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Perspective Drawing Techniques with Vision Frame Media: Case Study in Art Learning at Middle School

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ABSTRACT

Perspective drawing is a fundamental skill in art education that plays a crucial role in developing visual abilities, creativity, and the understanding of three-dimensional space on a two-dimensional plane. However, many students experienced difficulties in grasping the abstract concept of perspective, particularly in determining the horizon line and vanishing points, which was attributed to the limitations of conventional learning media. Therefore, this study examined the application of the Vision Frame learning media in teaching perspective drawing techniques to students at Islamic Middle School. The research employed observation and questionnaire methods to collect data on students' perceptions of the effectiveness of Vision Frame as a visual aid in the perspective drawing learning process. This research was conducted at the Islamic Middle School (SMPIT) Darul Fikri Makassar. The data analysis techniques included both qualitative and quantitative analyses. The analysis revealed that the majority of students (75%) rated Vision Frame as highly effective in accelerating and simplifying the determination of the horizon line and vanishing points. No students provided negative feedback regarding this media. These findings indicated that the use of Vision Frame significantly enhanced students' understanding of perspective concepts, reduced technical errors, and increased their confidence in drawing. Therefore, Vision Frame was considered an innovative and effective learning medium worthy of integration into the art curriculum at the junior high school level, as demonstrated in the case study at SMPIT Darul Fikri Makassar.

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1. INTRODUCTION

Art education played an important role in developing students' creativity, imagination, and critical thinking skills (González-Zamar & Abad-Segura, 2021; Samaniego et al., 2024). In the context of visual arts learning, perspective drawing was one of the fundamental topics that served to build students' visual understanding of space and depth in two-dimensional images. The perspective technique not only required technical skills but also a conceptual understanding of position, distance, and viewpoint.

Perspective drawing was a fundamental skill in art education that played a significant role in enhancing students' visual abilities and creativity (Zhang & Jia, 2024; Abdullah et al., 2024). This technique enabled students to comprehend and represent three-dimensional space on a two-dimensional plane realistically, thereby producing artworks with convincing depth and dimension (D'Amelio, 2004). Mastering perspective drawing techniques not only improved students' technical skills but also enriched their imagination and understanding of space and form, which are crucial aspects of art education (da Silva & Palaré, 2023). Therefore, teaching perspective techniques became an essential part of the art education curriculum, especially at the junior high school level, where students were introduced to more complex and applicable basic art concepts (Darpindo & Yahya, 2024). However, in reality, many students experienced difficulties in understanding the abstract concept of perspective due to the limitations of the learning media used.

SMPIT Darul Fikri Makassar, as one of the integrated Islamic schools that combined Islamic values and science in learning, showed attention to the development of a skills-based curriculum. However, in practice, the visual arts learning at this school still faced challenges regarding the selection of appropriate methods and media, especially in the subject of perspective drawing (McClure et al., 2017; Roosen et al., 2018; Aziza et al., 2024). Although perspective was an important part of visual arts education, its teaching process still encountered various obstacles. One of the main challenges was the use of conventional teaching methods, such as lectures and textbooks, which were less interactive. Research showed that many students experienced difficulties in understanding perspective due to the limited availability of teaching materials (Rozi & Zaini, 2024). Furthermore, most of the learning media used were still manual, where students had to draw perspective guide lines themselves without adequate visual aids (Suryarani & Zaini, 2022). These difficulties often caused errors in determining vanishing points, object proportions, and horizon lines, resulting in suboptimal student drawings. Several studies attempted to develop technology-based learning media to assist students in understanding perspective. For example, research discussed the use of eye-tracking technology to improve students' focus and comprehension of perspective drawings (Park et al., 2023; Xie & Zhou, 2024; Purba et al., 2024; Cazes et al., 2024). However, this method required additional devices that were not always available in schools. Additionally, research by Bessy developed a grid technique to facilitate the perspective drawing process (Bessy & Zaini, 2024). Although this technique proved advantageous for students to draw more accurately, it still required a relatively high level of manual skill and did not fully overcome the difficulties in determining perspective guidelines.

Along with technological advancements, the methods of teaching visual arts underwent significant transformation, especially with the emergence of innovative digital media (Tong et al., 2021; Wiratno & Callula, 2024). One of the media that began to be widely used in art education was Vision Frame. Vision Frame was an interactive digital media designed to help students understand the concept of perspective in a more visual and practical way (Pacheco et al., 2018; Guan & Wang, 2023). This media

allowed students to view and manipulate objects in a virtual space, making the abstract concept of perspective more concrete and easier to comprehend (D'Amelio, 2004). The use of Vision Frame as a learning aid not only facilitated technical understanding but also increased students' motivation and engagement in the process of learning perspective drawing. With this media, students could experiment with various viewpoints and perspective techniques directly, which ultimately deepened their understanding of the fundamental principles of visual arts. This visual aid enabled students to grasp vanishing points, horizon lines, and spatial orientation in a more concrete and interactive manner. The media was visual-explorative in nature, thus aligning with the characteristics of art education that emphasized direct experience and creative visualization (Liu et al., 2021). Therefore, it was important to conduct a case study to examine the effectiveness of using Vision Frame media in supporting students' understanding and skills in perspective drawing.

Various studies confirmed that the use of visual media and technology in art education had a significant positive impact on students' understanding and skills (Pavlou, 2020; Lee & Lee, 2021; Jiawei & Mokmin, 2023). For instance, the use of interactive media in art learning improved memory retention and conceptual understanding, as well as encouraged students' creativity and innovation in their work (Jiawei & Mokmin, 2023). Moreover, digital technology opened opportunities for broader collaboration and artistic exploration, which were previously difficult to achieve with traditional methods (Liu et al., 2021). Therefore, this study focused on the technique of perspective drawing using Vision Frame media as an effort to examine more deeply how digital media could be optimized in art education at the junior high school level. This approach was expected to provide a tangible contribution to the development of more effective and relevant art teaching methods aligned with contemporary advancements, while also strengthening the academic foundation in technology-based visual arts education. Learning media became one of the important factors influencing students' success in understanding complex concepts (Lawrence & Tar, 2018; Puspitarini & Hanif, 2019; Haryana et al., 2022). Vision Frame, as a visual aid, was designed to clarify the concepts of vanishing points, horizon lines, and spatial orientation visually. The use of this media was expected to help students concretely see how perspective worked in the context of three-dimensional space and subsequently apply it in two-dimensional drawings.

This study aimed to investigate how the use of Vision Frame as a learning medium improved students' understanding of perspective drawing techniques, particularly within the context of art education at SMPIT Darul Fikri Makassar. Through a case study approach, this research explored the learning dynamics, student responses, and challenges encountered during the implementation of Vision Frame media. Consequently, the findings were expected to contribute to the development of more innovative, contextual, and effective visual arts teaching methods while enriching the academic knowledge in the field of art education.

2. METHOD

This study employed a qualitative case study design aimed at exploring in depth the phenomenon of using Vision Frame media in teaching perspective drawing techniques. The qualitative case study was chosen because it allowed the researchers to understand the learning context holistically and thoroughly, as well as to capture the dynamics of interaction among teachers, students, and the learning media in real-life situations. This design was highly suitable for research focusing on complex and contextual learning processes, where variables could not be separated and required a comprehensive understanding of the participants' experiences. This study conducted data collection using various techniques adapted to the research and development (R&D) approach.

The research was carried out at SMPIT Darul Fikri Makassar, an Islamic-based junior high school with a strong commitment to developing art education as an integral part of the curriculum. SMPIT Darul Fikri Makassar was selected as the research site because the school had an active visual arts learning program and had begun integrating various innovative learning media, including the use of Vision Frame media, into the teaching process. The subjects of this study consisted of art teachers and eighth-grade students (totaling 20 participants) at SMPIT Darul Fikri Makassar. The selection of these subjects was based on their central role in the learning process of perspective drawing techniques using Vision Frame media. The art teachers were chosen as the primary informants because they were responsible for designing and implementing the teaching methods and had direct experience using Vision Frame as a teaching aid. Meanwhile, the eighth-grade students were selected as participants because they were the target group currently studying perspective drawing material in the visual arts curriculum, thus providing relevant perspectives on the effectiveness of the media in supporting their understanding and drawing skills.

The data collection methods included observation, interviews, questionnaires, and documentation. By combining these techniques, the study was able to gather both qualitative and quantitative information that supported the development of optimal learning media. The data analysis techniques included both qualitative and quantitative analyses, which were combined to obtain a more comprehensive understanding of the effectiveness of Vision Frame as a medium for teaching perspective drawing. We used a rubric evaluation, as shown in Table 1, to assess the students' artwork.

Table 1. Perspective Drawing Assessment Rubric

Assessment Aspect	Weight	Score 4 (91–100)	Score 3 (76–90)	Score 2 (60–75)	Score 1 (<60)
Perspective Accuracy	25%	Guidelines converge consistently toward the vanishing point.	Most lines are accurate, with minor deviations.	Only some lines converge correctly to the vanishing point.	Lines do not lead to or use the vanishing point properly.
Proportion and scale	25%	Object sizes and depth are highly	Fairly proportional, with some minor errors.	Consistent proportion, but many objects	Proportions and scale are illogical

Assessment Aspect	Weight	Score 4 (91–100)	Score 3 (76–90)	Score 2 (60–75)	Score 1 (<60)
		proportional and realistic.		appear inaccurate.	or incorrect.
Neatness and Precision	20%	Very neat, smooth lines, and no smudges or stray marks.	Neat overall, with minimal errors or smudges.	Lacks neatness, uneven lines, and appears disorganized.	Drawing is messy, contains many stray marks, and lacks precision.
Space Representation	20%	Space, direction, and size are well-represented, showing strong spatial understanding.	Fairly good; some minor misjudgments in direction or size.	Many inaccuracies in space, direction, or size.	Lacks understanding of spatial representation and direction.
Time Management	10%	Finished early or exactly on time with excellent quality.	Completed on time, acceptable quality.	Slightly late, but still acceptable.	Very late or incomplete.

3. RESULTS AND DISCUSSION

Results

The Vision Frame was an innovative learning medium in the form of a drawing board made from transparent acrylic material equipped with LED lighting. This media was designed to assist students in understanding the basic concepts of perspective drawing visually and systematically. With dimensions of 47 cm by 34.5 cm and an acrylic thickness of 4 mm, the Vision Frame was sufficiently large to be used for practicing drawing various perspective objects. The media was equipped with brightness control buttons and a power button, and it used a micro USB interface with a DC 5V input. To support mobility and efficient use, the Vision Frame was also equipped with a 10,000 mAh power bank as a portable power source, allowing it to be used without dependence on a direct electrical outlet.

In its use, students placed the teaching media, which consisted of one-point or two-point perspective drawings, on the surface of the Vision Frame (Figure 3), then placed drawing paper on top of it. The LED light from the Vision Frame made the lines in the teaching media visible, enabling students to trace and study them easily. In addition to the main unit, the Vision Frame package included a micro USB cable, perspective teaching media, and rubber corner protectors that ensured stability and safety during use. The results of this study consisted of a Vision Frame media tool (Figure 1) and a user guidebook for the Vision Frame (Figure 2).

Figure 1. Vision Frame Media

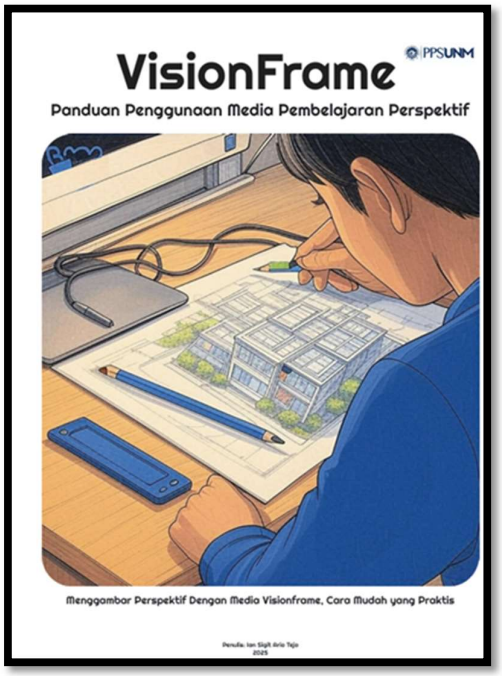

Figure 2. The Vision Frame User Guide

Learning media played an important role in helping middle school students understand spatial concepts, vanishing points, and guide lines, especially in the context of teaching visual arts and perspective drawing. The Vision Frame user guide (Fig. 2) was designed as a visual and conceptual aid that contained the fundamental principles of one-point and two-point perspective. With a systematic visual framework structure, students found it easier to comprehend how guidelines were used to logically and realistically form space. This improvement was evident from the evaluation results, which showed an increase in students' scores in aspects of perspective accuracy, proportion, and scale, all of which were directly influenced by the use of this media.

Vision Frame media significantly improved learning perspective drawing techniques at SMPIT Darul Fikri Makassar, both quantitatively and qualitatively. Quantitatively, there was an increase in the average score of students in fine arts subjects, especially in the aspect of perspective techniques, after the application of this media. Initial data

showed that the average score of students before using Vision Frame was in the range of 60-75 on a scale of 100, while after using this media, the score increased to 91-100 based on the assessment rubric (Table 1). This evidence indicates that Vision Frame media is able to provide a positive contribution to students' understanding and perspective drawing skills. The increase can be seen in Figure 3.

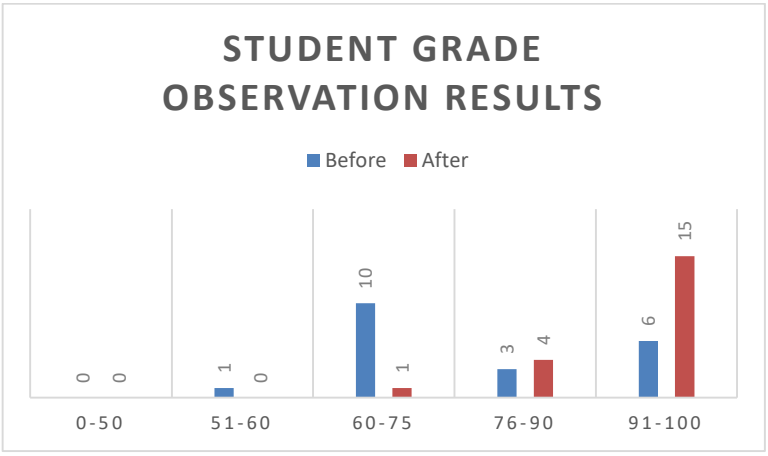

Figure 3. Results of Teacher Observations of Student Grades Before and After Using Media

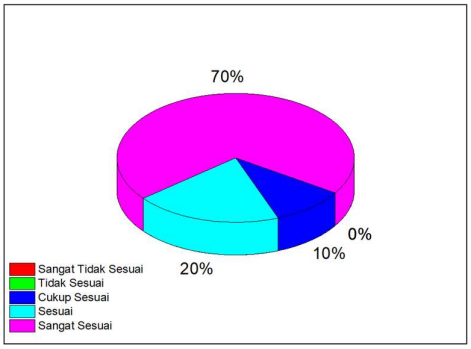

Figure 4. Students' Understanding of How to Draw Perspective Correctly After Using Visionframe

From the data presented in the pie chart (Figure 4), it is evident that the use of the Vision Frame media had a positive impact on students' understanding of drawing perspective correctly. The majority of students (70%) demonstrated a very high level of comprehension in perspective drawing after using the Vision Frame media. This evidence indicates that the media was highly effective in helping students grasp the fundamental principles of perspective, such as the vanishing point, horizon line, and the proportion of objects in three-dimensional space. Furthermore, 20% of the students were assessed to have a strong understanding of perspective drawing techniques after using the Vision Frame, although they had not yet reached an optimal level of comprehension. This finding could be attributed to variations in students' basic drawing skills or differences in the speed at which each student absorbed the material. Additionally, 10%

of the students fell into the fairly satisfactory category, indicating that they understood the basic concepts but still required further guidance in applying them. Such behavior suggests that some students may need additional time or alternative approaches to fully comprehend the use of the Vision Frame media. Importantly, no students showed low or very low understanding of perspective drawing techniques after using the Vision Frame.

This finding strongly indicates that the method is effective and appropriate for art education, particularly in the subject of perspective. The observational results demonstrate that the Vision Frame is a highly effective learning medium for enhancing students' understanding of perspective drawing techniques. With a cumulative success rate of 90% (categories of Outstanding and Very Good), it can be concluded that the visual and practical approach offered by the Vision Frame helps students more easily understand the abstract and often difficult concepts of perspective, which are typically challenging to grasp through theoretical approaches alone. The next recommendation is to maintain the use of the Vision Frame media in art education and to develop additional modules or training for students who fall into the "fairly good" category to help them achieve a more optimal understanding.

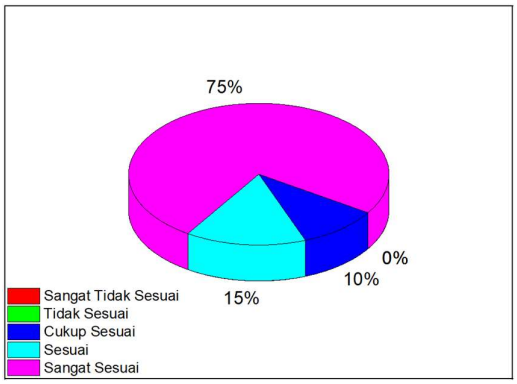

Figure 5. Visionframe Can Help You More Quickly Determine the Horizon Line And Vanishing Points in Perspective Drawing

The analysis of the survey data obtained (Figure 5) showed that 75% of students perceived the Vision Frame as highly appropriate, significantly aiding them in accelerating the process of determining the horizon line and vanishing point during perspective drawing. This finding indicates that the tool was highly effective in facilitating the understanding and application of perspective techniques, which are typically challenging for many students. Furthermore, 15% of students rated the Vision Frame as appropriate, while another 10% considered it fairly appropriate. This information suggests that the majority of students experienced tangible benefits from using the tool, although a small portion may still require further adaptation or additional guidance. No students provided negative evaluations (such as "very inappropriate" or "inappropriate"), indicating that the Vision Frame was well accepted and did not cause confusion or significant difficulties during the learning process of perspective drawing.

From these observations, it can be concluded that the Vision Frame is highly effective and supportive in teaching students how to draw perspective, particularly in determining the horizon line and vanishing point. The majority of students reported significant benefits, demonstrating that the use of the Vision Frame can serve as an excellent instructional method in the art of perspective drawing.

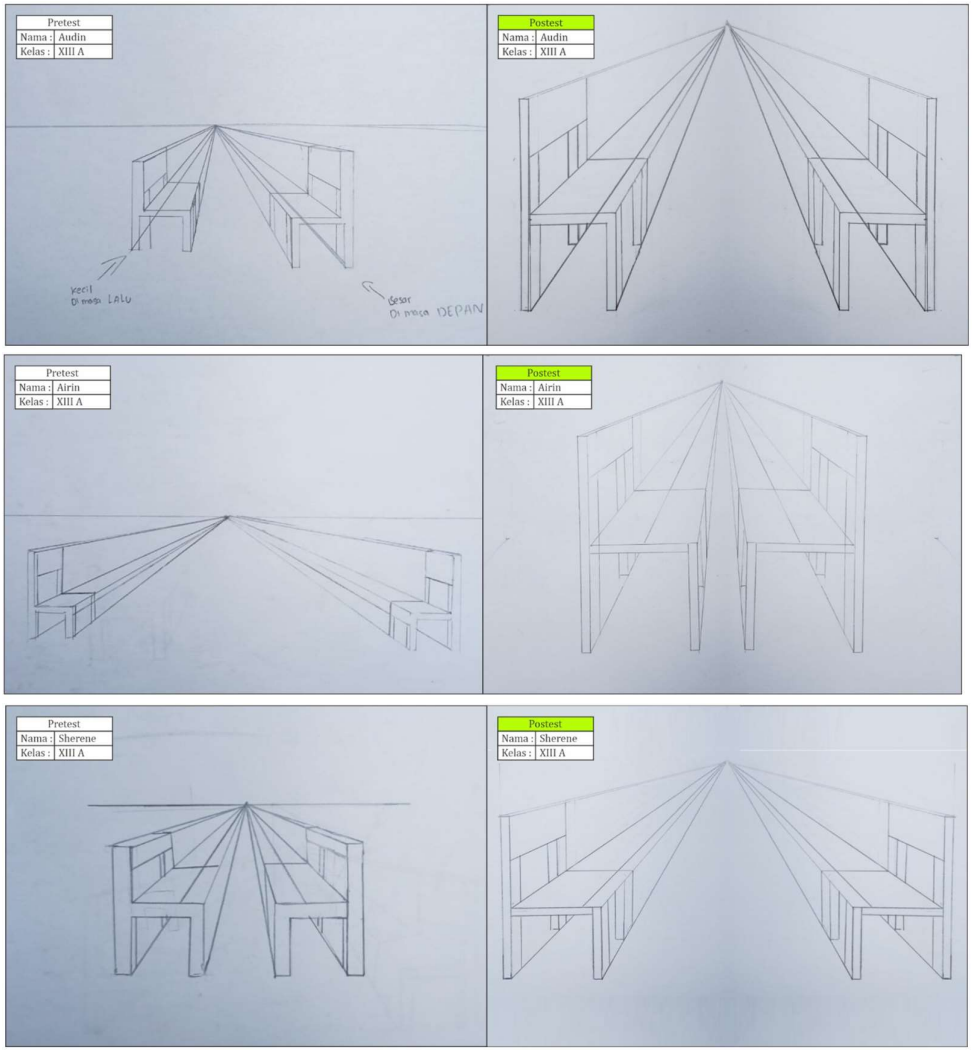

Figure 6. Representation of Student Drawing Results Before and After Using Vision Frame Media

The learning documentation collected in this study includes various visual forms, such as images of students' work (Figure 6). Analysis of this documentation provides a more concrete picture of how Vision Frame media plays a role in improving students' understanding and skills. Images of student work show an increase in the quality of the application of perspective techniques. Before the use of Vision Frame media, student work tended to show errors in proportion and perspective, such as inconsistencies in vanishing points and object distortion. However, after the application of this media, student work showed significant improvements in aspects of perspective accuracy, depth of space, and compositional balance. This finding indicates that Vision Frame

media helps students understand the concept of perspective more visually and applicatively so that they are able to apply it more appropriately in their artwork.

Discussion

The Vision Frame media offers a more direct and participatory learning experience in which students can actively interact with the media to understand perspective concepts in a visual and practical manner. This methodology contrasts with video-based learning, which tends to be passive, where students mainly receive information through video content without direct interaction, as seen in the learning method implemented by Lathifah et al. (2023). The Vision Frame approach enables students to experiment with perspective drawing techniques in real-time, making the learning process more dynamic and responsive to students' needs. The strength of the Vision Frame lies in its ability to integrate three-dimensional visualization with hands-on practice, significantly assisting students in grasping the abstract concept of perspective.

Video-based learning is effective in systematically delivering material and is easily accessible; however, it is limited in interactivity and student engagement (Apatiga & Vu, 2022; Weng et al., 2023). Therefore, Vision Frame media can be considered an advancement of the video-based learning model by incorporating the essential element of interactivity in art education. The implications of this comparison suggest that the integration of interactive media like Vision Frame in art learning can enhance instructional effectiveness in ways that conventional video media cannot fully achieve. This conclusion matches what Aristhi found, highlighting that hands-on learning is crucial for building practical skills, and that learning tools should engage students actively and thoughtfully (Aristhi & Manuaba, 2020). Thus, the use of Vision Frame enriches teaching methods and makes a significant contribution to improving the quality of perspective drawing instruction at SMPIT Darul Fikri Makassar. Furthermore, Vision Frame also supports more personalized and adaptive learning, enabling teachers to provide immediate feedback and tailor instructional approaches to meet individual student needs and abilities. This becomes a critical added value in the context of art education, which demands the simultaneous development of creativity and technical skills.

Hence, Vision Frame has the potential to serve as an innovative and effective learning model that can be adopted and further developed at various levels of art education. Discussions on the challenges of teaching perspective drawing techniques can be deepened by referring to the study by Fitriyah, which identified various difficulties encountered by teachers and students in mastering these techniques, particularly in early stages of education. The study highlighted that perspective techniques are often perceived as complex due to the requirement of accurately representing three-dimensional space within a two-dimensional plane. These challenges are compounded by the limitations of conventional learning media, which often fail to provide adequate visualization and direct interaction necessary to strengthen students' conceptual understanding (Fitriyah & Zaini, 2022).

In the context of this study, the Vision Frame media emerges as an innovative solution capable of addressing several challenges in perspective drawing instruction. This media provides an interactive and dynamic visual representation, allowing students to directly observe and manipulate objects within a perspective space. Thus, Vision Frame not only aids students in theoretically understanding perspective concepts but also delivers a concrete and applicable learning experience. This feature is particularly important given that art education demands practical skills that cannot be fully acquired through traditional teaching methods. Moreover, the use of Vision Frame facilitates a more personalized and adaptive learning process. Teachers can directly observe how students interact with the media and provide timely feedback, making the learning process more effective and efficient. This media also encourages students to experiment and explore various perspective techniques independently, thereby enhancing their motivation and confidence in drawing.

Observations on the use of vision frames in teaching perspective drawing at SMPIT Darul Fikri Makassar revealed several significant positive aspects of the learning process. The media has proven effective in increasing active student engagement during classroom activities. Students are not merely passive recipients but become active participants who directly interact with the Vision Frame to understand perspective concepts in both visual and practical ways. Their dedication is reflected in their high levels of enthusiasm, as they take turns experimenting with different perspective drawing techniques using the media and confidently explore various angles and compositional approaches. One of the most notable aspects of implementing Vision Frame is how easily students can grasp the concept of perspective. The media offers clear and interactive visual representations, allowing students to directly see how three-dimensional objects are projected onto two-dimensional planes using perspective techniques. Teachers reported that concepts previously difficult for students to comprehend became much easier to understand with the assistance of this media. Students who had struggled with drawing in perspective demonstrated significant improvements in understanding, as reflected in their more proportional and accurate artworks aligned with perspective principles.

Overall, the use of Vision Frame in perspective drawing instruction at SMPIT Darul Fikri Makassar serves as a concrete example of how interactive technology can enhance the quality of art education. This media not only facilitates visual and practical conceptual understanding but also promotes creativity, active engagement, and student collaboration. The integration of technologies such as Vision Frame into art education represents a strategic step aligned with modern educational trends and the demands of 21st-century skill development. Therefore, the development and optimization of interactive technology-based learning media should be continuously encouraged to support more effective, engaging, and meaningful art education in the future (Huang et al., 2024).

4. CONCLUSION

Research and observations at Islamic Middle School SMPIT Darul Fikri Makassar show that Vision Frame is very effective for helping students learn perspective drawing techniques, especially in finding the horizon line and vanishing point, which are important parts of perspective drawing. The majority of students responded positively to the use of Vision Frame, with 75% stating that this medium significantly accelerated the learning process and improved the accuracy of their perspective drawings. This media successfully addresses common challenges found in conventional teaching methods, such as limited visual aids and difficulties in grasping the abstract concepts of perspective. The use of Vision Frame not only enhances students' technical skills but also enriches their imagination and spatial understanding, leading to more realistic and meaningful artworks. Students reported no negative feedback, demonstrating the media's well-received reception and its potential as an effective solution in art education.

It is therefore recommended that Vision Frame be more widely adopted in the art learning process, particularly for teaching perspective, to improve both the quality of instruction and students' artistic outcomes.

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