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Integrating Canva and Assemblr Studio for Interactive Media in Teaching Descriptive Text Writing at the Junior High School Level

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ABSTRACT

In Indonesia's Merdeka Curriculum, which emphasizes student-centered and technology-integrated learning, junior high school students often struggle with descriptive text writing due to limited visualization and engagement. Traditional methods fall short in supporting the development of observational and expressive writing skills. This study employed a Research and Development (R&D) design using the ADDIE model—Analysis, Design, Development, Implementation, and Evaluation—to create an interactive digital learning tool. The tool integrated *Canva Site* for instructional design and *Assemblr Studio Web* for augmented reality (AR)-based 3D object visualization. The product underwent expert validation (media, linguistic, and instructional) and was tested on 21 eighth-grade students to assess practicality and effectiveness. Validation scores indicated high quality: 96% (media), 80% (language), and 95% (instruction). Practicality testing yielded a 90.53% acceptance rate, showing strong usability and engagement. A paired sample t-test revealed a statistically significant improvement in students' descriptive writing performance ($p = 0.000$), demonstrating the tool's effectiveness in enhancing writing outcomes. The integration of visual and AR elements supported multimodal learning and stimulated richer descriptions, aligning with Mayer's multimedia learning theory and Vygotsky's sociocultural framework. This approach also reinforced the goals of the Merdeka Curriculum by promoting creativity, critical thinking, and digital literacy. The study presents a valid, practical, and effective model for integrating Canva and Assemblr in language instruction, offering a replicable solution to improve descriptive writing skills through immersive digital media.

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1. INTRODUCTION

Learning is a crucial process aimed at developing the potential of every individual. In the context of education, effective learning does not solely depend on the content being taught but also on the methods and media used to deliver that content. This aligns with the opinion expressed by Afriani et al. (2023), who state that learning can be conducted effectively when it fulfills essential learning components, including students, educators, motivation, teaching materials, media, and learning conditions.

In response to the evolving demands of 21st-century education, Indonesia has introduced the Merdeka Curriculum (Freedom Curriculum), which emphasizes student-centered learning, creativity, and critical thinking across all educational levels. As stipulated in the Regulation of the Minister of Education, Culture, Research, and Technology No. 12 of 2024, Indonesian Language remains a compulsory subject in Junior High Schools (SMP), serving as a core component in developing students' communication, literacy, and cognitive abilities. Within this curriculum, writing—particularly descriptive text writing—is a key competency that students must master to express ideas clearly, systematically, and contextually. According to Ayu & Amelia (2020), Indonesian Language instruction constitutes the core of the educational process in schools. Within the acquisition of Indonesian language skills, students are required to master various language competencies, one of which is writing ability.

Despite its importance, students' proficiency in writing descriptive texts remains a persistent challenge. Observational data collected from Indonesian Language classes at SMP Negeri 14 Batanghari during the 2023–2024 academic year revealed that only 38% of students achieved the minimum mastery criteria (KKM) in descriptive writing assessments. Furthermore, analysis of student writing samples indicated recurring issues: inaccurate descriptions, disorganized structure, lack of sensory details, and inappropriate diction. These findings are consistent with broader educational trends indicating that writing is among the most complex language skills to acquire, requiring not only linguistic competence but also cognitive engagement and creativity (Ahmad et al., 2020; Widhiyanto et al., 2024).

Field observations indicate that students' ability to write descriptive texts remains low, and the outcomes achieved do not yet meet expectations. Based on reflections from Indonesian Language teachers at SMP Negeri 14 Batanghari, students encounter difficulties in learning to write descriptive texts. Preliminary observations reveal that these challenges are influenced by three main factors: students lack sufficient writing skills in descriptive texts, they have not fully understood the concept of descriptive texts, and the learning process lacks innovation. These findings align with Putra et al. (2022), who report that low descriptive writing skills among students stem from multiple causes, including students' lack of interest in ongoing descriptive writing lessons. Similarly, Hanifiyah & Rokhmansyah (2023) found that insufficient writing skills result from students' limited understanding of the subject matter. Thus, to ensure students grasp the concept of descriptive texts effectively, teachers need to employ creative teaching methods that enhance students' comprehension and enthusiasm to actively participate in the learning process (Putra et al., 2022).

The root causes of these difficulties are multifaceted. First, students often lack a clear understanding of the generic structure of descriptive texts—particularly the distinction between identification and description (Raissa et al., 2022). Second, traditional teaching methods, such as lecture-based instruction and textbook dependency, dominate classroom practices, offering limited opportunities for active engagement or multimodal learning. Teachers at SMP Negeri 14 Batanghari reported that over 70% of their instructional time is spent on direct instruction, with minimal integration of visual or interactive media. This monotonous approach contributes to low student

motivation, as evidenced by a classroom survey in which 65% of students expressed disinterest in current descriptive writing lessons (Megawati et al., 2023). Moreover, students struggle to visualize abstract or unfamiliar topics, which hampers their ability to generate rich, detailed descriptions (Gani, 2012).

Writing skills are also connected to the writer's ability to choose writing topics (Dalman, 2016; Zikra et al., 2018). Descriptive text writing skills can assist students in communication, foster creativity, and enhance critical thinking abilities. However, writing is not an easy task—it requires a creative process to generate ideas and thoughts (Afriani et al., 2023). Moreover, if individuals are not trained or accustomed to writing, it becomes a particularly challenging activity. Ahmad et al. (2020) also assert that writing is a more difficult skill to master.

From a theoretical standpoint, effective writing instruction should align with constructivist learning principles, where students actively construct knowledge through meaningful, experiential, and multimodal engagement (Afriani et al., 2023). Interactive learning media can play a pivotal role in this process by integrating visual, auditory, and kinesthetic elements that support cognitive processing and idea generation. Specifically, technologies that incorporate Augmented Reality (AR) and dynamic visual design have shown promise in enhancing students' spatial understanding and descriptive accuracy (Billah & Putri, 2024; Kamila & Kowiyah, 2022). However, such tools remain underutilized in Indonesian language classrooms, particularly at the junior high school level.

While prior studies have explored the use of digital media—such as videos, PowerPoint, and LMS platforms—in writing instruction (Novita & Harahap, 2020; Sihombing et al., 2024), there is a notable gap in research on integrated, AR-enhanced visual platforms tailored to descriptive text writing within the Merdeka Curriculum framework. More specifically, no existing study has examined the pedagogical potential of combining Canva Site, a user-friendly design platform for creating interactive digital content, with Assemblr Studio Web, an AR-based tool that enables 3D visualization of real-world objects (Harahap & Siregar, 2020; Sihombing et al., 2024). This integration offers a novel approach: Canva Site supports structured, visually engaging lesson delivery, while Assemblr allows students to explore and interact with three-dimensional representations of objects they are tasked to describe—thereby enriching sensory input and stimulating authentic descriptive language use.

This study addresses this gap by investigating how the integration of Canva Site and Assemblr Studio Web as interactive learning media can improve students' descriptive text writing skills in a junior high school setting. The research focuses on three core aspects: (1) students' understanding of descriptive text structure, (2) the richness and accuracy of sensory details in their writing, and (3) their motivation and engagement during the learning process. The central research question guiding this study is: How does the integration of Canva Site and Assemblr Studio Web as interactive learning media influence junior high school students' descriptive text writing performance and engagement? By answering this question, the study aims to contribute innovative, curriculum-aligned strategies that enhance both teaching effectiveness and student writing outcomes in the digital era.

2. METHODS

This study employed a Research and Development (R&D) design aimed at developing and evaluating an interactive learning media to enhance descriptive text writing skills among junior high school students. The product developed was an integrated digital learning tool combining Canva Site for interactive visual design and Assemblr Studio Web for augmented reality (AR)-based 3D object visualization. The development process followed the ADDIE model, consisting of five systematic phases: Analysis, Design, Development, Implementation, and Evaluation (Branch, 2009).

In the Analysis phase, three key aspects were examined: (1) needs analysis through classroom observations and document review to identify challenges in descriptive text writing; (2) curriculum analysis to ensure alignment with the Merdeka Curriculum's learning objectives and competency standards; and (3) learner analysis, including an assessment of students' preferred learning styles, to inform media design.

During the Design and Development phases, the interactive media was constructed using Canva Site to create a structured, visually engaging digital module, while Assemblr Studio Web was used to embed 3D models of objects commonly described in Indonesian language lessons (e.g., traditional houses, animals, and natural landscapes). These components were integrated to support multimodal learning and stimulate sensory-rich descriptions.

The Implementation phase involved field testing the media with 21 eighth-grade students from SMP Negeri 14 Batanghari. While the sample size is relatively small, it is considered adequate for a developmental study focused on usability and preliminary effectiveness, particularly within a single-class intervention design typical of R&D research in educational settings (Creswell & Creswell, 2018). This approach allows for in-depth qualitative feedback and iterative improvement before large-scale deployment. The limitation of sample size is acknowledged and addressed in the discussion section.

Data were collected through a structured questionnaire administered upon completion of the intervention. The instrument consisted of 20 Likert-scale items (ranging from 1 = Strongly Disagree to 5 = Strongly Agree) assessing three dimensions: (1) content validity, (2) practicality (ease of use and navigation), and (3) perceived effectiveness in supporting descriptive writing. The questionnaire was validated through expert review by two Indonesian language education specialists and one instructional media expert. Content Validity Index (CVI) was calculated, yielding a score of 0.94, indicating strong content validity. Reliability of the instrument was assessed using Cronbach's alpha to measure internal consistency. The computed coefficient was $\alpha = 0.87$, indicating high reliability of the questionnaire in measuring students' perceptions consistently across items. Additional data were collected through expert validation sheets and open-ended feedback to enrich qualitative insights.

In the Evaluation phase, both qualitative and quantitative data were analyzed. Quantitative data from the Likert-scale responses were analyzed using descriptive statistics (mean, standard deviation) and supported by thematic analysis of qualitative feedback. Effectiveness was further triangulated through analysis of students' pre- and post-writing samples, focusing on structural completeness, use of sensory details, and lexical appropriateness.

Ethical considerations were strictly observed throughout the study. Formal permission was obtained from the school's institutional authority. Informed consent was secured from both students and their parents or guardians, with clear explanations of the study's purpose, procedures, and voluntary nature of participation. All data were anonymized and stored securely to ensure confidentiality. Participants were informed of their right to withdraw at any stage without consequence. This methodological approach ensures not only the systematic development of a curriculum-aligned learning tool but also a rigorous, ethically sound evaluation of its validity, practicality, and effectiveness in enhancing students' descriptive writing competence.

3. FINDINGS AND DISCUSSION

3.1 Analysis Stage

The analysis phase served as the foundational step in the ADDIE model, aiming to identify learning challenges, curriculum alignment needs, and student characteristics that would inform the design of an effective interactive learning medium. Data were collected through classroom

observations, document analysis, and a preliminary survey administered to Grade VIII students at SMP Negeri 14 Batanghari. While the main development and implementation were conducted with a focused group of 21 students (Class VIIB), initial needs assessments involved a broader cohort of 45 students across two classes (VIIIA and VIIIB) to ensure representative insights into learning preferences and resource usage. This larger sample was used solely for diagnostic purposes during the analysis phase and does not affect the core R&D implementation.

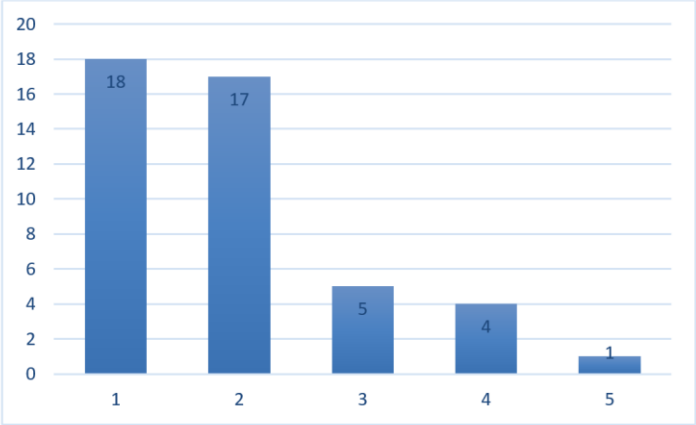

Figure 1. Students' Responses to Primary Learning Resources

Figure 1 presents students' responses regarding their use of textbooks as primary learning resources. Out of 45 respondents, 35 students (77.8%) either disagreed (17 students) or strongly disagreed (18 students) with the statement: "I regularly use textbooks to learn descriptive text writing." This indicates a strong disengagement with traditional printed materials, highlighting the need for alternative, more engaging instructional tools.

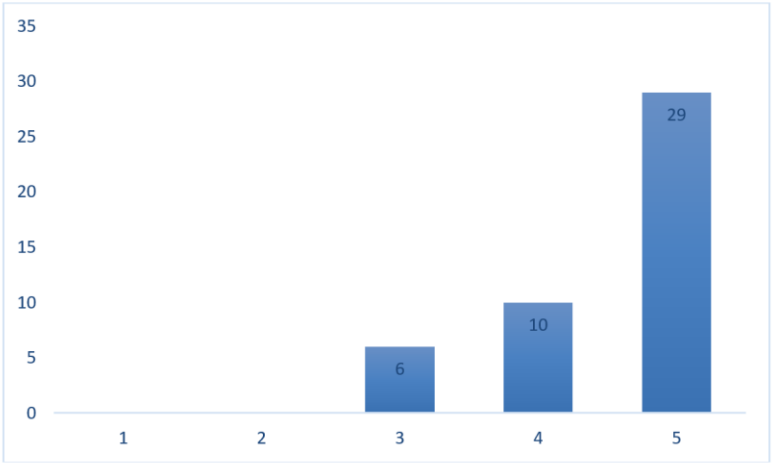

Figure 2. Students' Responses to Digital-Based Learning Resources

The low reliance on textbooks aligns with broader trends in digital-era education, where static materials often fail to sustain student interest (Megawati et al., 2023). This finding underscores the necessity of developing dynamic, visually stimulating media that better match contemporary learners' expectations and cognitive preferences. In response, students' attitudes toward digital-based learning resources were examined (see Figure 2). A significant majority—29 out of 45 students (64.4%)—selected the highest level of agreement with the statement: "I find digital learning resources easier to

understand than textbooks." Only 3 students disagreed or strongly disagreed. This strong preference for digital tools supports the integration of technology-enhanced media in language instruction.

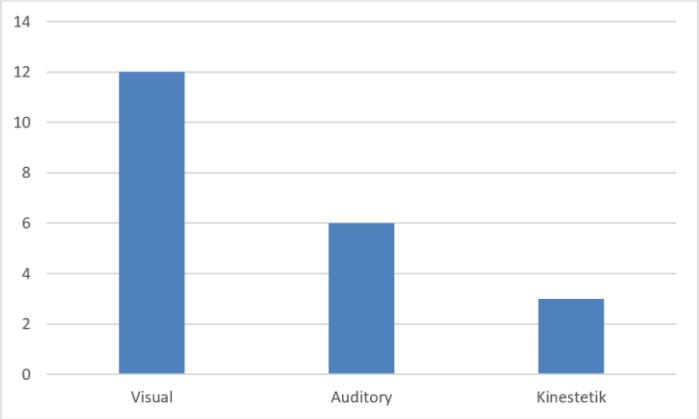

Figure 3. Learning Styles of Grade VIIB Students

Furthermore, an analysis of learning styles was conducted to ensure the media would align with students' cognitive preferences. As shown in Figure 3, among the 21 students in Class VIIB (the target group for implementation), 12 (57.1%) were identified as visual learners, 6 (28.6%) as auditory learners, and 3 (14.3%) as kinesthetic learners. This distribution confirms a dominant visual learning preference, reinforcing the rationale for incorporating rich visual and spatial elements—such as AR-based 3D models and graphic design features—into the learning media.

3.2 Design Stage

After completing the analysis phase, the researcher proceeded to the design phase, which serves as an integral part of the ADDIE development model. This phase involved designing key components to ensure that the interactive learning media based on the Canva Site integrated with Assemblr Studio Web could be developed systematically and in alignment with students' needs and learning objectives. There were four main activities conducted during this phase: (1) developing a teaching module, (2) designing the prototype of the learning media, (3) developing validation instruments, and (4) developing practicality instruments.

3.2.1 Teaching Module

The teaching module was developed as a guide for implementing the learning media throughout the instructional process. The learning activities were structured into four meetings, each allocated two academic hours (approximately 90 minutes). The structure of each meeting is outlined below:

1. In the first meeting, a pretest was administered to assess students' initial ability to write descriptive texts before using the developed media. The pretest consisted of short essay questions that guided students to write a descriptive text about a specific object.
2. In the second meeting, the core material regarding the concept and structure of descriptive texts was delivered, accompanied by examples. Additionally, the first three stages of Project-Based Learning (PBL) were implemented: students were given contextual information and triggering questions related to the topic of descriptive texts; students were divided into small groups to

collaborate; and the teacher provided guidance for exploring objects using Augmented Reality (AR) via Assemblr Studio Web.

3. Third meeting, the remaining three stages of PBL were continued: students began drafting their descriptive texts based on previously explored objects; the teacher and students reflected on the learning process and challenges encountered; and students conducted an initial revision of their written work.
4. Fourth meeting, a posttest was conducted to measure the improvement in students' ability to write descriptive texts after using the interactive learning media. The posttest also took the form of essay questions similar to the pretest but featured different objects, enabling an objective assessment of students' progress.

3.2.2 Prototype of the Learning Media

To create engaging and relevant learning media, the researcher designed a prototype of an interactive learning medium based on the Canva Site integrated with Assemblr Studio Web. This design aimed to integrate the visual features of Canva Site—used as a presentation and instructional design platform—with the AR capabilities of Assemblr Studio Web, which allows students to explore 3D objects they are to describe. The prototype was developed based on effective instructional design principles, including:

1. All content and activities were designed in accordance with the basic competencies and indicators of Indonesian language learning in the Merdeka Curriculum.
2. The use of AR elements enhanced students' interest and participation in the learning process.
3. The media was designed to be easily accessible and usable for both teachers and students without requiring expensive hardware or complex additional applications.
4. Layout, color schemes, and fonts were carefully selected to be visually appealing and non-monotonous for students.

3.2.3 Validation Instruments

To ensure the quality and appropriateness of the learning media in line with educational standards, the researcher developed validation instruments in the form of questionnaires submitted to three independent experts. The validation instruments used a Likert scale (1–5) , with indicators such as clarity of information, alignment with learning objectives, content accuracy, readability, visual aesthetics, and technological suitability. The data obtained from the validators were analyzed quantitatively to determine the level of media validity, complemented by qualitative feedback for refinement.

3.2.4 Practicality Instruments

As part of the preliminary evaluation of the media's applicability in real-world contexts, the researcher developed practicality instruments in the form of a Likert-scale questionnaire (1–5) to measure teachers' and students' responses to the interactive learning media. The questionnaire consisted of 20 positive and negative statements that respondents answered based on their perceptions.

3.3 Development Stage

3.3.1 Media Expert Validation

The interactive learning media based on the Canva Site integrated with Assemblr Studio Web was validated by Dr. Mutiara Felicita Amsal, S.Pd.I., M.Pd., an expert in educational technology. Three aspects were evaluated: appearance, programming, and interactivity. The total score obtained was 86,

with an average validity percentage of 96%, classified as "Highly Valid" for use in instructional settings.

Table 1. Media Expert Responses

No	Evaluated Aspect	Score Obtained	Maximum Score	Percentage	Category
1.	Appearance	34	35	97%	Highly Valid
2.	Programming	27	30	90%	Highly Valid
3.	Interactivity	25	25	100%	Highly Valid
	Total	**86**	**90**	**96%**	**Highly Valid**

3.3.2 Linguistic Expert Validation

Validation was conducted by Dr. Ridha Hasnul Ulya, S.Pd., M.Pd., a language expert specializing in Indonesian Language and Literature. The total score achieved was 32, with an average validity percentage of 80%, categorized as "Valid" in terms of linguistic appropriateness.

Table 2. Linguistic Expert Responses

No	Evaluated Aspect	Score Obtained	Maximum Score	Percentage	Category
1.	Language Clarity	4	5	80%	Valid
2.	Diction Appropriateness	9	10	90%	Highly Valid
3.	Use of Standard Terminology	4	5	80%	Valid
4.	Sentence Structure	8	10	80%	Valid
5.	Communication and Appeal	4	5	80%	Valid
6.	Orthographic Accuracy	3	5	60%	Moderate
	Total	**32**	**40**	**80%**	**Valid**

3.3.3 Instructional Expert Validation

The media was also validated by Rosdiati, M.Pd., an instructional expert in the field of Indonesian Language Education. The total score obtained was 52, with an average validity of 95%, classified as "Highly Valid" in terms of instructional quality. Therefore, the media is considered suitable for use in teaching descriptive text writing.

Table 3. Instructional Expert Responses

No	Evaluated Aspect	Score Obtained	Maximum Score	Percentage	Category
1.	Content Quality	23	25	92%	Highly Valid
2.	Instructional Feasibility	29	30	97%	Highly Valid
	Total	**52**	**55**	**95%**	**Highly Valid**

3.3.4 Media Practicality

Students assessed the practicality of the media through three key aspects. The total score obtained was 2,852, with an average score of 47 and a practicality percentage of 90.53%. These results indicate that the media is highly practical, visually engaging, and effective in supporting the learning process.

Table 4. Student Responses to the Media

No	Assessment Aspect	Total Score	Maximum Score	Practicality Value	Category
1.	Ease of Use	951	1050	90.57%	Highly Practical
2.	Visual Appeal	940	1050	89.52%	Highly Practical
3.	Efficiency	961	1050	91.52%	Highly Practical
	Total	**2852**	**3150**	**90.53%**	**Highly Practical**

3.4 Implementation Phase

The media was implemented in a class consisting of 21 students at a junior high school. The class was selected based on the results of standard deviation analysis. Questionnaire data collected during this phase was used for comprehensive evaluation and for refining the media in the future.

3.4.1 Normality Test

The Liliefors test was conducted using Microsoft Excel to assess the normality of the data. The result showed that Lo = 0.157 < Lt = 0.193 (α = 0.05), indicating that the posttest scores were normally distributed.

Table 5. Normality Test of Posttest Scores

Statistical Values	α	Lo	Lt	Description
Posttest	0.05	0.157	0.193	Normal

Source: Processed Research Data, 2025

3.4.2 Homogeneity Test

Homogeneity of variance was tested using Levene's Test via IBM SPSS Statistics 25. The results indicated that the pretest and posttest scores of descriptive text writing in Class VIIB were homogeneous, as the significance value was greater than 0.05.

Table 6. Homogeneity Test of Pretest and Posttest Scores

Levene Statistic	df1	df2	Sig.	Description
0.001	1	40	.974	Homogeneous

3.4.3 T-Test

The decision criterion was: if Sig > 0.05, there is no significant difference (H_0 is accepted and H_1 is rejected); if Sig < 0.05, there is a significant difference (H_0 is rejected and H_1 is accepted). The paired sample t-test conducted using SPSS indicated a statistical significance value of 0.000 ≤ 0.05, confirming a statistically significant difference between the pretest and posttest scores. Thus, H_1 is accepted and H_0 is rejected.

Table 7. Hypothesis Test Results: Paired Sample t-test

Mean Difference	Std. Deviation	Std. Error Mean	95% CI of the Difference	t	df	Sig. (2-tailed)
-35.238	6.655	1.452	-38.267 to -32.209	-24.264	20	0.000

3.5 Evaluation Phase

Throughout the development process, the media underwent formative evaluation based on expert feedback. Suggestions included font adjustments, adherence to standard spelling rules (EYD), and improvements in diction choices. The assessment rubric was also refined to ensure more objective

evaluation of learning outcomes. Overall, validation from media, language, and instructional perspectives confirmed that the interactive learning media based on Canva Site integrated with Assemblr Studio Web is valid, practical, and effective for teaching descriptive text writing at the junior high school level. This evaluation supports the broader implementation of the media in technology-based innovative learning environments.

Discussion

This study presents a novel integration of Canva Site and Assemblr Studio Web as an interactive, multimodal learning medium designed to enhance descriptive text writing skills among junior high school students. The findings demonstrate that this integrated approach not only improves writing performance but also increases student engagement, practicality, and motivation (Aditiawarman et al., 2025; Alwi et al., 2025; Naini & Ulya, 2025; Ramadhan et al., 2025; Wulandari, & Ulya, 2025). Building upon empirical results from the development and evaluation phases, this discussion interprets the outcomes through theoretical frameworks, compares them with recent international research, and highlights the study's pedagogical and technological contributions.

The effectiveness of the developed media can be explained through Mayer's Cognitive Theory of Multimedia Learning (CTML), which posits that people learn more deeply from words and pictures than from words alone, provided that the design minimizes extraneous cognitive load and supports essential processing (Mayer, 2021). In this study, the integration of Canva's visual storytelling capabilities with Assemblr's 3D augmented reality models aligns with Mayer's principles—particularly dual-channel processing, coherence, and spatial contiguity. By presenting textual instructions alongside dynamic visual representations of objects (e.g., traditional houses, animals), the media enabled students to process information through both auditory-verbal and visual-pictorial channels, thereby enhancing comprehension and memory retention.

Moreover, the use of AR in Assemblr Studio Web supports segmenting and personalization principles—students could explore 3D objects at their own pace and from multiple angles, reducing cognitive overload. This is particularly critical in descriptive writing, where students must observe and articulate spatial, sensory, and structural details. As noted by Firosyam et al. (2023), AR reduces cognitive load by externalizing mental imagery, allowing learners to focus on language production rather than imagination alone. In this study, students reported that AR models helped them "see the texture, color, and shape clearly," which directly translated into richer, more accurate descriptions—evident in the significant improvement from pretest to posttest.

Additionally, Vygotsky's Sociocultural Theory (SCT) provides a valuable lens for understanding the collaborative and scaffolded nature of the learning experience. The Project-Based Learning (PBL) framework embedded in the module created a Zone of Proximal Development (ZPD), where students, supported by peers, teachers, and digital tools, progressed from guided exploration to independent writing. The AR models acted as cognitive tools or "more knowledgeable others," scaffolding students' observational skills before they engaged in writing. This aligns with recent findings by Huang et al. (2022), who demonstrated that AR-enhanced environments significantly improve language learners' descriptive accuracy by providing contextual, experiential input—what Vygotsky would describe as socially mediated knowledge construction.

The findings of this study resonate with recent international research on technology-integrated language learning. For instance, a study by Chen & Li (2023) in Taiwan explored the use of AR-based flashcards in teaching descriptive vocabulary to middle school EFL learners. Their results showed a 32% improvement in lexical richness and a significant increase in student motivation—closely mirroring the 90.53% practicality score and enhanced diction observed in this study. However, unlike

Chen & Li's focus on vocabulary acquisition, this research extends AR application to full-text composition, integrating it within a structured writing process.

Similarly, Alzubi & Al-Samarraie (2024) conducted a meta-analysis of 28 studies on AR in language education and concluded that AR significantly enhances learners' spatial understanding, engagement, and creative expression, particularly in descriptive and narrative tasks. They emphasized that AR's strength lies in transforming abstract concepts into tangible experiences—exactly the function served by Assemblr Studio Web in this study, where students described 3D models of real-world objects as if observing them physically.

Furthermore, Duran & Gutiérrez (2023) in Spain developed a Canva-based digital storytelling module for secondary students and found that visually structured templates improved narrative coherence and syntactic complexity. While their work focused on narrative texts, this study expands the application to descriptive writing, demonstrating that Canva's design flexibility supports not only storytelling but also systematic, observation-based writing when combined with immersive AR content. These international parallels confirm that the benefits of multimodal, AR-enhanced learning are not context-specific but reflect broader trends in digital pedagogy. The success of this integrated model in an Indonesian classroom suggests its potential for adaptation in diverse linguistic and cultural settings.

This study makes several key contributions to educational practice and research. First, it addresses a critical gap in the literature: while prior studies have examined Canva or Assemblr in isolation (Jannah et al., 2023; Kurniawan et al., 2024; Nengsih et al., 2023), this research pioneers their systematic integration into a single, curriculum-aligned learning environment. The synergy between Canva's visual structuring and Assemblr's immersive visualization creates a holistic learning experience that supports both cognitive and affective domains. Second, unlike conceptual studies such as Hamidah et al. (2024), this research provides empirical validation through a rigorous ADDIE-based R&D process, including expert validation, practicality testing, and statistical analysis of learning outcomes. The high validity scores (media: 96%, instructional: 95%) and significant t-test results ($p = 0.000$) offer strong evidence of the media's effectiveness. Third, the design prioritizes learner agency and creativity, countering critiques of digital platforms for promoting passive consumption (Marachi & Quill, 2020). By embedding project-based tasks, peer collaboration, and exploratory AR interaction, the media fosters active knowledge construction, aligning with constructivist and student-centered pedagogies central to the Merdeka Curriculum (Muslimah et al., 2023).

Despite its contributions, this study has limitations. The sample size (n=21) limits generalizability, and the research was conducted in a single school setting. Future studies should replicate the model across multiple schools and grade levels, incorporating larger samples and control groups for comparative analysis. Additionally, the long-term impact on writing retention and transferability to other text types (e.g., narrative, expository) remains unexplored.

4. CONCLUSION

This study confirms that integrating Canva Site and Assemblr Studio Web into a cohesive, interactive learning medium provides a pedagogically sound and technologically innovative approach to teaching descriptive text writing in junior high school. Rather than merely digitizing traditional instruction, this model reimagines the writing process as a multimodal, experiential, and student-centered activity, aligning closely with the principles of the Merdeka Curriculum and the demands of 21st-century learning.

The development and evaluation of the media demonstrate that technology integration in language education can go beyond surface-level engagement. By combining visual design (Canva) with augmented reality visualization (Assemblr), the medium supports cognitive scaffolding, enhances sensory input, and fosters deeper observational and expressive skills. This synergy not only improves writing quality but also transforms students from passive recipients into active creators of meaning—thereby nurturing creativity, critical thinking, and digital literacy.

However, this study is not without limitations. The sample size was limited to 21 students from a single class in one school, which constrains the generalizability of the findings. Additionally, the intervention focused exclusively on descriptive text, and the long-term retention of writing skills was not assessed. The study also did not compare the integrated media against alternative digital tools or control groups, which would strengthen causal inferences about its effectiveness.

To build upon this work, future research should: (a) Replicate the model across multiple schools and grade levels with larger, more diverse samples; (b) Extend the application to other text types, such as narrative, expository, or argumentative writing, to test the scalability of the framework; (c) Conduct longitudinal studies to assess the durability of learning gains; (d) Employ quasi-experimental or experimental designs with control groups to rigorously evaluate comparative effectiveness; (e) Explore teacher adoption challenges and professional development needs for integrating AR and design tools into daily instruction. This study contributes more than a functional learning tool—it presents a replicable, theory-informed model for integrating emerging technologies into language education in ways that are meaningful, engaging, and curriculum-aligned. As Indonesia continues to advance the Merdeka Curriculum, such innovations offer a pathway toward more inclusive, creative, and digitally empowered classrooms.

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