived need for AR-assisted worksheets to support cognitively active learning. They are also consistent with Satria et al. (2025), who showed that digital worksheets can support writing development when learning activities are systematically structured through technology.

The social dimension of learning was also positively perceived. Most students agreed that they had sufficient time to complete the tasks and could discuss with peers during the lesson. This finding suggests that the AR-based worksheet did not function only as an individual technology tool but also provided opportunities for interaction during the writing process. The combination of visual stimulation, structured tasks, and peer discussion may have contributed to students’ confidence in showing their written work.

Despite the positive responses, technical challenges remained. Students reported that unstable internet connections sometimes delayed loading or prevented AR objects from appearing immediately. Repeated scanning could interrupt concentration and reduce the smoothness of the activity. Such limitations are consistent with the technical and logistical challenges identified by Salehi (2025) in AR-supported language teaching. Therefore,

successful classroom implementation requires not only appropriate AR content but also reliable connectivity, device readiness, and alternative procedures when scanning fails.

Overall, the findings suggest that students viewed AR-based worksheets as an engaging and supportive resource for descriptive writing. The main value of the medium was not simply the novelty of AR, but its ability to provide observable visual details that students could translate into written descriptions. At the same time, the study represents students' perceptions rather than a direct experimental measure of writing improvement. Consequently, the findings support the pedagogical usefulness and acceptability of AR-based worksheets, while claims about causal improvement in writing performance should be examined through future experimental or quasi-experimental research.

CONCLUSION

This study shows that tenth-grade vocational high school students generally perceived AR-based worksheets positively in learning to write descriptive texts. The worksheets were considered clear, engaging, and helpful for observing object details, generating ideas, and organizing descriptions. Students also reported positive experiences related to motivation, creativity, peer discussion, and confidence in writing. Interview data supported the questionnaire findings by showing that three-dimensional visualization made learning feel more concrete and enjoyable. Nevertheless, unstable internet connectivity and delays in scanning AR objects remained practical challenges that need to be considered in classroom implementation. Thus, AR-based worksheets can be regarded as a promising technology-enhanced resource for descriptive-writing instruction, particularly because they combine structured worksheet activities with interactive visualization. However, this study was limited to one class of 26 tenth-grade students in a vocational high school and primarily examined students' perceptions. Future studies should involve larger and more diverse samples, examine changes in actual writing performance over time, and compare AR-based worksheets with other digital or conventional learning approaches.

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