

VIRTUAL REALITY-BASED MEDIA TO ENHANCE SUNDANESE DESCRIPTIVE WRITING SKILLS

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Abstract

Learning to write Sundanese descriptive texts presents several challenges, particularly in the limited availability of engaging and contextualized learning media. Students often lack real-life experiences related to the objects they are asked to describe, and the absence of interactive media contributes to the low quality of their descriptive writing. This study aims to analyze the needs for Virtual Reality media to enhance students' skills in writing Sundanese descriptive texts at the junior high school level. A descriptive qualitative method was employed in this research. The participants included 8 Sundanese language teachers and 145 junior high school students from Bandung City. Data were collected through questionnaires and interviews conducted during the 2024/2025 academic year. The collected data were analyzed using qualitative techniques involving data reduction, data display, and conclusion drawing. The results indicate that students' ability to write Sundanese descriptive texts remains relatively low, primarily due to the lack of innovative and immersive learning media. Teachers also face challenges in providing learning experiences that allow students to observe or visualize descriptive objects directly. Virtual Reality shows potential as a promising solution, offering immersive, simulated environments that help students gain contextual understanding. These findings suggest that the development of Virtual Reality media is urgently needed to support students' learning needs in writing Sundanese descriptive texts. Furthermore, this study serves as a foundation for future research focusing on the design and effectiveness of Virtual Reality-based learning media in enhancing descriptive writing skills in Sundanese language education.

Keywords: Descriptive Text; Learning Media; Sundanese Language; Virtual Reality; Writing Skills

Abstrak

Pembelajaran menulis teks deskripsi dalam bahasa Sunda menghadapi berbagai tantangan, khususnya terkait keterbatasan media pembelajaran yang menarik dan kontekstual. Siswa sering kali tidak memiliki pengalaman nyata terhadap objek yang harus mereka deskripsikan, dan ketiadaan media interaktif turut menyebabkan rendahnya kualitas tulisan deskriptif mereka. Penelitian ini bertujuan untuk menganalisis kebutuhan media *Virtual Reality* dalam meningkatkan keterampilan menulis teks deskripsi bahasa Sunda pada tingkat Sekolah Menengah Pertama. Penelitian ini menggunakan metode deskriptif kualitatif. Partisipan dalam penelitian ini terdiri dari 8 guru bahasa Sunda dan 145 siswa Sekolah Menengah Pertama di Kota Bandung. Data dikumpulkan melalui angket dan wawancara pada tahun ajaran 2024/2025. Data yang diperoleh dianalisis dengan teknik analisis kualitatif yang mencakup reduksi data, penyajian data, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa kemampuan siswa dalam menulis teks deskripsi bahasa Sunda masih tergolong rendah, terutama disebabkan oleh kurangnya media pembelajaran yang inovatif dan imersif. Guru juga mengalami kesulitan dalam memberikan pengalaman belajar yang memungkinkan siswa untuk mengamati atau memvisualisasikan objek deskripsi secara langsung. *Virtual Reality* menunjukkan potensi sebagai solusi yang menjanjikan, karena mampu menghadirkan lingkungan simulasi yang imersif dan membantu siswa memahami konteks secara lebih konkret. Temuan ini menunjukkan bahwa pengembangan media *Virtual Reality* sangat dibutuhkan untuk memenuhi kebutuhan pembelajaran menulis teks deskripsi bahasa Sunda. Selain itu, penelitian ini menjadi dasar bagi pengembangan lebih lanjut mengenai desain dan efektivitas media pembelajaran berbasis *Virtual Reality* dalam meningkatkan keterampilan menulis dalam pembelajaran bahasa Sunda.

Kata Kunci: Bahasa Sunda; Keterampilan Menulis; Media Pembelajaran; Teks Deskripsi; Virtual Reality

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Introduction

Sundanese descriptive text writing skills are an important component in local content learning of regional languages, which plays a role in preserving regional culture and identity. The Merdeka Curriculum emphasizes the importance of strengthening students' local and cultural context-based literacy competencies, including in Sundanese language learning (Kemendikbudristek, 2022). In Phase D (grades VII-IX), descriptive text writing material is loaded as part of strengthening language competence in the writing domain, where students are directed to develop ideas, compose text structures, and adjust language styles according to the socio-cultural context (Dinas Pendidikan Provinsi Jawa Barat, 2022). However, the reality in the field shows that there are still many students who experience problems in expressing ideas and ideas in writing in Sundanese or local languages (Cephilman, 2020; Muzzamil et al., 2025; Nur et al., 2020; Syahrin, 2014). This is due to the lack of understanding and experience of the objects described, limited Sundanese vocabulary, and the lack of use of innovative and interactive learning media (Mukarromah & Andriana, 2022; Muzaki, 2024; Qulub & Renhoat, 2019). Therefore, efforts are needed to improve Sundanese descriptive text writing skills through the use of educational technology that suits the needs (Aprilani, 2021; Nugraha et al., 2025; Restuloh et al., 2017).

The development of today's technology, especially Virtual Reality (VR), has opened up great opportunities in the world of education. Previous research shows that the use of VR media can increase student engagement and motivation to learn. For example, research conducted by Ghaliza & Faznur (2024) shows that Virtual Reality media based on Project-Based Learning has a positive impact on the writing skills of Indonesian descriptive texts of Islamic Junior High School Al-Azhar 25 South Tangerang students. In addition, research conducted by Sholikhah (2024) shows that Virtual Reality-Based Learning media can increase student motivation and enthusiasm, so that VR media not only improves the quality of Indonesian descriptive text writing, but also makes the learning process more interesting and innovative. Similarly, research by Layalia et al., (2020) shows that the use of Virtual Reality media assisted by Google Cardboard can improve the ability to write poetry of class X SMA Assa'adah Bungah Gresik students.

Various learning methods and media have been widely applied to improve writing skills, but until now no previous research has been found that specifically examines the use of Virtual Reality media in Sundanese language learning. Moreover, in the context of learning to write Sundanese descriptive texts, the application of Virtual Reality media has never been done. This gap shows that the potential of Virtual Reality media as an immersive and interactive learning tool has not been optimally utilized. Therefore, this research is the first to be carried out to specifically examine the analysis of the needs of Virtual Reality media development in learning to write Sundanese language descriptive texts, so that it is expected to make a new contribution to the development of Sundanese language learning technology. Moreover, Virtual Reality media can provide direct and more real experiences that can help students understand the objects to be described (Lorenza & Oktaviani, 2024).

Although there are many studies that review the positive impact and influence of using VR media in learning to write, most of them are still centered on the productivity aspect only, without paying attention to the aspects of student and teacher needs for VR media that are in accordance with the characteristics of effective learning media. In fact, the impact of VR media that only relies on impressions available on social media does not necessarily meet the needs and characteristics of effective learning media (Ariesta et al., 2023). In this context, this research is designed to fill the gap by analyzing the needs of Virtual Reality media designed to

improve Sundanese descriptive text writing skills, so that it can be the basis for further research related to the development of VR media in accordance with the characteristics and needs of students in learning to write Sundanese descriptive text. The novelty of this research lies in three main aspects, namely: first, this research is an initial study that examines and designs the development of Virtual Reality media specifically for learning to write Sundanese descriptive texts; second, this research uses a participatory approach by directly involving students and teachers in the needs analysis process as the basis for media development; and third, this research integrates elements of local wisdom such as Sundanese typical environments into Virtual Reality immersive technology. By utilizing Virtual Reality media, it is expected that students can feel direct and more real experience in understanding the object of description, so as to stimulate ideas and improve the quality of student writing. The contribution of this research is expected to be a solution to meet the needs in learning to write Sundanese descriptive texts that are more effective and innovative.

This study aims to answer several key questions: what is the current condition of learning to write Sundanese descriptive text in schools? What are the needs of VR-based interactive learning media in learning to write Sundanese descriptive text? What are the characteristics of VR-based media that are suitable for learning to write Sundanese descriptive text? And what are the challenges of implementing VR-based media in learning to write Sundanese descriptive text? Through this research, it is expected to gain insight and a more in-depth picture of the needs of students and teachers for VR media in learning to write Sundanese descriptive text, as well as recommendations for the development of learning media for writing descriptive text that suits their needs. Thus, the results of this study are expected to contribute to the development of regional language education science, especially in the utilization of VR technology, and help create a more interactive and immersive learning environment for students.

Research Methods

This study uses a qualitative descriptive method to understand and analyze the needs of teachers and students for the development of Virtual Reality-based learning media in learning to write Sundanese descriptive text. This approach was chosen because qualitative methods are used to examine the conditions of natural objects, where researchers are key instruments in data collection and analysis (Sugiyono, 2013). This approach allows in-depth exploration of the experiences, perceptions, and obstacles faced in learning to write Sundanese descriptive text and how Virtual Reality media can be developed to support the learning process of writing Sundanese descriptive text.

This research was conducted in the 2024/2025 academic year, precisely for three months, from February to April 2025, in six junior high schools (SMP) in Bandung City. The selected schools included SMPN 5 Bandung, SMPN 49 Bandung, SMPN 25 Bandung, SMP Yayasan Atikan Sunda, SMP Tahfidz Mahkota Al-Hidayah, and MTs Insan Madina. The selected schools have different characteristics in terms of technology facilities and learning approaches to get a broader picture of the needs of Virtual Reality-based learning media in learning to write Sundanese descriptive texts.

The research subjects consisted of 8 Sundanese language subject teachers and 145 students in grades VII-IX. Teachers were selected based on their Sundanese language teaching experience of less than one year up to teachers who have had more than fifteen years of teaching experience, while the students involved were purposively selected based on their readiness, availability, and Sundanese language learning experience, especially learning to

write descriptive texts. This purposive sampling technique ensured that participants provided rich and relevant data for analyzing media needs.

This research starts from the problem identification stage, namely the low quality of learning to write Sundanese descriptive texts that have not been supported by innovative learning media such as Virtual Reality. Based on this, the research objectives were set to analyze the needs of teachers and students for the development of VR-based learning media in the context of learning to write descriptive texts. Research planning was carried out by setting a qualitative descriptive design, choosing locations in several junior high schools and MTs in Bandung City, and determining research subjects, namely teachers and students through purposive sampling techniques based on their involvement and experience in Sundanese language learning. The research instruments were prepared in the form of questionnaires and semi-structured interview guidelines. The questionnaire was distributed online through Google Form and consisted of 21 statements for each teacher and student respondent, while semi-structured interviews were conducted directly with 11 main questions asked to each participant. Data collection was conducted through questionnaires and in-depth interviews with students and teachers to explore information about learning conditions, media needs, media characteristics, and challenges of VR media implementation. The data obtained were analyzed using the Miles & Huberman approach through three stages, namely data reduction, data presentation, and conclusion drawing. The results of the analysis were then interpreted to formulate recommendations for VR media development in accordance with the characteristics of student and teacher needs. This research process is closed by reporting the results in the form of interpretative narratives and percentage presentations, as a scientific basis for the development of contextual and effective VR learning media in supporting Sundanese descriptive text writing skills.

The research instruments used include questionnaires and semi-structured interviews. The questionnaire was used to obtain quantitative data regarding the experience of students and teachers in learning to write Sundanese descriptive text, the need for learning media, the expected characteristics of Virtual Reality media, and their readiness for Virtual Reality-based media development. The questionnaire instrument in this study used various types of scales, with the dominance of using the Likert scale to measure respondents' attitudes and perceptions (Siregar et al., 2023; Sugiyono, 2013). Semi-structured interviews were conducted with teachers and students to gain a more in-depth understanding of learning conditions, learning media needs, the expected characteristics of Virtual Reality media, and the challenges of implementing Virtual Reality media in learning to write Sundanese descriptive text (Nurhayati et al., 2023).

The data obtained were analyzed using qualitative analysis techniques Miles & Huberman (2002). The analysis process is carried out through several stages, namely data reduction to sort out information that is relevant to the research objectives, data presentation in the form of descriptive narratives to facilitate further analysis, and conclusion drawing which aims to interpret the research results and provide recommendations related to the development of Virtual Reality-based learning media in writing Sundanese language descriptive text. The data that has been analyzed, then presented in the form of percentage descriptions and in-depth interpretative narratives, so as to provide a comprehensive understanding of the actual needs in the field. With this research method, it is expected to obtain a comprehensive understanding of the need for Virtual Reality media development in learning to write Sundanese descriptive text, as well as its contribution in improving students' writing skills.

Results and Discussion

The activities and processes of learning to write Sundanese descriptive texts are greatly influenced by the availability of learning media that support contextualized and interesting learning experiences for students. In an effort to understand the actual conditions of learning and the potential for technology-based media development, this study was conducted involving 153 participants, consisting of 145 students and 8 Sundanese language teachers from seven junior high schools in Bandung City. This study used closed and open questionnaires to explore four main aspects, namely the condition of learning to write Sundanese descriptive text, the need for learning media, the potential use of Virtual Reality media, and the challenges of implementing Virtual Reality media in learning. The data obtained from students describe their perceptions of the learning experience, the need for features in Virtual Reality media, and the obstacles that may be faced. Meanwhile, data from teachers provide an overview of the effectiveness of learning methods and media that have been used so far, views on the application of Virtual Reality media, as well as the readiness of infrastructure and human resources in schools. Descriptive analysis of the questionnaire data is then used to identify real needs and formulate recommendations for the development of Virtual Reality-based learning media in the context of learning to write Sundanese descriptive texts. The results are presented systematically in the form of percentages and in-depth interpretative narratives, as presented in the following section.

Table 1. Student Questionnaire Results for Needs Analysis
Virtual Reality Based Learning Media

No	Aspects	Statement	SS	S	N	TS	STS	Percentage of Positive Response
1	Learning Conditions	Students understand the learning of Sundanese descriptive text	9	90	45	0	1	68.3
		Students often find learning difficult	9	36	56	43	1	30.4
		Students often need help in learning	10	37	64	34	0	23.4
2	Learning Media Needs	Learning media supports the learning process	21	102	22	0	0	84.8
		Students are interested in using Virtual Reality-based media	47	85	13	0	0	91
		Students understand Virtual Reality media	22	78	43	2	0	69
3	Virtual Reality Media	Virtual reality media helps understand Sundanese descriptive text material	27	112	5	1	0	95.8

The research shows that writing Sundanese descriptive texts is a material that is taught at the Junior High School level. All teacher respondents (8 people) stated that writing Sundanese descriptive text is important to be taught (50% "Important", 50% "Very Important"), while 145 students confirmed that they had learned to write Sundanese descriptive text (all answered yes, generally in grades 7-8). Most students gave positive responses to the learning experience of writing Sundanese descriptive text, for example 75% marked "Interesting" and almost 48% mentioned "Fun" in answering the question of learning experience of writing Sundanese descriptive text. Only a small proportion of students (9%) found the material "difficult to understand". Teachers rated student engagement as moderate

(6 teachers said "active", 2 teachers "less active"), with determining factors for engagement including learning methods and available media, as well as student interest in the material. In conventional learning practices, the majority of teachers use presentation slides (PPT) (7 out of 8 teachers) and textbooks (5 teachers) as learning media, some teachers also utilize learning videos and illustrative pictures.

Regarding the need for Virtual Reality media, the majority of respondents showed high interest. A total of 132 students (91%) expressed "Very interested" and "Interested" and 13 students (9%) answered "Less interested" in using Virtual Reality-based learning media to learn to write Sundanese language descriptive text, and 7 out of 8 teachers expressed "Very interested" (87.5%). The majority of students (69%) already had an overview of Virtual Reality by answering "Knowing" or "Very knowing" on the questionnaire. Students identified the need for interactive and experience-rich learning media features: 66 students (46%) proposed the use of subtitles, 67 students (46%) mentioned voice over, and 101 students (70%) wanted "360° environment exploration". In addition, 59 students (41%) emphasized the need for interactive learning media and close to real experience, most teachers also answered "technology-based interactive media" and "simulation of real experience" to support students' writing skills through technological media in learning to write Sundanese language descriptive texts. All teachers also agreed that the application of Virtual Reality media needs to be supported by adequate facilities and special training for teachers (6 teachers "Agree", 2 teachers "Strongly agree").

In terms of the potential use of Virtual Reality, the data illustrates positive expectations. Almost all teachers (100%) stated that Virtual Reality "can help" the learning process of writing Sundanese descriptive text, 5 teachers said, "Strongly agree" and 3 teachers answered "Agree" to the statement that Virtual Reality helps learning activities to write Sundanese descriptive text. A total of 139 students (96%) rated Virtual Reality as "helpful" or "very helpful" in understanding Sundanese descriptive text material. Students called the impression of learning with Virtual Reality "more interesting and fun", for example some students revealed that learning became "more interactive" and "fun" when using Virtual Reality media. Most students believe Virtual Reality allows for more real visual exploration of objects, so as to clarify the material being studied. According to some students: "I think it's fun because I can interact with objects in VR" and "Virtual Reality videos would be fun if they looked like the real surroundings". Such statements indicate the hope that Virtual Reality media can increase students' enthusiasm and understanding in learning to write Sundanese descriptive texts.

As for the challenges and barriers identified, teachers and students have similar concerns. Teachers often mentioned "Limited facilities" and "High cost" as the main barriers to the implementation of Virtual Reality media in schools. Other technical barriers identified by teachers include limited internet network and lack of understanding of technology among teachers and students. One teacher answered, "Limited facilities" as the main obstacle. From the students' perspective, the majority realized that without supporting devices, Virtual Reality is difficult to use. Student responses mentioned things like "Not having the supporting devices/facilities" and "VR is not comfortable to use for a long time (like headache)". Other barriers mentioned by students included the initial difficulty of understanding Virtual Reality technology. As a solution, students suggested that schools prepare devices in turn, equip students with technological information, and involve teachers in mentoring (example quote: "Before using VR media, it must be explained first by the teacher"). Teachers also proposed solutions such as the provision of adequate infrastructure, teacher training, and the integration

of Virtual Reality media into the syllabus of learning to write Sundanese descriptive texts to make it more effective.

The above results are consistent with previous research findings regarding the role of Virtual Reality in education. Ghaliza & Faznur (2024) for example reported that the use of Virtual Reality media based on project-based learning significantly improved students' descriptive text writing skills. Their findings support our results that almost all teachers believe Virtual Reality media can help learning to write Sundanese descriptive texts. Most students in this study also stated that Virtual Reality was helpful and fun. This is in line with the literature that shows Virtual Reality encourages learning engagement and interest. For example, Hua & Wang (2023) in a recent review noted that 29 empirical studies show Virtual Reality brings positive effects on language learning, including increased enthusiasm, task engagement, motivation, and even descriptive text writing ability. The study of Lin et al. (2024) also confirms the use of Virtual Reality media in the classroom tends to improve students' cognitive and affective engagement as well as writing learning outcomes. Thus, the findings of students who think lessons with Virtual Reality are "more interesting" and teachers who state Virtual Reality media "provide a more real visual experience" are supported by evidence that learning environments with immersive Virtual Reality media are indeed more effective at increasing student focus and interest (Hua & Wang, 2023; Lin et al., 2024; Marom, 2023; Rahmawati et al., 2022).

Specifically in the context of language, the utilization of Virtual Reality media involving media features such as audio-visual and simulated reality becomes very relevant. As suggested by the teacher, real-life and audio-visual experience-based media (e.g. interactive videos) are needed to stimulate students' imagination. This is in accordance with the research of Ningsih & Firmansyah (2020) which found 81.11% of students agreed that Virtual Reality media can be utilized in learning to write descriptive texts. Student demand for features such as 360-degree exploration, voice over, subtitles, and direct interaction with objects, is also reflected in the literature that Virtual Reality media has a great opportunity to enrich the multimodality of language learning (e.g. through voice and text narration) (Fitria, 2023; Hasman et al., 2022; Hua & Wang, 2023; Irfan et al., 2024). These features help lower cognitive load and support context understanding, e.g. the use of voice over and subtitles can bridge new vocabulary, matching students' need for "meaning subtitles" (Bukhori et al., 2022; Fitriya et al., 2022; Nuraini et al., 2023; Y. S. Putra et al., 2022).

Meanwhile, the barriers expressed by respondents have also been widely discussed in other studies. Limited resources (hardware and high cost) and good infrastructure are common challenges of Virtual Reality media implementation (Lin et al., 2024; Reality, 2019). Most teachers highlighted the need for funds and facilities, in line with the analysis that the cost of Virtual Reality media devices and teacher training costs are significant barriers (Reality, 2019; Widyatna et al., 2024). In addition, the lack of understanding of the technology by teachers and students underscores the need for training. This is supported by recommendations by various studies that suggest policy makers provide training and technical support so that teachers can effectively integrate virtual reality media in learning (Lin et al., 2024; Y. P. Putra, 2022; Siahaya, 2024). The teachers also emphasized "teacher training in learning media" is needed as an exact solution to confirm this.

Overall, quantitative and qualitative data analysis shows that the current condition of learning to write Sundanese language descriptive texts requires more attractive and innovative media, in line with students' needs for interactive and immersive Virtual Reality media features. In several literature studies it is also explained that the potential of Virtual Reality

media to increase student enthusiasm and understanding is very large, but aspects of the readiness of facilities and infrastructure, as well as teacher competence must be met first (Azisi et al., 2025; Firdaus et al., 2023; Ghaliza & Faznur, 2024; Purwaningtyas et al., 2024). This finding confirms that the development of Virtual Reality-based learning media needs to consider technical (facilities, training) and content aspects (interactive features, local relevance such as Sundanese language and cultural contexts) to overcome existing and optimize its benefits for learning to write Sundanese descriptive texts.

Thus, based on the results of the above research, it shows that there is a high need for Virtual Reality-based learning media in the context of learning to write Sundanese descriptive texts. The majority of students and teachers assess media that are visual, interactive, and immersive such as Virtual Reality can answer the gap between limited learning experiences and the demands of understanding concrete objects in Sundanese descriptive text. The utilization of digital technology such as Virtual Reality is believed to be able to present contextual and local culture-based learning experiences, as well as strengthen students' imagination and vocabulary mastery visually (Shabir, 2022). This is in line with the direction of the Merdeka Curriculum policy which encourages the use of contextual learning approaches and innovative technology in strengthening regional language learning (Kemendikdasmen, 2024). In addition, the use of immersive media in learning has been proven to bridge the limitations of conventional approaches in delivering environmental and cultural-based material (Nurdyansyah & Widodo, 2015). Therefore, this research provides positive implications for the development of contextual and technology-based learning media, especially for Sundanese language which has tended to be taught conventionally. These findings can be an initial reference for media developers, educators, and policy makers in designing Virtual Reality media that is in line with student needs, both in terms of material, features, and Sundanese linguistic and cultural contexts.

In addition, the enthusiastic support of students and teachers for the potential of Virtual Reality media in learning to write Sundanese descriptive texts opens up great opportunities for further research and development of relevant media prototypes. The need for features such as visual exploration of the Sundanese environment, narration in Sundanese, to support subtitles shows that the integration of Virtual Reality technology not only has an impact on improving descriptive text writing skills, but can also contribute to the preservation and revitalization of Sundanese in an innovative way. With the basis of empirically identified needs, the development of Virtual Reality media in the future has the potential to be an effective, interesting, and applicable alternative solution in overcoming the challenges of Sundanese language learning, especially in improving the quality of student writing in the digital era. However, this study has a number of limitations that need to be observed. First, this study only focuses on the needs analysis stage without covering the process of developing, implementing, and evaluating Virtual Reality media, so it cannot conclude the direct effectiveness of its use. Secondly, the research participants were limited to certain schools with specific contextual characteristics, so the findings cannot be widely generalized. Third, most of the participants have not had direct experience with VR technology, so their responses are still perceptual or hypothetical. In addition, the qualitative approach used relies on the subjectivity of the respondents, which may naturally affect the depth and accuracy of the data obtained.

Conclusion

Based on the results and discussion of the research above, it can be concluded that the skill of writing Sundanese descriptive text still faces various challenges, especially in terms of

the limitations of interesting and contextual learning media. Students and teachers alike show a high need for the development of Virtual Reality-based learning media that is interactive, immersive, and in accordance with the characteristics of Sundanese language and culture. The findings reveal that Virtual Reality media has great potential in helping students understand objects of description more concretely and increasing their motivation and involvement in the learning process. Teachers also support the use of this media, with a note that its implementation must be accompanied by adequate facilities and appropriate training. Therefore, the development of Virtual Reality-based learning media designed based on the results of this needs analysis is very important to do to support the improvement of the quality of learning to write Sundanese descriptive texts. In the future, the results of this study can be the basis for developing a prototype of Virtual Reality media that integrates features of Sundanese environmental exploration, narration in Sundanese, and other interactive elements, as well as opening space for further research that tests the effectiveness of these media in a broader learning context.

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