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Development of Digital Video-Based Dance Media to Improve Elementary School Students' Dance Skills

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The author declares that there is no conflict of interest in this research.

ABSTRACT

This study aims to develop a Digital Video-Based Dance (V-Tari) media, determine the feasibility of the media, and test its effectiveness in improving elementary school students' dancing skills. The study used the *Research and Development* (R&D) method with a 4D development model that includes *the Define* , *Design* , *Develop* , and *Disseminate stages*. The research subjects consisted of 20 fifth-grade students of SDN Sinarmulya. The results showed that the V-Tari media obtained an average validation score of 3.80 with a very feasible category. Student responses to the use of the media reached 88.44% with a very good category. The results of the normality test showed that the data were normally distributed (Sig. = 0.226 > 0.05), while the *paired sample t-test* showed a significant difference between *the pretest* and *posttest scores* (Sig. = 0.000 < 0.05). The average value of dancing skills increased from 61.75 to 88.75 after the use of the media. The *effect size* value of 3.441 is categorized as large and the N-Gain value of 0.706 is categorized as high. Thus, the Digital Video-Based Dance (V-Tari) media is declared feasible and effective in improving the dance skills of elementary school students.

Introduction

Education is a process aimed at developing students' potential holistically, encompassing knowledge, skills, and attitudes. In practice, elementary school learning focuses not only on academic abilities but also provides opportunities for students to develop creativity, cultural awareness, and skills (Wahyuningsih & Rintayati, 2020) . This research aligns with the findings that dance is an important subject for elementary school students to learn.

Dance learning in elementary schools still faces various obstacles, the learning process is generally still dominated by direct lecture methods from teachers with limited learning media support. This condition causes students to experience difficulties in understanding the sequence of dance movements, basically in dance students are required to master the theory and practice directly, but what happens is the method used is the lecture method, this method is less appropriate with the practice that should be used for dance learning (Sari et al., 2025) . In addition, limited learning time makes students do not have enough opportunities to repeat the material independently so that it has an impact on the low dance skills they have.

The above conditions are based on the results of observations and interviews conducted at SDN Sinarmulya, which show that dance learning has not utilized digital media optimally. Furthermore, obstacles obtained from the observation results can be overcome with the presence of learning media. As stated by Kristiningrum, (2021) , students' skills in this art field can be developed through continuous practice supported by tools and materials that function as learning resources or learning media. The importance of using learning media is stated in research by Nuzla et al., (2023), who stated that to assist teachers in conducting learning and making students more enthusiastic when participating in

the learning process in class, diverse and innovative learning media are needed that can attract students' interest in learning and facilitate their understanding.

Based on the results of previous research, interactive audiovisual learning media in Arts and Culture subjects with the topic of dance has been proven to be able to increase students' interest in learning Balinese dance Wikantari & Suranata, (2024) . However, this research is still limited to the use of media in audiovisual form. Meanwhile, research by Sagita & Artayasa, (2025) shows that the use of dance learning videos is considered effective in the dance learning process, but the media used only focuses on presenting dance videos to improve dance skills. Based on the limitations of these two studies, innovation is needed in the form of developing Digital Video-Based Dance Media that is designed systematically, interactively, and in accordance with the characteristics of elementary school students. This media does not only function as an audiovisual or learning video tool, but also as a structured learning media to facilitate movement practice, understanding of dance elements, and improving students' dance skills more optimally. Thus, this research has novelty in the development of digital dance video media that is directly oriented towards improving elementary school students' dance skills.

Research Design and Methodology

The research and development (R&D) method is an approach used to produce innovations in the form of products that are able to provide solutions to various problems in the world of education Waruwu, (2024) In this study, the R&D method was applied to develop V-Tari Digital Video-Based Dance Media as a learning medium that utilizes digital technology in the form of video. V-Tari media is designed to present basic dance movement material systematically, so that learning becomes more interesting, interactive, and in accordance with the characteristics of elementary school students. In addition to supporting the improvement of dance skills, this media is expected to develop motor skills, movement coordination, creativity, and student learning motivation in the Arts and Crafts (SBdP) subject. The research design used refers to the Four-D (4D) model, namely Define, Design, Develop, and Disseminate, which is one of the development models widely applied in educational research because it has systematic and structured stages Montori & Jacobus, (2025) .

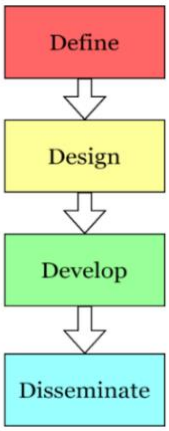


Figure 1.1 Research Flow Design
Source: (Salsabila et al., 2023)

The Define stage is carried out to analyze learning needs, student characteristics, and the suitability of the material with the Arts and Culture curriculum as a basis for media development. Next, in the Design stage, the V-Tari media design is prepared which includes the concept of learning videos, dance movement materials, learning scenarios, and dance skill assessment instruments that include aspects of wiraga, wirama, and wirasa. The Develop stage focuses on media creation, validation by material experts, media experts, and teachers, revisions based on validator input, and trials with students to determine the level of validity, practicality, and effectiveness of the media. The final stage, namely Disseminate, is carried out through the dissemination of media that has been

declared appropriate to elementary school teachers through socialization or training activities and publication of research results in the form of scientific articles, so that the V-Tari Digital Video-Based Dance Media can be used more widely as an alternative media for learning dance arts in elementary schools.

Findings and Discussion

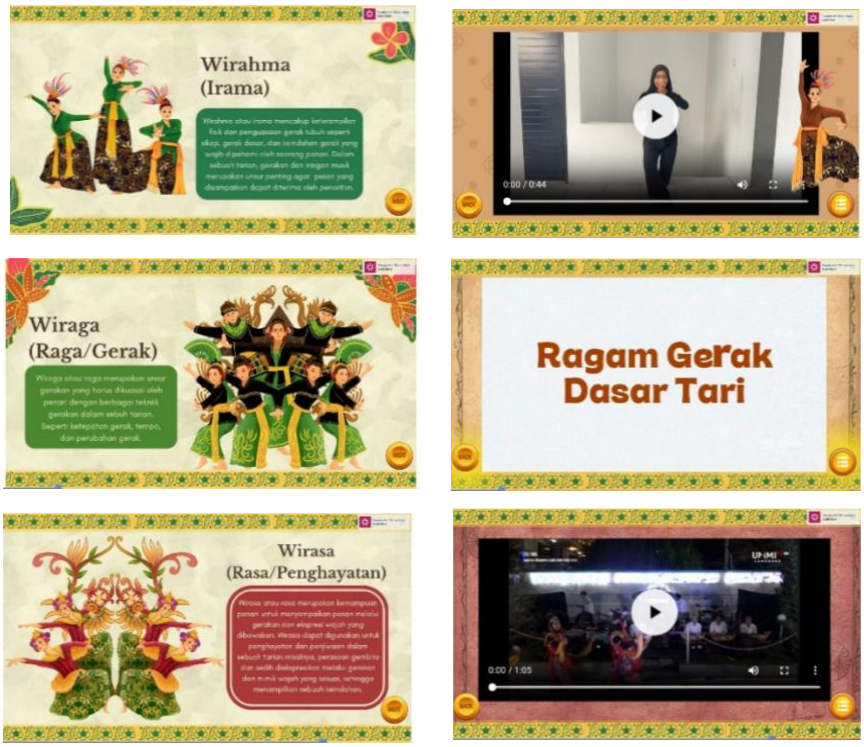
1. *Define* stage , a needs analysis was conducted as a basis for media development through an analysis of learning needs, student characteristics, materials, and learning objectives. The results of observations and interviews with teachers showed that dance learning was still dominated by direct demonstration methods, while limited time and learning media caused students to experience difficulties in understanding, remembering, and practicing dance movement sequences independently. Analysis of student characteristics showed that elementary school students tend to be active, like moving activities, and more easily understand material through interesting visual and audiovisual media, including digital technology-based media. Material analysis focused on dance skills appropriate to the student's developmental stage, including basic dance movements, simple floor patterns, and mastery of the elements of *wiraga* , *wirama* , and *wirasa* . Based on this analysis, learning objectives were formulated so that after using the V-Dari media, students would be able to imitate dance movements correctly, adjust movements to the rhythm of the music, display expressions according to the character of the dance, and perform the dance in its entirety by paying attention to the aspects of *wiraga* , *wirama* , and *wirasa* . The results of *the Define* stage indicate the need to develop digital video-based learning media that are able to present dance movements clearly, attractively, systematically, and easily learned to support the improvement of elementary school students' dance skills.

2. *Design* phase aims to develop a Digital Video-Based Dance Media (V-Dance) based on the results of a needs analysis. Activities at this stage include developing a media concept in the form of a digital video that displays dance movements in stages with an attractive display, accompanying music, and easy-to-understand movement instructions for students.

Figure 2. Media Concept Design

In addition, systematic dance materials are prepared according to learning competencies and learning scenarios that include introductory, core, and closing activities. During implementation, students observe videos, practice dance movements with teacher guidance, then practice independently or in groups. Teachers conduct assessments based on the *wiraga (sports)* , *wirama (rhythms)* , and *wirasa (feelings*). The results of this stage are media designs, materials, and learning scenarios that form the basis for the development of Digital Video-Based Dance Media (V-Tari).

Figure 3. Design of Dance Material Compilation



3. *Develop* stage includes the process of creating, validating, revising, and testing Digital Video-Based Dance Media (V-Tari). The media was developed according to the design that had been prepared by displaying dance movement demonstrations in the form of digital videos that were edited to be interesting and easy for students to understand. Next, the media was validated by material experts, media experts, and expert practitioners. The results of the material expert validation showed that the learning aspect obtained a percentage of 91.67%, the material aspect 83.33%, and the interaction aspect 91.67%, all of which were in the very feasible category. The material experts also suggested using examples of dance works by Tjetje Soemantri so that the movements were more in line with the characteristics of elementary school students. The media expert validation showed a percentage of 95.83% in the appearance aspect and 100% in the usability and feasibility aspects, with the suggestion of enlarging the

writing of the creator's name on the main display of the media. Meanwhile, the results of the expert practitioner validation obtained a percentage of 100% in the material substance aspect and 95% in the learning design aspect. Based on the results of the validation and revision, the Digital Video-Based Dance Media (V-Tari) was declared very feasible for use in dance learning in elementary schools.

Table 1. Assessment Results Data by Material Experts

No	Assessment Aspects	Total Score	Average Score	Percentage Score	Category
1.	Learning Aspects	22	3.67	91.67%	Very Worthy
2.	Material Aspect	20	3.33	83.33%	Very Worthy
3.	Interaction Aspects	22	3.67	91.67%	Very Worthy

The V-Dance performance before and after revision of the previous wiraga material using a mask dance video example, the results of the revision by the material expert provided input to use a dance example from Tjetje Soemantri's work so that the movements could be more easily followed by elementary school students. The design can be seen in table 4.2 below:

Table 2. Input and Suggestions from Subject Matter Experts

No.	Repair		Suggestion	Information
	Before Revision	After Revision		
1.			The video example can use a dance group by Tjetje Soemantri so that it can be more easily followed by elementary school students and the dance movements are appropriate for their age.	The video was replaced with a dance group created by Tjetje Soemantri so that it could be more easily followed by elementary school students and the dance movements were also age-appropriate.

The media validity results were obtained from the assessment of a media expert, namely Ms. Heni Wulandari, M.Pd., a lecturer in the Information Technology Education Study Program. The assessment results of the media expert's assessment are as follows:

Table 3. Media Expert Assessment Results Data

No.	Assessment Aspects	Total Score	Average Score	Percentage Score	Category
1.	Display Aspect	23	3.83	95.83%	Very Worthy
2.	Usability Aspects	24	4.00	100%	Very Worthy

3.	Eligibility Aspect	24	4.00	100%	Very Worthy

Based on the assessment results given by media experts in the appearance aspect, it obtained a score of 23 with an average value of 3.83 and a percentage of 95.83% with category A (Very suitable). In the usability aspect, it obtained a score of 24 with an average value of 4.00 and a percentage of 100% with category A (Very suitable). Furthermore, in the feasibility aspect, it obtained a score of 24 with an average value of 4.00 and a percentage of 100% with category A (Very suitable).

Table 4. Input and Suggestions from Media Experts

No.	Repair		Suggestion	Information
	Before Revision	After Revision		
1.			The Creator's name is printed/written larger.	The creator's name is written larger in the learning media

Validity testing by expert practitioners (teachers) was conducted to assess the practicality of the materials in classroom learning activities. The teacher who acted as the validator in this study was Mrs. Deuis Alpi Asnawati, S.Pd., a 5th grade teacher at Sinarmulya State Elementary School in Cianjur Regency.

Table 5. Assessment Results Data by Practitioner Experts

No.	Assessment Aspects	Total Score	Average Score	Percentage Score	Category
1.	Substantial aspects of the material	24	4.00	100%	Very Worthy
2.	Learning design aspects	19	3.80	95%	Very Worthy

Based on the assessment results given by material experts in the material substance aspect, it obtained a score of 24 with an average value of 4.00 and a percentage of 100% with category A (Very suitable). In the learning design aspect, it obtained a score of 19 with an average value of 3.80 and a percentage of 95% with category A (Very suitable).

4. *Disseminate* stage is carried out to introduce and disseminate the Digital Video-Based Dance Media (V-Tari) that has been developed.

Student Response Results

At this stage, student responses were collected through a questionnaire given to 20 fifth-grade students of Sinarmulya State Elementary School after the media was used. The questionnaire results showed a total score of 566 with an average percentage of 88.44%, which is included in the very good category. These results indicate that the V-Dance media is easy to use, interesting, practical, and very suitable for implementation as a learning medium to improve elementary school students' dance skills.

Pre-Test Results

Before using V-Dance media, students were given *a pre-test* to determine their initial dance skills through performance assessments that included aspects of *wiraga* , *wirama* , and *wirasa* .

Table 5. Pre-Test Results

Information	Results
Total score	247
Average	12, 35
Average value	61.75

A pre-test was conducted with 20 students to determine their initial dance skills before using the V-Dance media. The assessment results showed an average score of 61.75, categorized as adequate, indicating that students' initial abilities still need to be improved, especially in the aspects of *wiraga* , *wirama* , and *wirasa* .

Post-Test Results

the pre-test results , students' initial dance skills still need to be improved. The average score obtained of 61.75 indicates that most students have not yet optimally mastered *the wiraga* , *wirama* , and *wirasa aspects.*

Table 6. Pre-Test Results

Information	Results
Total score	355
Average	17.75
Average value	87.75

Based on the analysis results, the average post-test score was 87.75 which is included in category A (very appropriate). This result shows an increase in students' dancing skills compared to the average pre-test score of 61.75. This increase can be seen in students' ability to perform dance movements more precisely and flexibly (wiraga), adjust movements to the rhythm and tempo of the music (wirahma), and display better expression and appreciation according to the character or theme of the dance (wirasa).

Normality Test Results (Shapiro-Wilk)

A normality test was conducted to determine whether the pretest and posttest data were normally distributed. This test used the Shapiro-Wilk test because the study sample size was less than 50 respondents, namely 20 fifth-grade students at Sinarmulya Elementary School. The test was conducted using the Quantitative Test Analysis application. The results of the normality test are presented in the following table.

Table 7. Results of Normality Test (Shapiro-Wilk)

Paired Samples Statistics

		Mean	N	standard deviation	Std. Mean Error
Pair 1	*Posttest*	88.75	20	6,859	1,534
	pretest	61.75	20	7,122	1,593

Tests of Normality

	kolmogorov-Smirnov [a]			Shapiro-Wilk		
	statistics	df	sig.	statistics	df	sig.
Posttest-pretest	0.199	20	.036	0.939	20	.226

Based on the results of the Shapiro-Wilk normality test, a significance value of 0.226 was obtained. Because the significance value is greater than 0.05 (0.226 > 0.05), the data is

declared normally distributed. Therefore, further data analysis can be performed using a paired sample t-test.

Paired Simple t-Test

A paired sample t-test was conducted to determine whether there was a difference in students' dance skills before and after using the V-Tari media. Furthermore, an effect size analysis was conducted to determine the extent of the influence of the V-Tari media on improving elementary school students' dance skills. The test was conducted using the Quantitative Test Analysis application.

Table 8. Paired T-Test Results

Paired Simple t-Test

	Mean	standard deviation	std. Error Mean	95% CI of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Posttest-pretest	27.00	7,847	1,755	23.33	30.67	15,387	19	.000

Based on the analysis results, the t-value was 15.387 with a significance value of 0.000. Because the significance value is less than 0.05 (0.000 < 0.05), H_0 is rejected and H_1 is accepted. Thus, there is a significant difference between students' dancing skills before and after using V-Dance media.

Furthermore, Cohen's d value was 3.441, which is considered significant. This indicates that the use of V-Dance media has a significant impact on elementary school students' dance skills.

Table 9. Paired T-Test Results

Effect Size

		Point Estimate
Posttest-pretest	Cohen's d	3,441
	Hedges' correction	3,303

t(19) = 15.387, Sig. (2-tailed = .000 => significant. The mean changed from 61.75 to 88.75 (difference 27.00). Cohen's d effect size = 3.441 (Large).

Based on the results of the paired t-test and effect size, it can be concluded that the use of V-Dance media has a significant effect and has a large influence on the dancing skills of fifth grade students at SDN Sinarmulya.

N-Gain Calculation Results

The N-Gain calculation was performed to determine the level of improvement in students' dance skills after using the V-Dance media. The calculation was performed using the Quantitative Test Analysis application. The results of the N-Gain calculation are presented in the following table.

Table 10. N-Gain Calculation Results

	N	Mean Pretest	Mean Posttest	<g>	Category
posttest	20	61.75	88.75	0.706	Tall

Normalized N-Gain <g> = 0.706 => High improvement category

The results of the N-Gain analysis showed an average value of 0.706 with a **high category** , so it can be concluded that the V-Dance media is effective in improving the dancing skills of fifth grade students at SDN Sinarmulya.

Digital Video-Based Dance Media (V-Tari) was declared very suitable for use based on the validation results of material experts, media experts, and practitioner experts with an average overall score of 3.80. These results indicate that the media has appropriate material, an attractive appearance, easy-to-understand language, and is practical for use in dance learning in elementary schools. This finding is in line with Shyfa & Zumali, (2024) who stated that the use of video-based learning media and digital technology can improve students' dance skills, and is supported by Rahayu et al., (2023) who stated that digital video media can create a pleasant learning atmosphere and increase student activity. In addition to being suitable, V-Tari media has also been proven to be effective in improving students' dance skills. This is indicated by an increase in the average *pre-test score* from 61.75 to 88.75 in *the post-test* , an N-Gain value of 0.706 with a high category, and the results of *the paired sample t-test* which showed a significance value of 0.000 with *an effect size* of 3.441 in the large category. These results are reinforced by students' positive responses to the use of media, as the presentation of material through digital video makes it easier for students to understand dance movements according to the aspects of *wiraga* , *wirama* , and *wirasa* . Thus, Digital Video-Based Dance Media (V-Tari) is a suitable and effective learning medium for improving elementary school students' dance skills.

Conclusion

Based on the results of research and development, Digital Video-Based Dance Media (V-Tari) was successfully developed using a 4D model that includes *the Define* , *Design* , *Develop* , and *Disseminate stages* . The development process begins with an analysis of student and teacher needs, then continues with the design, validation, revision, and trial stages to produce media that is suitable for learning dance in elementary schools. The validation results show that the V-Tari media obtained an average overall score of 3.80 with a **very appropriate category** , so it can be used as a learning medium that is appropriate to the learning objectives and characteristics of elementary school students.

V-Dance media has also proven effective in improving students' dance skills. This is indicated by an increase in the average *pre-test score* from 61.75 to 88.75 in *the post-test* , as well as an N-Gain value of 0.706, which is included in the high category. These results indicate that the use of Digital Video-Based Dance Media (V-Dance) can improve students' dance skills and become an alternative learning media that is interesting, interactive, and effective in supporting dance learning in elementary schools.

This study has several limitations. It was conducted on only 20 fifth-grade students at Sinarmulya Elementary School, so the results cannot be widely generalized. Furthermore, the V-Dari media developed focused only on dance skills, and its effectiveness was tested over a relatively short period of time, so it has not yet demonstrated a long-term impact on student learning outcomes.

Thank-you note

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