Integration of Digital Technology and Traditional Arts in Learning Media to Improve Listening Skills of BIPA Students

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***Abstract*—This study aims to describe the development process, quality, and effectiveness of *Ludruk* traditional art learning media to improve the listening skills of Bahasa Indonesia bagi Penutur Asing (BIPA) students at the State University of Surabaya. The study employs the Research and Development (R&D) method using with the Four-D model from Thiagarajan (1974), which includes the stages of define, design, develop, and disseminate. Data were collected through interviews and questionnaires. The data were analyzed using both statistical and non-statistical methods. The results indicate that the *Ludruk* traditional art learning media was systematically developed to meet the learning needs of BIPA students. Expert validation shows that the media quality is very good. The test instrument demonstrates validity and reliability. The pilot test proves the effectiveness of this media, as evidenced by a significant increase in post-test results compared to the pre-test. The media is uploaded to digital platforms such as cloud storage to provide flexible access. This innovation utilizes modern technology to support more interactive and more effective learning.**

***Keywords*—learning media, listening skills, traditional arts, Bahasa Indonesia bagi Penutur Asing (BIPA)**

I. Introduction

Indonesian has excellent potential to develop as an international language. Its use continues to increase in various fields, such as diplomacy, economics, and education. This makes the Indonesian language even more interesting to the global community. Indonesian is recognized as one of UNESCO's official languages [1, 2]. This recognition improves the status of Indonesian in expanding the influence of culture and science globally.

The potential of Indonesians is being realized through various strategies, one of which is the Bahasa Indonesia bagi Penutur Asing (BIPA) or Indonesian Language for Foreign Speakers. The BIPA program acts as a means of language learning and cultural diplomacy that introduces Indonesian arts and culture to foreign students [3, 4]. With the support of superior human resources and cultural wealth, Indonesia strategically promotes language and culture internationally. This promotion strengthens Indonesia's role in introducing its national identity to the world.

As part of cultural diplomacy, the BIPA program strategically introduces Indonesian as a third language. Proficiency in a third language supports the development of cross-cultural communication skills and enriches understanding of diverse perspectives [5–7]. In addition, the BIPA program acts as a bridge that helps foreign students better understand Indonesia's social and cultural aspects.

One of the relevant cultural aspects in language learning is the traditional art of *Ludruk* from East Java, Indonesia [8, 9]. *Ludruk* is a performing art that combines dialog, music, and dance in one story with moral messages and social life values of East Javanese society [10, 11]. It also serves as an educational medium that conveys social criticism. *Ludruk* helps preserve the language and dialect of East Java and enriches Indonesia's cultural diversity [12–14]. As a learning medium, the traditional art of *Ludruk* has excellent potential to introduce Indonesian culture to BIPA students through listening, reading, speaking, and writing skills.

Listening skills remain one of the essential components of language learning. Listening does not just involve a passive process but also requires actively processing information to identify, interpret, and evaluate meaning [15–17]. These skills demand deep cognitive engagement. Listening skills improve through approaches that combine culture and technology.

With the advancement of digital technology, audiovisual-based learning media emerges as one of the effective methods to increase student engagement and understanding. Learning videos based on traditional arts like *Ludruk* provide interactive and contextual solutions for BIPA students. In addition to attracting interest in learning, videos deepen student understanding of Indonesian culture [18–20]. Video also provides a deeper understanding. Through visual and auditory representations of cultural values, media strengthen student engagement in the learning process [21, 22]. The use of appropriate media improves student understanding.

Technology-based learning media provides flexibility for BIPA students through online learning access. Learning videos uploaded on digital platforms like cloud storage allow students to access learning materials without space and time restrictions [23, 24]. This makes it easier for BIPA students to develop listening skills. This also aligns with the State University of Surabaya's efforts towards a World-Class University (WCU) by using Information and Communication Technologies (ICT) as a means of digital education, the primary benchmark. ICT-based learning becomes a global standard for universities to support inclusive and effective access to education in the digital era.

This study is conducted because students often have difficulty understanding the language of the different factors in language structure. In addition, many do not have an adequate language background, so learning aids are needed. This is important so that they can learn more effectively while in Indonesia. Previous research by Hajjah, Mintowati, & Indarti developed flashcards based on local wisdom in East Java to improve the language skills of BIPA students [25]. However, this method is static and does not sufficiently support listening skills. In contrast, the *Ludruk* traditional art

learning media has the potential to be more dynamic, contextual, and flexible. Audiovisual formats train listening skills in greater depth, naturally capturing intonation and language structure. In addition, this medium can be accessed anytime and anywhere through a cloud storage-based digital platform, giving students the flexibility to learn as needed. With interactive technology, this method is more effective and engaging than conventional approaches, supporting global digital-based education trends.

This study describes the development process, quality, and effectiveness of *Ludruk* traditional art learning media in improving the listening skills of BIPA students at the State University of Surabaya. This learning media serves as an innovation in strengthening foreign students' appreciation of Indonesian arts and culture.

II. Literature Review

A. Digital Technology-Based Learning Media

The advancement of digital technology opens up significant opportunities in the development of interactive and flexible learning media [26, 27]. This technology makes learning more enjoyable and meets students' needs. Digital-based learning media utilize auditive and visual elements that support the deepening of material understanding [28–30]. In addition, this media provides broad access without space and time constraints.

Audiovisual-based media can increase student engagement and understanding of learning materials. In language learning, media such as learning videos have great potential to present cultural content in a more in-depth and engaging manner [31–33]. With cultural representations, students can develop language skills and an understanding of cultural values.

B. Online Learning and the Use of Cloud Storage

Digital technology in education allows flexible access without geographical or time restrictions [34]. Such flexibility allows students to repeat material according to personal needs. It can support in-depth understanding and skill enhancement.

Effectively designed learning media for students can make a significant contribution to support teaching and developing student skills [35–37]. In addition, implementing online learning supports educational institutions in integrating Information and Communication Technology (ICT) standards that create a more flexible, independent, and interactive teaching and learning process.

By utilizing cloud storage optimally, online learning can create an educational environment that is more inclusive and responsive to individual needs. Audiovisual elements in learning media help students understand information in a more engaging and interactive way [38–41]. The technology provides opportunities for students to be more actively involved in learning.

C. The Role of Audiovisual Media in Improving Listening Skills

Audiovisual media play an important role in language learning, especially in improving listening skills. Audiovisual media are able to combine visual and auditory elements that create an interactive learning experience [42, 43]. The use of audiovisual elements has the potential to increase student interest and strengthen the understanding process.

The integration of learning videos with cultural elements provides additional benefits. Cultural elements such as traditional arts support the development of listening skills and enrich student appreciation of culture [44]. Media designed with cultural elements have the potential to help students understand the meaning of the context and the cultural values contained in it.

Technological advances make it easier to develop audiovisual media for dynamic learning. Technology supports the active involvement of students in learning languages in a structured and engaging way [45]. In listening, this involvement includes the activities of listening, identifying, and evaluating information. This is important for overall language proficiency.

D. The Role of Cultural Integration in Language Learning

Culturally based learning media support language teaching by enriching students' understanding of the cultural context underlying the language. Cultural representation helps students understand the values and norms of society. Understanding values and standards is essential in cross-cultural communication [46]. Cultural elements in learning media increase learning motivation and provide meaningful experiences. Art videos integrated into language learning enable students to understand the language through a cultural perspective. This approach has the potential to enrich insights and build students' appreciation of culture.

III. Materials and Methods

This study used the Research and Development (R&D) method to develop *Ludruk* traditional art learning media. A quasi-experimental design with a one-group pre-test and post-test approach was employed to evaluate the effectiveness of the media. Of the 19 BIPA students at the State University of Surabaya, 9 intermediate level 3 students were selected as participants based on initial evaluations and recommendations from BIPA teachers. Participants were chosen because they had sufficient competence to understand the cultural context and dialect. The number of participants was limited to ensure an in-depth analysis of the medium's effectiveness within a small, controlled group. Beginners were not included in the study, as they faced difficulties in comprehending spoken language with complex cultural nuances, making this medium less effective for their learning. As Fitria [47] noted, beginner BIPA students often struggled to grasp implicit meanings in oral communication, particularly those related to cultural elements. Thus, participant selection was based on the suitability of language abilities and the relevance of the learning method to the students' competence levels in understanding the Indonesian language and culture.

The development process followed the Four-D model developed by Thiagarajan (1974) [48], which included four main stages: Define, Design, Develop, and Disseminate. The flow of this model is illustrated in Fig. 1 below.

Based on Fig. 1, the Define stage involved analysis through interviews with BIPA students and BIPA teachers to identify learning problems such as a lack of flexibility in available media and obstacles to understand cultural vocabulary. These

findings indicated the need for more contextualized and culture-based materials. The Design stage involves designing a learning video scenario consisting of three main parts: opening, content, and closing. The scenario incorporated elements of *Ludruk* culture to create a learning experience. The Develop stage referred to media production using audiovisual elements, which were then validated by media and material experts before being revised based on feedback. In the disseminate stage, the learning media was tested on BIPA students and disseminated to BIPA teachers on digital platforms.

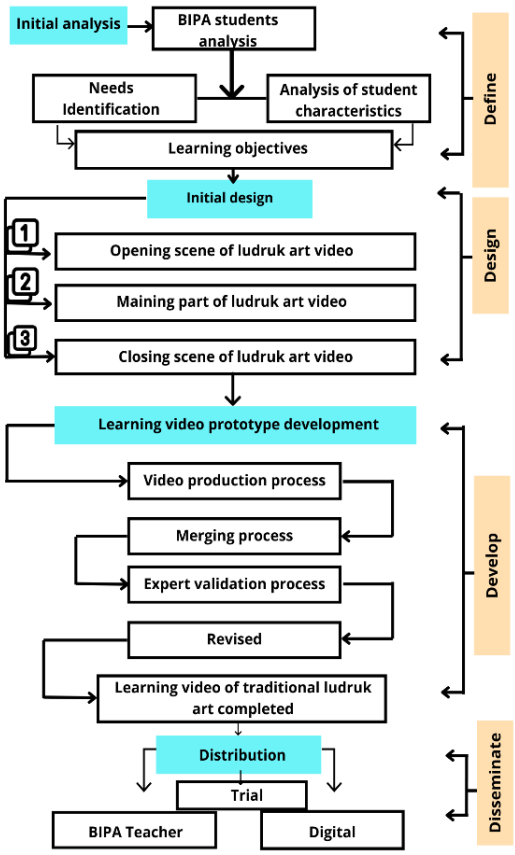

Fig. 1. The stages of developing *Ludruk* traditional art learning media using the Four-D model.

Data analysis techniques used quantitative and qualitative approaches. A quantitative approach calculated numerical data related to media and material validity tests, instrument validity and reliability tests, and N-Gain tests based on pre-test and post-test results. Meanwhile, the qualitative approach explored views and evaluated the learning media.

Data analysis was conducted statistically and non-statistically. Statistical analysis used a Likert scale to calculate percentages and the average score. Non-statistical analysis involved observation and description of the results to evaluate the quality of the media in more depth.

The formula and interpretation of learning media quality referred to Putridayani & Chotimah (2020) [49]. This included calculating the validation score and the interpretation criteria in Table 1 below.

$$P = \frac{f}{N} \times 100\%$$

Description:
P: Percentage
f: Frequency of respondents' answers
N: Number of total respondents

Table 1. Interpretation of media and material validation scores

Percentage (%)	Criteria
0–20	Very Weak
21–40	Weak
41–60	Fair
61–80	Good
81–100	Very Good

After conducting the media quality assessment, the next step was to conduct validity, reliability, and N-Gain tests using SPSS software. In this study, the validity test was conducted to determine whether the instrument could measure what it was designed to measure, using the Pearson Product Moment correlation method. Meanwhile, reliability was calculated to determine the internal consistency of the items in the questionnaire using Cronbach's Alpha method from Arikunto (2005) [50].

The instrument was considered valid if the significance value (Sig.) was < 0.05, indicating a significant relationship between each item and the total score. The instrument was considered reliable if the Cronbach's Alpha value was > 0.60, indicating that each item has high internal consistency.

After the validity and reliability tests, the N-Gain test was conducted to measure the effectiveness of the learning media in improving learning outcomes. This test evaluated the increase in scores from pre-test to post-test. The N-Gain category based on Meltzer's interpretation in Oktavianto & Aghni (2022) [51], is presented in Table 2 below.

Table 2. N-Gain score distribution

Category	Criteria
$g > 0.7$	High
$0.3 \leq g \leq 0.7$	Medium
$g < 0.3$	Low

IV. Result and Discussion

A. Define Stage: Needs Analysis and Learning Media Selection

The initial stage of learning media development begins with a needs analysis of the problems faced by BIPA level 3 students at the State University of Surabaya. Based on interviews with BIPA teachers and students, several main emerge. The available learning media is considered less flexible and not contextual when describing Indonesian culture. This causes the media not to fully support the learning of listening skills.

Students from China express difficulty in understanding the complex vocabulary and speed of speech in the materials used. Students from Madagascar show interest in the Indonesian lexicon related to cultural contexts, but they often experience problems understanding cultural terms that are not explained in depth. This finding confirms the need for more adaptive learning materials to enrich students' vocabulary and cultural understanding. More adaptive learning media becomes necessary to help students enhance their vocabulary while better understanding Indonesian culture [52]. Such an approach ensures that the materials delivered remain relevant to learning needs and support contextualized cultural understanding.

Students also show high enthusiasm for interactive culture-

based learning media, which present language lessons and introduce relevant socio-cultural values. *Ludruk*, a traditional East Javanese theater art, appears as a suitable learning medium. It integrates dialogue, music, and dance to provide a culturally rich learning experience.

Using *Ludruk*'s traditional art videos as learning media becomes a strategic step that offers a contextual approach. Students can relate vocabulary, especially culturally nuanced lexicon. This Define stage shows that *Ludruk* provides a learning solution that is meaningful and relevant to the needs of BIPA students while strengthening their understanding of Indonesian culture.

B. Design Stage: Designing Ludruk-Based Video Learning Media Scenario

The design stage focuses on creating a video scenario of traditional *Ludruk* art to meet the needs of BIPA students in understanding the lexicon and context of Indonesian culture in depth. Based on the analysis results at the Define stage, the scenario is arranged in stages ranging from simple to complex dialog. The dialog includes typical Indonesian terms and culture. Cultural vocabulary in *Ludruk* stories is designed to help students relate new lexicons to socio-cultural situations. This approach aims to enrich students' understanding of language in an artistic context.

Visualization in the scenario involves typical East Javanese cultural elements such as costumes, settings, and visual icons. These elements are designed to help students connect the vocabulary they hear to artistic images. The video is created with an interactive approach. Each segment allows students to test their understanding through direct reflection. Students are invited to answer reflective questions about the video they observe. Visual elements are designed to reinforce the recall of new vocabulary and cultural terms [53]. The visual element-based design ensures that the video has the potential to become a learning medium that encourages BIPA students to learn actively.

This approach offers potential benefits for BIPA students from various backgrounds, especially at the intermediate level of Indonesian language proficiency. With thoroughly designed scenarios, students receive support in understanding and using the lexicon in relevant cultural contexts. The *Ludruk* traditional art learning media supports listening skills and serves as a means of learning Indonesian in an authentic cultural context.

C. Develop Stage: Production and Validation of Ludruk Traditional Art Learning Media

The development stage focuses on producing a learning video that integrates *Ludruk* elements based on the design from the Define and Design stages. Scenarios that include dialog, music, and dance are implemented into videos with visual and audio quality that support BIPA students' understanding.

The production process starts with designing the opening display, filling in the main content, and ending with the closing—elements designed to convey culture interactively and contextually. Media and material experts validate the video to evaluate its suitability and quality. Expert feedback improves the video before it is tested on students. Fig. 2 below shows how the opening display is systematically designed.

In Fig. 2, the video opening display stage, the introduction explains *Ludruk* as a traditional theater art from East Java. The explanation includes the origins of *Ludruk* contained in each performance. The background music of *Ludruk* accompanies the visuals of the title and material to bring students into the cultural atmosphere of East Java.

Fig. 2. Opening display.

The video comes with subtitles in Indonesian and English to help students understand the content more clearly. These subtitles guide students in following the dialog and vocabulary, especially for those still adapting to Indonesian. A brief introduction provides context for students to understand that *Ludruk* functions as entertainment and a medium that conveys social and cultural values.

The video's initial appearance is designed to grab students' attention and prepare them for the following material, with a basic understanding of the culture and language to be learned. This approach creates a more interactive learning experience. This is followed by the presentation of the main content in a video to deepen students' understanding, as shown in Fig. 3 below.

Fig. 3. Content display.

In Fig. 3, the content display stage, the *Ludruk* video displays key elements such as dialogue, music, and dance designed to introduce students to the traditional art of *Ludruk*. The video opens with the Remo dance, a traditional East Javanese dance that opens every *Ludruk* performance. The presence of this dance creates a strong cultural atmosphere and provides an authentic learning experience.

After the Remo dance, the video features the main story, "Sarip Tambak Oso," which presents characters and storylines full of moral values and social messages. Typical East Javanese vocabulary such as "*lurah*" and "*mbok*" are included to enrich students' understanding of language and culture. The term "*lurah*" refers to the village head as a respected leader in the social structure, while "*mbok*" refers to older women, reflecting the value of warmth and respect in society.

Through dialog and narration, students can learn new lexicons and understand their meanings in a cultural context. This video is designed to help BIPA students experience the close relationship between language, culture, and social values in East Javanese society. After the main content is delivered, the video ends with a closing display to reinforce student understanding, as shown in Fig. 4 below.

Fig. 4. Closing display.

In Fig. 4, the closing display stage, after presenting the main story of "Sarip Tambak Oso", the narrator directs students to access a link or QR code to answer reflective questions. These questions are designed to help students reflect on their understanding of the storyline and the cultural values presented. This reflection process aims to strengthen listening skills, increase appreciation of the traditional art of *Ludruk*, and encourage in-depth interactive discussion.

Once the initial production is complete, the video undergoes a screening and editing stage to ensure no technical errors or missing content. Audio and visual quality are thoroughly checked, and edits are made where necessary to improve specific attributes.

The refined video is then validated by media experts and subject matter experts. This validation provides an evaluation of the quality of the media and learning materials based on *Ludruk* traditional art videos. Based on the validation results, the average score obtained is presented in Table 3 below.

Table 3. Media validation results

No.	Aspects	Score				
		1	2	3	4	5
1.	Color composition is appropriate and engaging for BIPA students.					✓
2.	Media display is clear and engaging according to the cultural context of East Java.				✓	
3.	Additional displays (such as images and cultural icons) can attract the attention of BIPA students.					✓
4.	The selection and coloring of the letters used are enjoyable and easy for foreign students to read.					✓
5.	Media displays clear pronunciation in Indonesian for BIPA students.				✓	
6.	Video media encourages the involvement and interest of BIPA students in listening and learning.				✓	

Based on the results of media validation, the average score for the assessment of learning media developed by research is as follows.

$$\frac{27}{30} \times 100\% = 90\%$$

Average: 90% (Category: Very Good)

The validation results of the *Ludruk* traditional art learning media show an average score of 90%, indicating excellent media quality. The validation process by media experts covers six main aspects. Three aspects score "very good," while the other three score "good," indicating areas that still require improvement.

The color composition aspect scores "very good" due to the attractive color harmonization without distracting from the learning focus. Validators note that the background and text colors are chosen appropriately, supporting visual appeal while remaining relevant to the East Java cultural theme. Additional elements such as cultural icons and images also enrich the visualization, helping students connect language with culture in a tangible way. The font selection is considered easy to read and aesthetically pleasing, supporting the media's overall quality.

Several other aspects score "good," including the overall appearance of the media. Although the appearance is attractive, the consistency of visual elements in some segments must be improved. The pronunciation aspect is also noted to need improvement, especially regarding speech tempo, which is considered inconsistent in some parts and could affect the comprehension of foreign students. The validators also suggest adding interactive elements, such as short reflections or quizzes. This is to increase students' active participation during learning.

With an average score of 90%, the *Ludruk* traditional art learning media has high potential to support the listening skills of BIPA students. Feedback from the validators has improved the media, including speech tempo and visual consistency. This validation also provides a strong basis for evaluating the quality of the material integrated into the video. The material validation process further assesses the appropriateness of the content, conformity with learning objectives, and the relevance of cultural elements in supporting the mastery of listening skills. The results of material validation are presented in Table 4 below.

Table 4. The material validation results table

No.	Aspects	Score				
		1	2	3	4	5
1.	Clarity of material description, especially in spoken language and cultural expressions.				✓	
2.	Clarity of tasks given according to the listening needs of BIPA students.				✓	
3.	Appropriateness of evaluation with learning objectives to improve listening skills in Indonesian.				✓	
4.	The use of language and spelling with good and correct Indonesian language rules can be understood by foreign students.				✓	
5.	The material presents a dialog that supports students in understanding the structure of everyday sentences.					✓
6.	Letters are used in the media according to Indonesian language rules and are transparent to foreign students.					✓

Based on the results of material validation, the average score for assessing learning materials developed by researchers is as follows.

$$\frac{26}{30} \times 100\% = 87\%$$

Average: 87% (Category: Very Good)

Validation of *Ludruk* video-based learning materials shows very good results, with an average score of 87%. The material expert validation assesses six main aspects. Four aspects score "good," while the other two score "very good," indicating some areas still need improvement.

Aspects of material clarity, tasks, language use, and evaluation score "good." Validators note that the materials present the cultural context, but some sections need to be more concise so that students can understand the core of the material more easily. The tasks designed are relevant to the needs of BIPA students but need to be adjusted to be more specific in accommodating differences in student ability levels. The use of language is presented according to good and correct language rules, but subtitles need to be added to support students in understanding. The evaluation is considered to support listening skills, but the validator recommends adding a variety of formats to increase student attractiveness and involvement.

Aspects of dialog and colloquial sentence structure score "very good." Validators appreciate the dialog that helps students understand sentence structures often used in everyday life, including dialect variations and contextual vocabulary. Using letters is also considered straightforward, easy to read, and supports optimal understanding.

The overall validation results produce an average score of 90% from media experts and 87% from subject matter experts. If both scores are averaged, this learning medium obtains a score of 89%, which is categorized as "very good." This validation proves that the learning medium for the *Ludruk* traditional art meets technical and didactic quality standards. With an innovative design, combining interactive approaches with visual and auditive elements can strengthen understanding [54, 55]. The traditional *Ludruk* art as a medium is expected to make a significant contribution to creating culturally-based learning relevant to language teaching at the international level.

D. Disseminate Stage: Trial and Disseminate of Learning Media

In the disseminate stage, the *Ludruk* traditional art learning media is introduced to BIPA students through a cloud storage-based online platform such as Google Drive. This media is also accessed through *Kompasiana* with the title "*Video Ludruk sebagai Media Belajar Bahasa dan Budaya Indonesia bagi Mahasiswa BIPA*." It aims to reach the general public, including teachers, cultural observers, and students. It is to expand the impact of learning.

Cloud storage ensures more flexible accessibility so students can study the material anytime and anywhere. QR codes are included to make it easier for users to access the videos independently. The code can be seen in Fig. 5 below.

After watching the learning video, the results of the interviews showed that students felt more motivated to understand new vocabulary. The cultural representation of the learning media encourages motivation. After the interview, the students reflected on the trial to evaluate the effectiveness of the learning.

Fig. 5. QR code of the learning media.

Before the pilot test, the validity of the pre-test and post-test questions were tested using product moment correlation with a significance level ($\alpha = 0.05$). The result of the validity test is shown in Table 5 below.

Table 5. Result of question validity test based on pearson correlation

Question No.	Pearson Correlation	Significance Value	Conclusion
Question 1	0.894	0.001	Valid
Question 2	0.845	0.004	Valid
Question 3	0.894	0.001	Valid
Question 4	0.894	0.001	Valid
Question 5	0.894	0.001	Valid
Question 6	0.894	0.001	Valid
Question 7	0.845	0.004	Valid
Question 8	0.845	0.004	Valid
Question 9	0.845	0.004	Valid
Question 10	0.845	0.004	Valid

The validity test of the pre-test and post-test questions is carried out using product moment correlation. The significance value ranges from 0.001 to 0.004, which is below 0.05. Thus, all items are declared valid and suitable for the learning trial.

In addition, the reliability of the test is also tested to ensure instrument consistency, with the results of Cronbach's Alpha shown in Table 6 below.

Table 6. Reliability test results

Cronbach's Alpha	N of Items
0.975	10

Based on Table 6, the reliability test results show a Cronbach's Alpha value of 0.975, which indicates a very high level of reliability. The instrument used has met the valid and reliable criteria, so the trial results can accurately reflect the effectiveness of learning media. The next stage is to carry out pre-test and post-test with the results shown in Table 7 below.

Table 7. Pre-test and post-test results

Code	Pre-test	Post-test	Post-Pre	Score Ideal (100-Pre-test)	N-Gain Score
Sub 1	60	80	20	40	0.50
Sub 2	80	100	20	20	1.00
Sub 3	90	100	10	10	1.00
Sub 4	70	100	30	30	1.00
Sub 5	60	100	40	40	1.00
Sub 6	70	100	30	30	1.00
Sub 7	50	70	20	50	0.40
Sub 8	70	90	20	30	0.67
Sub 9	80	90	10	20	0.50
Mean	70	92	22	30	0.79

Based on Table 7, the trial results show a significant improvement after students use *Ludruk's* traditional art learning media. The average pre-test score of students is 70, which indicates initial difficulties in understanding the cultural context and language structure through conventional learning methods. After using this learning medium, the average post-test score increased to 92. This shows the effectiveness of the medium in conveying the material better.

The N-Gain analysis supports this result with an average score of 0.79, categorized as "high." Most students show significant improvement in listening skills and cultural understanding. Subject 2 to Subject 6 achieved perfect post-test scores, reflecting that the learning media can overcome initial obstacles in understanding vocabulary, cultural narratives, and language structures.

Some students, such as Subject 1, Subject 8, and Subject 9, recorded improvements with N-Gains in the range of 0.50 to 0.67. Although there was improvement, these results are influenced by the students' initial ability, the variety of language in the video, and the tempo of the dialog. Subject 7 records a lower N-Gain with a result of 0.40, although the post-test score increased. This could be due to the initial understanding that was already quite good, so the difference between the pre-test and post-test scores becomes smaller.

Overall, these findings indicate that the traditional art of *Ludruk* is an effective learning medium for improving the skills of BIPA students, especially in understanding lexicon and culture. The media's visual and auditory elements strengthen students' understanding, while the flexibility of access through online platforms allows them to repeat the material as needed. This combination makes *Ludruk*-based media an adaptive and relevant learning tool in a cross-cultural context.

The findings show the great potential of the *Ludruk* traditional art learning media as a listening skills-effective cross-cultural learning tool. It supports the creation of a learning experience that is adaptive and relevant to the needs of foreign students. Combining cultural elements and learning flexibility can support creating a structured and personalized learning experience [56]. The effectiveness of the media is seen in the increased scores and strengthening of the skills of BIPA students at the State University of Surabaya.

This finding shows that *Ludruk*-based learning media is not only effective in improving the listening skills of BIPA students but also easily accessible and usable anytime, anywhere through digital platforms such as cloud storage. Hajjah, mintowati, & Indarti (2024) [25] previously developed flashcards based on local wisdom from East Java that focused on visually introducing the culture, including *Ludruk*. However, this method is still limited in supporting listening skills. In contrast, *Ludruk*'s traditional art learning media offers a more contextual, interactive, and authentic learning experience. In addition, this medium is more effective in improving pragmatic understanding, intonation, and nuances of everyday language that are difficult to obtain from text- or image-based methods. With an approach that combines cultural elements and the flexibility of digital learning, *Ludruk* can strengthen listening skills to encourage students' active involvement in understanding the social and cultural context of the Indonesian language in greater depth.

V. Conclusion

The development of *Ludruk* traditional art learning media successfully integrates traditional cultural elements to create interactive and contextual learning experience. This media is designed to improve the listening skills of BIPA students. Media validation shows an average result of 90% for media aspects and 87% for material elements. With an overall average of 89%, this media meets pedagogical quality standards and is rated very good.

The pilot test shows a significant improvement in students' listening skills. Their average post-test score of 92 and average N-Gain score of 0.79 fall into the "high" category. Students with high N-Gain show a better understanding of cultural lexicon and narrative.

This learning media utilizes the flexibility of an online platform based on cloud storage that allows students to access and repeat the material at any time as needed. Integrating authentic cultural elements with technology creates a personalized and adaptive learning experience. This approach supports cross-cultural teaching and strengthens language learning by utilizing modern technology.

The results of this study show that the *Ludruk* traditional art learning media is effective in improving the listening skills of BIPA students at the State University of Surabaya, as evidenced by a significant increase in the post-test scores of 9 intermediate BIPA students in the study sample. Although the sample size is limited, the consistent improvement in listening skills indicates that this method can be generalized for intermediate BIPA students with the same characteristics.

To reinforce this, further research is needed with a larger and more diverse sample size, including students from different countries and institutions. In addition, further research can develop similar media for beginner level BIPA students by simplifying dialogues and adding subtitles in their native language to make the material easier to understand. With a broader approach, *Ludruk* traditional art learning media can be further optimized as flexible, adaptive, and relevant cross-cultural learning media for various levels of BIPA students.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Anggoro Abiyyu Ristio Cahyo was responsible for the central concept of the research, data collection, and writing the initial manuscript. Mulyono contributed to develop research methodology and validate results and provided academic guidance throughout the research process. Suyatno took part in data analysis, edited the final manuscript, and provided critical feedback to improve the substance of the article. All authors have read and approved the final version of this manuscript.

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