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DEVELOPMENT OF KALIWUNGU MASK DANCE DIGITAL MAGAZINE APPLICATION TO INCREASE THE INTEREST IN LEARNING OF GRADE IX F TEMPE STUDENTS OF SMPN 1, TEMPE REGENCY, LUMAJANG REGENCY

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Abstract: The integration of digital technology into arts education is becoming increasingly important in enhancing students' learning experiences while supporting the preservation of local cultural heritage. However, traditional dance teaching in junior high schools continues to rely heavily on conventional instructional methods, resulting in limited student involvement and low interest in learning. This research aims to develop an Android-based Digital Magazine to study the Kaliwungu Mask Dance and to evaluate its feasibility and practicality in increasing students' interest in learning. This research uses a Research and Development (R&D) approach using ADDIE's instructional design model, which consists of the Analysis, Design, Development, Implementation, and Evaluation stages. This developed app integrates textual explanations, images, instructional videos, and interactive quizzes into a single Android-based learning platform. The product was validated by material, media, and language experts before being implemented with 26 Grade IX students at SMP Negeri 1 Tempeh, Lumajang. Data were collected through observations, expert validation sheets, and student response questionnaires and analyzed using descriptive quantitative techniques. The validation results showed that Digital Magazine achieved excellent eligibility, with a score of 98.6% from media experts, 95.0% from linguists, and 86.25% from subject matter experts, all categorized as Excellent. During the classroom implementation, students responded positively to the app, showing increased engagement, motivation, and interest in learning the Kaliwungu Mask Dance. Multimedia features and mobile accessibility allow students to learn more independently while facilitating the observation of repetitive dance moves. These findings suggest that Android-based Digital Magazines are a valid and practical instructional medium that effectively supports traditional dance learning and contributes to the preservation of local cultural heritage through technology-enhanced education.

Keywords: Android-based learning media; digital magazines; MODEL ADDIE; interest in learning; traditional dance education.

1. INTRODUCTION

The rapid advancement of digital technology has significantly changed educational practices at various levels of learning. Mobile technology, interactive multimedia, and digital learning resources have become integral components of contemporary education, allowing teachers to create more engaging, flexible, and student-centered learning environments. Instead of relying solely on conventional teaching methods, educators are increasingly encouraged to integrate digital media that support independent learning, increase student motivation, and accommodate diverse learning styles. As a result, educational institutions are expected to



adopt innovative instructional media that are able to improve the learning experience and educational outcomes.

In arts education, the integration of digital technology presents a unique opportunity to enhance students' understanding of practical and cultural subjects. Dance education, in particular, requires learners not only to understand theoretical concepts but also to observe movement techniques, musical accompaniment, cultural meaning, and performance characteristics. This learning component is often difficult to convey effectively through textbooks or lecture-based instruction alone. Therefore, multimedia-based learning resources that combine text, images, audio, animation, and video are becoming increasingly important in facilitating meaningful learning experiences in performing arts education.

One example is the Kaliwungu Mask Dance, a traditional dance that originated in Lumajang Regency, East Java. These dances reflect local philosophical values, aesthetic expressions, and historical narratives that deserve to be preserved sustainably through formal education. Apart from its cultural significance, the learning process of the Kaliwungu Mask Dance in junior high school still faces several challenges. Classroom observations show that instructional activities often rely on teacher explanations and limited printed materials, while visual demonstrations are not always sufficient to accommodate students' learning needs. As a result, students often have difficulty understanding the sequence of movements, remembering the structure of the dance, and maintaining motivation to learn during the teaching process.

Students' learning interests play an important role in determining the effectiveness of art education. Learning interests affect students' attention, participation, perseverance, and willingness to explore learning materials independently. Previous educational studies have consistently shown that interactive digital media contributes positively to students' motivation, engagement, and academic achievement. A learning app accessible via a smartphone allows students to review instructional materials anytime and anywhere, encouraging continuous learning beyond the boundaries of the classroom. These characteristics make mobile learning particularly suitable for subjects that require observation and repetitive practice, including dance education.

Among various digital learning resources, digital magazines have emerged as an attractive alternative as they integrate textual explanations with visual illustrations, photos, videos, hyperlinks, and interactive navigation in a single platform. Compared to conventional print modules, digital magazines provide a richer multimedia experience while maintaining an organized learning structure similar to traditional instructional materials. In addition, Android-based apps offer practical accessibility as Android smartphones are widely used by high school students in Indonesia. Therefore, developing Android-based digital magazines provides a promising strategy to enhance

students' learning experiences while supporting cultural preservation through technology-enhanced education.

Several previous studies have reported the effectiveness of multimedia learning applications, mobile learning, and digital teaching materials in improving student motivation and learning achievement. Most studies conclude that interactive digital media increases student engagement by providing visual representation, direct accessibility, and learner autonomy. Nevertheless, the research that exists mostly focuses on science education, language learning, mathematics, or general multimedia development. Research that specifically addresses digital learning media for traditional dance education is still relatively limited, especially studies that integrate local cultural heritage into Android-based interactive digital magazines.

Based on these considerations, this study addresses an important research gap by developing an Android-based Digital Magazine specifically designed for Kaliwungu Mask Dance learning using the ADDIE instructional design model. Unlike previous multimedia products, the developed application combines cultural information, dance movement tutorials, interactive learning materials, visual demonstrations, and evaluation activities in a single mobile platform. This integration is expected to not only increase instructional effectiveness but also encourage students' appreciation of local cultural heritage through accessible digital technology.

Therefore, the purpose of this research is twofold. First, this study aims to develop a valid and feasible Android-based Digital Magazine for learning the Kaliwungu Mask Dance using the ADDIE development model. Second, it seeks to evaluate the effectiveness of the media developed in increasing the learning interest of junior high school students during traditional dance teaching. These findings are expected to contribute to the development of innovative digital learning media for arts education while offering practical recommendations for integrating local cultural heritage into technology-based learning environments.

2. METHODS

This research uses a Research and Development (R&D) approach to develop an Android-based Digital Magazine to study the Kaliwungu Mask Dance. The development process adopts ADDIE's instructional design model, which consists of five sequential stages: Analysis, Design, Development, Implementation, and Evaluation. The ADDIE model was chosen because it provides a systematic framework for designing, developing, validating, and evaluating educational products while ensuring that the resulting learning media meets instructional objectives and user needs.

Table 1. Research Instruments

Instruments	Purpose	Respondent
Observation Sheet	Identify learning problems	Teachers & Students

Instruments	Purpose	Respondent
Validation Sheet	Assessing product eligibility	Materials, Media, Linguists
Student Questionnaire	Evaluate the usefulness and interest of learning	Grade IX Students

The analysis stage aims to identify instructional problems, student learning characteristics, curriculum requirements, and the need for innovative learning media in dance education. Observations were made in class, interviews with dance teachers, and initial discussions with students to get information about the existing learning process. The findings show that conventional instructional methods and limited learning resources reduce students' engagement and interest in learning during Kaliwungu Mask Dance lessons. These findings serve as the basis for determining instructional objectives and product specifications.

During the design stage, the overall structure and interface of the digital magazine is planned. Learning objectives, teaching materials, navigation systems, multimedia components, and evaluation activities are held in accordance with the curriculum used in junior high schools. Storyboards and interface prototypes are developed to illustrate the sequence of learning materials and user interaction before the application development process begins.

	<i>Analyze</i>	<i>Design</i>	<i>Develop</i>	<i>Implement</i>	<i>Evaluate</i>
<i>Concept</i>	Identify the probable causes for a performance gap	Verify the desired performances and appropriate testing methods	Generate and validate the learning resources	Prepare the learning environment and engage the students	Assess the quality of the instructional products and processes, both before and after implementation
<i>Common Procedures</i>	1. Validate the performance gap 2. Determine instructional goals 3. Confirm the intended audience 4. Identify required resources 5. Determine potential delivery systems (including cost estimate) 6. Compose a project management plan	7. Conduct a task inventory 8. Compose performance objectives 9. Generate testing strategies 10. Calculate return on investment	11. Generate content 12. Select or develop supporting media 13. Develop guidance for the student 14. Develop guidance for the teacher 15. Conduct formative revisions 16. Conduct a Pilot Test	17. Prepare the teacher 18. Prepare the student	19. Determine evaluation criteria 20. Select evaluation tools 21. Conduct evaluations
	<i>Analysis Summary</i>	<i>Design Brief</i>	<i>Learning Resources</i>	<i>Implementation Strategy</i>	<i>Evaluation Plan</i>

Image 1. Research Procedure Based on ADDIE Model

The development phase involves creating an Android-based Digital Magazine using multimedia elements, including textual explanations, photos, illustrations, instructional videos, navigation buttons, and interactive quizzes. Once the prototype is complete, the product is evaluated by three experts consisting of a materials expert, a media expert, and a linguist. Their assessments focus on content accuracy, instructional design, visual display, usability, and language clarity. The suggestions provided by validators are then used to revise and improve the application before implementation in the classroom.

The implementation stage was carried out by introducing application revisions to Grade IX students at the research location during the Kaliwungu Mask Dance learning activity. Students use the app as an additional learning medium under the guidance of the teacher. After the learning session, students fill out a response questionnaire designed to evaluate the practicality, usability, appeal, and overall learning experience provided by the app.

Finally, the evaluation stage is carried out to determine the quality and feasibility of the developed product. Evaluation is conducted continuously in each phase of the ADDIE model, including formative evaluation during product development and summative evaluation after classroom implementation. Feedback gathered from experts and students is analyzed to identify strengths, weaknesses, and recommendations for further improvement.

The participants involved in this study consisted of one subject matter expert specializing in dance education, one educational media expert, one linguist, and grade IX students who participated in the implementation phase. Expert validators are selected deliberately based on their academic qualifications and professional experience, while student participants represent the target users of the developed learning media.

Data were collected using observation sheets, expert validation questionnaires, and student response questionnaires. Observations are used during the needs analysis stage to identify classroom conditions and instructional challenges. Expert validation instruments are used to assess the validity and feasibility of developed applications, while student questionnaires measure user perceptions of the appeal, ease of use, usability, and effectiveness of digital magazines.

3. RESULTS AND DISCUSSION

3.1 Needs Analysis

The development of this Android-based Digital Magazine was initiated through a comprehensive needs analysis that aims to identify instructional challenges in learning the Kaliwungu Mask Dance at SMPN 1 Tempeh, Lumajang. This stage is the basis of the ADDIE development model because it provides empirical evidence regarding actual learning conditions and the need for innovative instructional media. Data is collected through classroom observations, interviews with art teachers, and analysis of curriculum documents to ensure that the products developed meet pedagogical and technological needs.

These findings also show that students show relatively low interest in learning during dance lessons. Classroom observations show that student participation tends to decline when teaching activities rely solely on lectures and textbook explanations. Some students become passive during the learning process, while others have difficulty maintaining concentration during practice sessions. Interviews with art teachers further confirm that students often consider traditional dance to be a difficult subject because they have limited access to learning resources that are able to illustrate movement techniques in a clear

and engaging way. As a result, learning outcomes remain below the expected standards for some students.

Another important finding concerns the learning characteristics of students. Most students are already familiar with Android smartphones and often use mobile devices in their daily activities. However, these devices are rarely used as instructional tools during learning to dance. This situation indicates an opportunity to integrate mobile technology into art education by transforming smartphones from entertainment devices into interactive learning mediums. Given students' familiarity with digital technology, Android-based apps are expected to provide a more flexible learning environment while encouraging independent learning outside of classroom hours.

Based on these findings, the researchers concluded that the main instructional problem is not only students' cognitive understanding of dance materials but also the limited availability of engaging and interactive learning media. Therefore, Android-based Digital Magazines are designed to increase students' interest in learning while supporting the preservation of local cultural heritage through technology-enhanced learning.

3.2 Development of Android-Based Digital Magazines

The Digital Magazine was developed following the systematic procedure of the ADDIE instructional design model. The information



Image 2. Main Navigation Menu

obtained during the analysis stage forms the basis for the design of the application's content, interface structure, navigation system, and multimedia integration. The main goal of the product development process is to create instructional applications that are informative, interactive, visually appealing, and easily accessible through Android smartphones.

The app is specifically designed to accommodate the characteristics of junior high school students by providing simple navigation and a user-friendly interface. Instead of presenting learning materials in lengthy textual explanations, Digital Magazine integrates

various multimedia elements to facilitate students' understanding of the theoretical and practical aspects of the Kaliwungu Mask Dance. The app combines written explanations, high-quality photos, instructional videos, interactive quizzes, and navigation buttons in a single learning platform, allowing students to independently access learning materials at their own learning pace.

The homepage introduces users to the app and provides direct access to the main learning menu. The main interface contains several instructional components, including the historical background of the Kaliwungu Mask Dance, an explanation of basic dance moves, supporting performance elements, interactive quizzes, a full dance performance video, user profiles, and additional information regarding the app. This setting allows students to systematically navigate learning materials while maintaining flexibility in choosing specific topics according to individual learning needs.

The history section introduces students to the cultural background and development of the Kaliwungu Mask Dance in Lumajang Regency. Understanding the historical context is considered important because traditional dances represent not only physical movements but also cultural identities, community values, and local wisdom. Meanwhile, the movement section presents a detailed explanation accompanied by visual illustrations to facilitate students' understanding of the movement sequence before practicing independently.

To reinforce students' understanding, the app also incorporates interactive quizzes that provide immediate feedback after each response. This feature encourages active participation during learning activities while allowing students to evaluate their own understanding of the learning material. From a pedagogical perspective, direct feedback serves as a positive reinforcement that strengthens learning motivation and supports continuous improvement.

The visual appearance of the app is designed to balance aesthetic quality with functional usability. Consistent typography, harmonious color combinations, organized layout, and intuitive navigation contribute to a learning environment that minimizes cognitive overload while maintaining students' attention. Instead of emphasizing decorative elements, the interface prioritizes readability and ease of interaction so that students can focus on learning content rather than navigating complex menus.

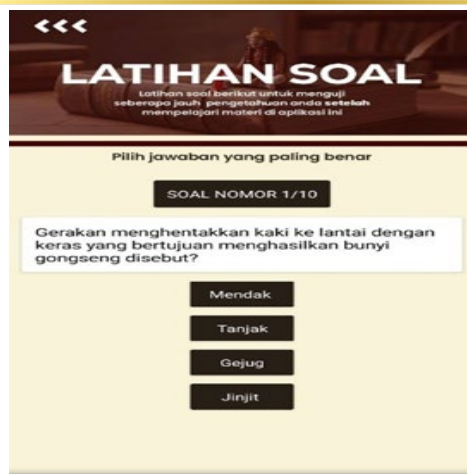


Image 3. Interactive Quizzes and Video Tutorials

Overall, the development process shows that Digital Magazine is designed not only as a digital version of printed teaching materials but as an integrated multimedia learning environment. By combining instructional content, visual communication, interactive learning activities, and mobile accessibility, the app provides students with greater opportunities to actively engage in learning traditional dance while strengthening cultural appreciation through digital technology.

3.3 Expert Validation

Once the prototype is complete, the Android-based Digital Magazine undergoes a comprehensive validation process to determine its feasibility prior to classroom implementation. Validation involves experts in educational media, instructional content, and language. This multi-perspective evaluation is intended to ensure that the application meets the pedagogical, technical, and linguistic standards required for the learning medium used in junior high school.

Media expert evaluations are focused on interface quality, navigation, visual communication, usability, and technical performance. The assessment shows that the app achieved an overall feasibility score of 98.6%, which falls into the "Excellent" category. These results show that Digital Magazine has excellent visual quality and provides an intuitive user experience suitable for high school students. The validators highly value the clarity of the images and videos, the consistency of the interface design, the readability of the text, and the logical organization of the learning materials. These aspects are important because they reduce unnecessary cognitive load and allow students to focus on understanding the learning content rather than navigating the application.

Language validation resulted in a feasibility score of 95.0%, also classified as "Excellent". Linguists concluded that instructional language is appropriate for Class IX students and that the explanations are generally clear, communicative, and easy to understand. In addition, menu labels and navigation instructions successfully support self-paced learning. Only minor editorial revisions are recommended, especially regarding the consistency of capitalization and terminology

used in some descriptions of the movement. This revision is intended to improve linguistic accuracy without altering the instructional content of the application.

Material validation resulted in an overall feasibility score of 86.25%, indicating that instructional content was also categorized as "Excellent". The validators emphasized that the historical background, explanation of movements, supporting elements, and learning objectives were consistent with the curriculum applied at SMPN 1 Tempeh. This application successfully represents the important characteristics of the Kaliwungu Mask Dance while maintaining the authenticity of local cultural values. Some of the recommendations are focused on enriching the supporting explanations and improving the order of the selected learning materials so that students can follow the instructional flow more systematically.

Overall, the validation process shows that the Digital Magazine developed meets the requirements of high-quality instructional media. Consistently high scores across all aspects of validation indicate that the app is technically functional, pedagogically appropriate, and linguistically accessible. These findings also confirm that integrating multimedia components into traditional dance teaching can result in learning resources that effectively combine cultural preservation with contemporary educational technologies.

3.4 Product Revision

Although Digital Magazine achieved an excellent validation score during the expert review process, some constructive recommendations were included to further improve the instructional quality of the application prior to implementation in the classroom. Rather than pointing out weaknesses, these revisions represent an iterative refinement process consistent with the Research and Development approach, where expert feedback serves as an important mechanism for improving product quality.

The first revision group came from media experts. Some recommendations address the organization of the interface and accessibility of the application. Validators suggest adding an introductory quiz before students enter the main learning menu to stimulate curiosity and activate prior knowledge. In addition, the order of the learning menu is rearranged into a more logical development consisting of History, Dance Movements, Supporting Elements, Quiz, and Full Dance Video. Experts also recommend including image enlargement functionality in the supporting element menu to allow students to observe costumes and dance properties in more detail. Finally, the application was adapted to facilitate easier distribution through online access, thereby increasing accessibility for teachers and students.

Language experts especially emphasize consistency in writing conventions. Minor revisions include correcting capitalization errors in some movement names and improving the consistency of instructional terminology across applications. These adjustments improve readability while ensuring that students receive standard instructional information. Although relatively small, the improvements contribute to

the professional appearance of educational media and reduce the potential for misunderstandings during independent learning.

Recommendations from subject matter experts concentrate on strengthening the instructional sequence and increasing the clarity of explanations related to the Kaliwungu Mask Dance. Some sections of the content are expanded to provide a smoother transition between historical information, movement demonstrations, and cultural interpretation. Additional explanations are incorporated into the description of the movement to ensure that students not only memorize the choreography but also understand the cultural significance embedded in each movement. This revision strengthens the function of application education as a learning medium and a tool for cultural preservation.

The revision process illustrates the importance of iterative product development within the ADDIE framework. Each recommendation is systematically evaluated and incorporated into the final version of the application prior to implementation. As a result, the revised Digital Magazine shows improvements not only in technical quality but also in instructional effectiveness and user experience. These iterative enhancements ensure that the app meets the expectations of experts while meeting the practical learning needs of junior high school students.

Table 2. Teacher Response Questionnaire

No	Indicator	Validation results			
		1	2	3	4
1	Students interested in learning using the Digital Magazine application				✓
2	Easy-to-understand material				✓
3	Easy-to-understand grammar				✓
4	Materials presented with Clear				✓
5	A variety of dance forms that Clearly presented				✓
6	The basic color of the entire Digital Magazine app doesn't make the eyes quick Tired				✓
7	Write the fonts used Readable				✓

8	The design of the Digital Magazine application is according to the characteristics of school students Junior Secondary				✓
9	Digital application quality Magazine				✓

The incorporation of this revision significantly improves the overall quality of Digital Magazine. More importantly, the revision process shows that the final product is not only accepted based on a high validation score but is continuously refined through expert recommendations before being introduced to students. Such an iterative approach enhances the credibility of the developed learning media and strengthens its potential for wider implementation in arts education.

3.5 Discussion

The findings of this study show that Android-based Digital Magazines are feasible and practical to support the learning of the Kaliwungu Mask Dance. The high validation scores obtained from media, language, and material experts indicate that the developed application meets the fundamental requirements of an effective instructional medium. More importantly, classroom implementations show that the app is successful in increasing students' engagement and interest in learning during the teaching process.

Positive results can be explained through the integration of multimedia elements in a single learning platform. According to the Cognitive Theory of Multimedia Learning, students process information more effectively when verbal explanations are combined with meaningful visual representations. Digital Magazine integrates written descriptions, photos, instructional videos, and interactive quizzes that complement each other during learning. This combination allows students to build knowledge through various information processing channels rather than relying exclusively on textual explanations.

The flexibility offered by Android technology also contributes substantially to students' self-paced learning. The mobile learning environment allows students to access instructional materials anytime and anywhere, allowing for repeated observation of dance movements outside of classroom sessions. Such opportunities are essential in dance education because mastery of movement requires continuous practice and repeated visual observation. As a result, Digital Magazine expands learning beyond the physical classroom and supports self-directed learning among students.

From a constructivist perspective, the developed application encourages learners to actively build understanding through exploration, observation, and self-assessment. Interactive quizzes and multimedia resources provide an opportunity for students to evaluate their own understanding while connecting theoretical concepts with practical dance performances. Instead of functioning solely as recipients of information, students become active participants in the

learning process, consistent with a contemporary student-centered instructional approach.

The findings of this study are also consistent with previous studies that reported that Android-based instructional media increases student motivation, participation, and learning effectiveness. However, the study expands on previous work by integrating local cultural heritage into a mobile learning environment designed specifically for traditional dance education. While many previous studies have focused on science, mathematics, or language teaching, this study suggests that multimedia technology can also play an important role in preserving regional cultural traditions through formal education.

Beyond its instructional contributions, Digital Magazine offers broader educational implications. Traditional dance is an important component of Indonesia's cultural identity, but many schools continue to face limitations in teaching resources. By transforming cultural learning materials into interactive mobile applications, this study provides an alternative strategy to combine cultural preservation with digital innovation. The integration supports the goal of national education that emphasizes technological competence and appreciation of local wisdom.

Overall, the implementation results and student responses show that Android-based Digital Magazine effectively addresses the instructional challenges identified during the needs analysis stage. The app not only provides a valid and practical learning medium but also promotes higher student engagement, independent learning, and appreciation of traditional dance. Therefore, Digital Magazine has considerable potential to be implemented more widely in arts education, particularly in schools seeking innovative approaches to preserve local cultural heritage through technology-based learning.

4. CONCLUSION

This research develops an Android-based Digital Magazine as an instructional medium to learn the Kaliwungu Mask Dance using the ADDIE instructional design model. The development process consisting of the analysis, design, development, implementation, and evaluation stages results in a learning app that integrates textual materials, images, instructional videos, and interactive quizzes in a single Android platform. Systematic development procedures ensure that the application meets the curriculum requirements and learning characteristics of students in junior high school.

The validation results show that the developed Digital Magazine achieves a high level of feasibility in terms of instructional content, media design, and language quality. Expert evaluations classify the product as Excellent, indicating that the application meets the pedagogical and technical standards necessary for classroom use. Furthermore, the implementation stage shows that students respond positively to the application. The integration of multimedia elements encourages active participation, increases learning motivation, facilitates independent learning, and increases students' interest in learning the Kaliwungu Mask Dance.

These findings suggest that Android-based interactive learning media can serve not only as an effective instructional resource but also as an alternative strategy for preserving local cultural heritage through technology-enhanced education. By combining cultural content with digital innovation, Digital Magazine provides a meaningful learning experience that goes beyond conventional classroom instruction. Therefore, the app has considerable potential for wider implementation in arts education, especially in schools looking for innovative approaches to teaching traditional dance.

Despite these positive findings, the study has some limitations. Implementation was carried out in one school with a relatively limited number of participants, and the evaluation was mainly focused on students' learning interests. Future studies are recommended to involve a larger and more diverse sample, investigate long-term learning outcomes, and compare the effectiveness of Digital Magazine-based teaching with other multimedia learning approaches. Further development can also incorporate augmented reality, gamification, or adaptive learning features to enrich students' learning experiences and strengthen cultural preservation through digital technology.

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