



Development of AI-Based Interactive Digital Video Comic Infused with Local Culture for Folklore Text Learning: Validity and Practicality Testing

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Abstract:

Background: Learning classical literature, including folklore, can be challenging for students because of archaic vocabulary and the difficulty of connecting traditional narratives with contemporary learning experiences. Audiovisual media incorporating local cultural elements offers an alternative approach to presenting folklore in Indonesian language learning.

Aims: This study aimed to develop an AI-supported digital video comic incorporating West Sumatran cultural elements for folklore text learning and to evaluate its validity and practicality.

Methods: This Research and Development (R&D) study employed the ADDIE model. The video prototype was evaluated by four experts representing pedagogy, culture, language, and visual communication design. Following validation, the video was integrated into Edpuzzle with questions embedded at selected points during playback. Practicality was evaluated through questionnaires completed by three Indonesian language teachers and 60 junior high school students in West Sumatra.

Results: The video prototype obtained an overall expert validation score of 90.75% and was categorized as very valid. The integrated media received practicality scores of 93.40% from teachers and 91.20% from students, both categorized as very practical.

Conclusion: The findings indicate that the AI-supported digital video comic is a promising learning resource for presenting folklore texts through audiovisual media incorporating local cultural elements. Its integration with Edpuzzle provides opportunities for question-based interaction during video playback. The results support the media's validity and perceived practicality for Indonesian language and literature learning.

Keywords: AI-Based Digital Comic, Folklore Text, Interactive Video, Language Learning, Local Culture

1. INTRODUCTION

In the context of modern education, learning media are no longer merely a complementary elements but are essential for creating effective language teaching, particularly in bridging complex textual concepts (Majeed & Ilankumaran, 2025; Mayer & Fiorella, 2021). As a supporting infrastructure, media can make the teaching and learning process more active, creative, innovative, and independent (Musahrain et al., 2023). The use of appropriate media helps convey material more clearly and interactively, thereby facilitating understanding, increasing motivation, and supporting the achievement of cognitive, affective, and psychomotor goals that are

appropriate to students' characteristics (Melani et al., 2025). When well-designed, this multimedia-rich environment can strengthen student satisfaction and behavioral engagement (Liu & Yodmongkol, 2026). In particular, interactive media that combine text, images, video, and audio have been shown to provide new experiences that have a positive impact on improving learning outcomes and academic achievement, while also making students more attentive and curious and helping them understand the material more easily (Sujarwo et al., 2022). In language learning, digital media plays a crucial role in overcoming language anxiety by providing a self-practice platform that reduces fear or embarrassment, while improving linguistic elements such as vocabulary, pronunciation, grammar, and fluency (Syamsudin et al., 2025). This effectiveness is supported by three main features, such as the combination of audio-plus-animation-plus-text/subtitles for vocabulary and grammar; audio-plus-animation for listening comprehension; and text-plus-audio for reading comprehension (R. Zhang & Zou, 2022). Through these personalized and interactive learning experiences, digital tools can encourage students' self-regulation, autonomy, and self-confidence (Király, 2024; Liaw & Huang, 2013). However, active teacher involvement remains important because it can directly boost English achievement by stimulating students' motivation and positive emotions (J. Wang et al., 2022).

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Despite the theoretical benefits of digital media, language instruction in classical literature, specifically local folklore and hikayat texts, remains severely hampered by archaic vocabulary, abstract narrative structures, and low student cultural engagement. At the macro level, the language teaching process is hampered by large class sizes, poor school infrastructure, inadequate class time, limited funding, limited institutional readiness, and an examination system that still focuses on written forms and remains fixated on particular methods (Candrawati & Purbani, 2025). Specifically, facts on the ground show that teachers in several high schools in West Sumatra still face significant challenges in creating, using, and optimally empowering learning media (Yogica, 2019). This low institutional readiness is exacerbated by teachers' limited awareness and use of media technology, which is generally limited to the use of laptops, smartphones, and smart TVs, without delving into the pedagogical value of these audio, visual, or audio-visual media (Çupi & Alimerko, 2025; Seme et al., 2026). As a result, a clear gap emerges between policy expectations and classroom reality; media are often underutilized even though teachers recognize their value (Kramer et al., 2007). Other obstacles that complicate language teaching include heavy teacher workloads, the influence of students' native languages, the complex dynamics of language development, and conventional pedagogy that is too teacher-centered (Sukma et al., 2023). This monotonous conventional teaching ultimately reduces students' initiative, motivation, and understanding, and limits their opportunities for active language practice (Ismayilli et al., 2026; Mustadi et al., 2024; Wahyudi & Irawan, 2023). To overcome these challenges, teachers are often forced to implement emergency strategies such as developing manual teaching materials, collaborating with other teachers, and participating in informal professional development (Candrawati & Purbani, 2025). This situation emphasizes that opportunities for media-based innovation are still very limited for stakeholders (Ergogo, 2025). Therefore, a review is needed regarding the integration of language teaching technology through the use of digital learning media (Imran et al., 2024). The reality of meeting these needs ultimately demands great urgency to develop learning media that are not only valid, but also practical, easily accessible, and aligned with actual classroom conditions (Eröz-Tuğa & Sadler, 2009; Huda et al., 2025; Sudarmilah et al., 2020).

In response to these instructional bottlenecks in classical text comprehension, interactive digital comics have emerged as a prominent static visual alternative. This medium can transform the delivery of material and can even be enriched with augmented reality technology to create an interactive knowledge platform (Huda et al., 2025). This media is capable of transforming the delivery of material and can even be enriched with augmented reality technology to create an interactive knowledge platform (Habiddin et al., 2022). Although

comics are multimodal content compositions that pose unique challenges in recognizing emotions, as their characters often appear in certain styles without verbal communication or nonverbal visual cues (Kukreja, 2025), this medium has proven to be highly effective academically. Data analysis results consistently show that the use of digital comic media directly triggers improvements in students' language learning outcomes (Arief et al., 2022). Specifically, statistical analysis confirms significant improvements in vocabulary mastery, reading comprehension, and written expression to optimize language competence (Castillo-Cuesta & Quinonez-Beltran, 2022). Application-based digital comics such as Canva, Makebeliefscomix, and Pixton have been shown to contribute richly to students' cultural, linguistic, and communicative repertoires, where the support of images, dialogue, characters, and color helps the cognitive process of remembering shift from mere memorization to significant long-term understanding (Flores-González et al., 2024). The use of digital comics not only stimulates students' active engagement, creativity, and motivation in participating in specific texts (Wardani, 2024), but is also positively assessed by teachers for helping low-achieving learners in writing (Yunus et al., 2012). Through the process of creating and customizing original digital stories according to their preferences, students can associate words with real-life visuals, which ultimately improves perceived usability and ease of use and builds students' confidence in virtual environments (Linardatos & Apostolou, 2023; Tekin & Ilhan, 2025).

To overcome the static limitations of print-based or conventional graphic comics, combining narrative visuals with dynamic interactive video formats offers a critical methodological advancement. Interactive video media is unique in its ability to provide a stable and even learning impact, both for groups of students who receive intensive teacher support and those who receive less intensive support (Sumilat et al., 2022). The benefits of viewing these videos include optimal short-term gains for precisely learning specific linguistic structures when designed with high quality (Gowenlock et al., 2024). From a student perspective, watching interactive video content is considered a valuable additional tool, particularly for improving vocabulary retention, listening comprehension, pronunciation accuracy, and cultural awareness (Gloria & Galvez, 2025). When these video elements are combined with comic narratives, students show very significant differences and are significantly more beneficial compared to conventional, non-comic learning conditions. Therefore, the convergence between the visual aspects of comics and the dynamics of interactive video offers a promising methodological leap in accelerating student language acquisition in the digital classroom (Damopolii et al., 2021). Nevertheless, existing video comics still operate as fixed, one-way delivery channels that lack real-time feedback and adaptive conversational support when learners encounter difficult ancient terminology.

The state-of-the-art gap in classical literature pedagogy is precisely addressed by embedding Artificial Intelligence (AI) into the interactive comic video ecosystem as an adaptive virtual mentor. In the current era of the Internet of Things (IoT), AI plays a revolutionary role as "brain, eyes, ears, and mouth" that supports high-quality language teaching through natural language processing (NLP), machine learning, dialogue automation, and speech recognition technologies (Zhang et al., 2025). The presence of AI-based conversational agents and Digital Human Models intelligently breaks down rigid conventional methods by offering real-time feedback, adaptive learning paths, and instant pronunciation correction that resembles live interaction (Mentesoglu-Karaderi et al., 2024). Based on experimental tests, AI-powered communication models such as ChatGPT significantly boost grammar achievement, vocabulary retention, pronunciation, and contextual expression more inclusively than traditional methods (Mammadova, 2025; Murugan et al., 2025). Moreover, AI tools encourage autonomy, build confidence, and reduce students' language anxiety by simulating a safe environment for practice (Singer, 2025; Wang et al., 2026). In practice, interactive digital comic videos can be developed as highly adaptable tools, with AI helping to personalize learner-centered feedback, while culturally based comic visualizations concretize language input and foster students' evaluative sensitivity and problem-solving skills (Demirci & Şan, 2026; Nugraheni et al., 2026). Therefore, this combination offers a complementary system which AI personalizes feedback and comics ensure the material is memorable (İlhan et al., 2026; Sujinah et al., 2023). Unlike prior isolated applications, this convergent synthesis of AI voice/animation generation with local culture (hikayat) represents a distinct advance that directly resolves both cognitive and cultural barriers in classical literature instruction.

While the potential of AI-based technology, video comics, and local cultural content show considerable promise, their successful implementation in the classroom depends heavily on effective design that aligns media features with learning objectives and the learner's context (Azis et al., 2026). In line with the principles of multimedia learning, ease of use and educational effectiveness are closely interrelated. Even media with strong content still risks failure in the field if it is difficult for users to operate (Çeken & Taşkın, 2022; Liaw & Huang, 2013). According to standards, fulfilling usability aspects includes effectiveness, efficiency, and satisfaction in real environments that must be evaluated from both technological and pedagogical approaches by students, teachers, and experts (Pensabe-Rodriguez et al., 2020). Therefore, before a medium is adopted on a wide scale, an assessment that has an adequate level of validity and reliability is needed to ensure the accuracy and precision of its instructional interpretation (M. Taghizadeh & Mazdayasna, 2023). In addition to content and construction validity, the aspect of practicality, which refers to simplicity, time efficiency, accessibility, and ease of administration and assessment processes in the classroom, is a crucial parameter that

determines success in the classroom (Eröz-Tuğa & Sadler, 2009; Sudarmilah et al., 2020). Based on this urgency, this research focuses on the development of AI-based digital comic video interactive media for language learning, which is followed by conducting validity and practicality tests to present a media solution that is truly ready for use in schools.

Previous studies have extensively focused on the general effectiveness of digital comics in language acquisition (Castillo-Cuesta & Quinonez-Beltran, 2022) and the generic adoption of artificial intelligence in educational settings (Mammadova, 2025; Murugan et al., 2025); however, they have not adequately addressed how these advanced technologies can be integrated to help explain archaic vocabulary and contextualize the abstract local wisdom values embedded in classical literature. Consequently, a distinct empirical gap exists regarding the integration of multimodal digital comics, local cultural preservation, and interactive AI assistance to support traditional folklore learning for the digital generation (Seme et al., 2026). This study addresses this gap by developing an AI-powered interactive digital comic video media infused with local cultural content specifically tailored for folklore text learning, while systematically evaluating its feasibility through rigorous validity and practicality testing. The urgency of this research is clear. The resulting validity and practicality metrics not only guarantee an efficient and accessible tool for real classrooms (Huda et al., 2025; H. Taghizadeh et al., 2025), but also provide a transformative, concrete solution for modernizing classical literary pedagogy while preserving cultural heritage in the digital era.

2. MATERIALS AND METHODS

Research and development in this study followed the five phases of the ADDIE model to guide the systematic design and development of the learning media. In the Analysis phase, the researcher conducted a needs assessment, examined the learning competencies specified in Kurikulum Merdeka, identified student characteristics, and investigated instructional challenges associated with archaic vocabulary in hikayat texts. The findings informed the pedagogical requirements and content specifications for the media. In the Design phase, the researcher developed the instructional blueprint, including scene-by-scene storyboards, character designs reflecting West Sumatran cultural attire, narrative scripts, and instruments for expert validation and practicality evaluation. This phase produced the initial design framework and evaluation instruments. In the Development phase, the design was transformed into a digital video comic prototype using AI-supported production tools, including ElevenLabs for voice narration and Adobe Express for character animation. The video prototype underwent self-evaluation and expert validation by four experts representing pedagogy, culture, language, and visual communication design. Following validation, the video was integrated into Edpuzzle, where questions were

embedded at selected points during playback. In the Implementation phase, the integrated media was used in junior high school learning activities, and practicality data were collected through questionnaires completed by three Indonesian language teachers and 60 students. In the Evaluation phase, expert feedback and questionnaire responses were analyzed to assess the video's validity and the practicality of the integrated

media. The resulting findings informed the refinement and documentation of the developed learning resource. Figure 1 presents the five ADDIE phases and their corresponding activities and outputs, providing a visual overview of the media development process. The figure was designed to clarify the sequence of research activities and the relationship between each development phase and its resulting output.

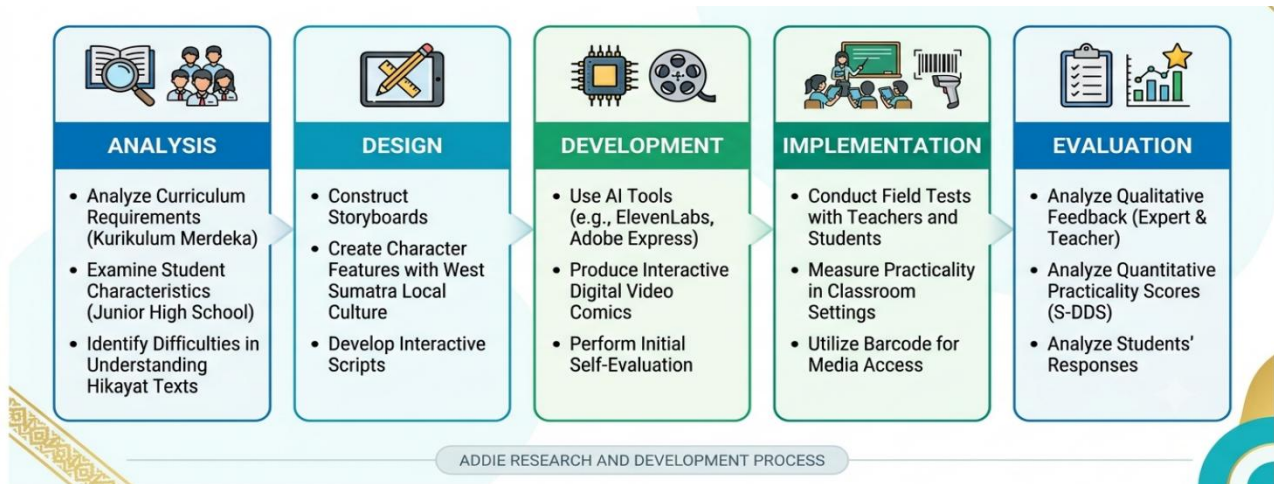


Figure 1. Product Development Flowchart Using ADDIE Model

In accordance with the limitations of the focus of this study, the description and analysis are directed in depth to report the results of the design and development phases to produce an initial draft of an AI-based digital comic video interactive media containing local culture for learning folklore texts. This approach was chosen because it is able to integrate quantitative and qualitative analysis comprehensively to test the feasibility of the media before being implemented on a large scale in schools. Through this model, content development is focused on the reconstruction of folklore texts by bridging archaic language barriers using attractive comic visualizations and the dynamics of interactive videos. All these procedures are designed to ensure that the final product is not only conceptually valid, but also practically meets the needs of teaching traditional literature in the modern era.

The product development process was realized through three main technological stages utilizing artificial intelligence (AI) technology and integrated digital tools.

The first stage began with compiling a manuscript of a folktale text containing local culture, which was then converted into narrative audio using ElevenLabs' AI-based text-to-speech platform. At this stage, researchers selected Indonesian-language voice characters with clear, natural articulation and appropriate intonation to bring the atmosphere of the classic literary story to life. The second stage continued with the creation of character animations and digital comic visuals using the Adobe Express Animation platform to synchronize the ElevenLabs audio narrative with the facial expressions and body movements of the visual characters that strongly represent local culture. The third stage was completed using the CapCut application for the final editing process, where researchers combined audio-visual elements, added supporting text (subtitles) to clarify archaic terms, sound effects, and aesthetically pleasing interactive transitions. The final result of this series of procedures is an initial draft of an interactive digital comic video that can be accessed practically through barcode scanning.

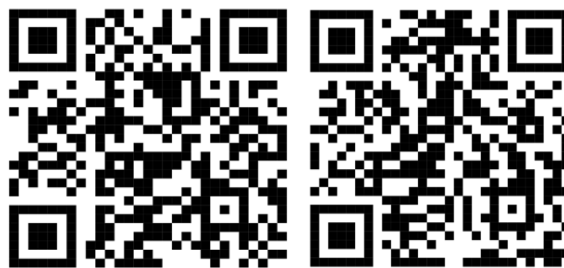


Figure 2. Digital Comic Video

The subjects and participants in this study were selected using a targeted purposive sampling procedure to objectively evaluate product quality from both theoretical and practical instructional perspectives. The inclusion criteria for the four expert validators required at least a Master's degree and a minimum of five years of professional or academic experience in their respective domains, resulting in a multidisciplinary panel comprising one literary studies expert, one curriculum expert, one language expert, and one educational technology expert. This sample size of four interdisciplinary experts was methodologically justified to achieve comprehensive content, construct, and technical triangulation without causing theoretical saturation, where these experts evaluated the initial media draft based on content accuracy, linguistic precision, presentation attractiveness, and graphic appropriateness. For field practicality testing, inclusion criteria required active Indonesian language teachers handling Eighth-Grade literature units and Junior High School students who had completed basic narrative text lessons.

To test media adaptability across varied infrastructural landscapes, a sample of three teachers ($n=3$) and 60 students ($n=60$) was selected from three distinct Junior High Schools in West Sumatra, representing a balanced geographic and infrastructural distribution between the darek (inland) and pasisie (coastal) regions. The participant distribution was evenly stratified across three schools, comprising one teacher and 20 students from SMPN 1 Padang representing high digital infrastructure in an urban coastal area, one teacher and 20 students from SMPN 2 Bukittinggi representing moderate-to-high digital infrastructure in an urban inland darek area, and one teacher and 20 students from SMPN 1 Painan in Pesisir Selatan Regency representing developing digital infrastructure in a rural coastal pasisie area. This total sample size of 60 students, divided into three equal cohorts of 20 per school, was methodologically justified as an optimal cohort size for small-scale R&D field usability testing, ensuring sufficient statistical stability for questionnaire responses while maintaining contextual depth. Ultimately, this geographical and infrastructural variety across participating schools guaranteed that the developed media remained highly practical and accessible regardless of regional infrastructural disparities.

The main instruments used in data collection for this study were the validity test assessment sheet for experts and the practicality questionnaire for teachers and students. Before being used in the study, both instruments were first evaluated by educational measurement experts to test their content and construct validity. The results of the instrument assessment showed that the validity instrument sheet for product validity achieved a feasibility level of 91.67% (very valid) and both practicality questionnaires reached 90.00% (very valid). Reliability was assessed using Cronbach's Alpha to ensure internal consistency among items. The instrument items achieved Cronbach's Alpha coefficients exceeding 0.80, confirming high reliability

and consistency for research data collection. These results confirm that both instruments have a very high level of reliability (excellent consistency) and are highly reliable for use as research data collection tools.

The validation sheet was designed to capture quantitative scores based on a rating scale as well as qualitative feedback in the form of comments and suggestions for improvement from the expert team. The quantitative data obtained from the validation sheet and practicality questionnaire were then analyzed using an average score formula to determine the level of media feasibility (Riduwan., 2008). The final scores were then interpreted into intervals of validity and practicality levels, namely: very valid/practical (81–100), valid/practical (61–80), quite valid/practical (41–60), less valid/practical (21–40), and not valid/practical (0–20). Furthermore, descriptive qualitative analysis was applied to input data from validators and open-ended interview responses from teachers and students to provide a contextual basis for revising and refining the product. Through a combination of instruments and data analysis techniques, this study is able to present strong empirical evidence regarding the validity and practicality of AI-based interactive digital comic video media in learning folklore texts.

3. RESULTS AND DISCUSSION

3.1 Results

The results of this study are broken down into three main aspects: the design of interactive digital comic videos, expert validity testing, and practicality testing of the media in the field. The first aspect, the design of interactive digital comic videos, encompasses the entire multimedia development process, from the development of folklore storylines, visualization of culturally charged comic characters, synchronization of animations with speech AI technology, to editing interactive videos tailored to the Indonesian language curriculum at the junior high school level. The second aspect, the validity of comic videos, focuses on the assessment of product feasibility by expert validators in the fields of literature studies, curriculum, language studies, and educational technology to ensure that the developed interactive media meets the standards for appropriateness of content, language, presentation, and graphic and technological aspects. Meanwhile, the third aspect, the practicality test of the media, highlights the response and level of practicality of using these AI-powered interactive comic videos by teachers and students in learning folklore texts in real classrooms, which is assessed in terms of ease of use, time efficiency, and the level of media accessibility in various school areas. These three aspects are closely interrelated and form a unified whole, producing AI-based learning media that is not only theoretically valid and visually appealing, but also usable and adaptable for preserving classical literary heritage in the digital age. An in-depth explanation of these three aspects is presented below.

3.1.1 AI-based Interactive Digital Video Comic

The design phase focused on developing the initial framework for the AI-based interactive digital video comic media and its accompanying assessment instruments. The media was developed by adapting hikayat texts from the Indonesian language curriculum for junior high schools (SMP) into a digital video comic format. This adaptation aimed to make classical literary narratives more accessible to students through the integration of visual illustrations, character dialogue, audio narration, and subtitles. Local cultural elements from West Sumatra were incorporated to preserve the cultural context of the selected folklore and support students' appreciation of regional heritage. The resulting prototype was designed to combine audiovisual presentation with interactive learning activities. Before further evaluation, the prototype was prepared for expert validation to assess its suitability for folklore text learning.

The visual design of the digital comic was informed by McCloud's (1993) discussion of comics as a form of communication that combines words and images to convey meaning. This perspective guided the development of the storyline, storyboard, panel arrangements, character expressions, and typography. Visual elements representing the traditional setting of West Sumatra were incorporated into the comic scenes to maintain the cultural identity of the selected folklore. The illustrations and character designs were arranged to correspond with the sequence of narrative events and the relationships among the characters. The dialogue was adapted to make the storyline more accessible to junior high school students while retaining the principal events and cultural values of the source text. Through this design process, the comic format was intended to support students' engagement with the narrative and facilitate their understanding of the content presented.

Artificial intelligence (AI) was employed as a production tool to develop the audiovisual components of the media. ElevenLabs was used to generate narration from the adapted hikayat text, while Adobe Express was used to produce animated character sequences. The generated narration, illustrations, animation, and subtitles were subsequently assembled using CapCut to create a unified digital video comic. Each application served a specific function in the production process,

from generating audio narration to preparing animated visuals and editing the final video. In this study, AI supported the creation of audiovisual content rather than functioning as a conversational virtual assistant that directly responded to students' questions. This distinction clarifies the role of AI in the development process and differentiates AI-assisted content production from the interactive features provided through the learning platform.

To strengthen the interactive features of the media, the digital video comic was integrated with Edpuzzle. Questions were embedded at selected points in the video to encourage students to respond to comprehension prompts while watching the narrative. The questions addressed aspects of hikayat learning, including narrative events, character actions, vocabulary, and cultural values. Depending on the question type and the settings applied, students could receive feedback on their responses, while teachers could review submitted answers and monitor students' progress. This integration enabled the video to function as more than an audiovisual presentation by incorporating opportunities for students to respond during the viewing activity. Edpuzzle therefore provided the platform for response-based interaction, whereas AI applications supported the production of the video's audiovisual components.

The completed media was made accessible through a digital link and a QR code to facilitate access by teachers and students using compatible digital devices. The integration of illustrations, narration, animation, subtitles, and embedded questions was intended to provide a structured learning experience centered on folklore texts. Students could watch the narrative, respond to questions at designated points, and receive feedback according to the configured settings. Teachers could use students' responses to identify aspects of the narrative that might require further explanation or discussion. These features represented the intended functionality of the developed media rather than direct evidence of improved learning outcomes. Accordingly, the subsequent evaluation focused on examining the media's validity and practicality in accordance with the objectives of the development study. The development activities are summarized in Table 1.

Table 1. Steps in Developing AI-Based Interactive Digital Video Comic Media

Development activity	Description
Plot and storyboard development	A West Sumatran folktale containing local cultural values was adapted into a storyline appropriate for junior high school students. The sequence of events was organized to maintain narrative coherence and preserve the principal moral message of the source text.
Character visualization and initial sketches	Character sketches and panel layouts were prepared to establish the visual composition of the comic. Character expressions, poses, clothing, and backgrounds were designed to represent the cultural setting of the story.

Development activity	Description
Digital conversion and refinement	The initial sketches were converted into digital illustrations using the selected graphic design platform. Character expressions, image placement, dialogue balloons, typography, and colors were refined to improve visual consistency and readability.
AI-generated voice narration using ElevenLabs	The adapted narrative text was processed using ElevenLabs to generate audio narration. Voice settings were selected to support clear pronunciation and appropriate delivery of the Indonesian text.
Character animation using Adobe Express	Character illustrations were processed using Adobe Express to produce animated sequences that complemented the narrative audio.
Audiovisual editing using CapCut	The illustrations, animated sequences, narration, subtitles, and supporting audiovisual elements were assembled in CapCut to produce the digital video comic.
Interactive question integration using Edpuzzle	The completed video was integrated with Edpuzzle, and questions were embedded at selected points in the video. The questions addressed narrative comprehension, vocabulary, character actions, and cultural values. Feedback settings were configured where applicable to support students' responses.
QR code integration and media access	The video lesson was made accessible through a digital link, which was converted into a QR code to facilitate access by teachers and students using compatible devices.

3.1.2 Validation of AI-based Digital Video Comic Interactive Media

The validation phase was conducted to assess the content, instructional, linguistic, and visual quality of the AI-based interactive digital video comic media before its practicality evaluation. Four experts participated in the validation process, each holding a doctoral degree (Ph.D.) or an equivalent doctoral qualification and representing expertise in pedagogy, culture, language, and visual communication design (Desain Komunikasi Visual). These areas of expertise were selected to provide complementary perspectives on the instructional suitability of the media, the

representation of local cultural values, the appropriateness of the language, and the quality of the visual design. Before the expert assessment, the researchers conducted a self-evaluation to identify potential inconsistencies in the adapted folklore, cultural illustrations, AI-generated narration, animation, subtitles, and video presentation. Minor editorial and technical issues identified during this preliminary review were corrected before the prototype was submitted to the validators. The experts assessed the media using an instrument with a five-point Likert scale, and the mean scores were converted into percentages to facilitate interpretation. The results of the expert validation are presented in Table 2.

Table 2. Expert Validity Results of the AI-Based Interactive Digital Comic Video Media

No.	Validator	Assessment Aspect	Mean	Conversion	Interpretation
1.	Validator 1	Pedagogy	4.67	93.40	Very valid
2.	Validator 2	Curriculum Studies	4.58	91.60	Very valid
3.	Validator 3	Language Studies	4.43	88.60	Very valid
4.	Validator 4	Educational Technology	4.47	89.40	Very valid
Total			4.54	90.75	Very valid

As presented in Table 2, the four experts assigned an overall mean score of 4.54 out of 5.00, equivalent to 90.75% when calculated from the unrounded aggregate score. Based on the validity criteria adopted in this study, the developed media was classified as very valid. The pedagogical assessment received the highest mean score of 4.67 (93.40%), indicating a favorable evaluation of the media's instructional suitability. The cultural assessment obtained a mean score of 4.58 (91.60%), while the visual appearance and language assessments received mean scores of 4.47 (89.40%) and

4.43 (88.60%), respectively. These findings indicate that the prototype received favorable assessments across the four areas of expertise, encompassing instructional design, cultural representation, visual presentation, and language use. However, the scores represent expert judgments of the developed media and should not be interpreted as direct evidence of improved student learning outcomes.

Following the validation process, the researchers revised the prototype based on the feedback provided by the experts. The revisions included adjustments to the

typography of supporting text and the balance between the narration and traditional background audio. These changes were intended to improve subtitle readability and ensure that the background audio did not interfere with the clarity of the narration. Attention to these elements was important because students were expected to follow the folklore narrative through the combined presentation of visual and auditory information. The expert ratings and subsequent revisions provided a basis for preparing the media for the next evaluation stage. Overall, the results supported the classification of the prototype as very valid according to the assessment criteria used in this study. Nevertheless, the expert validation results alone did not establish the practicality of the media in classroom use or demonstrate its effectiveness in improving learning outcomes.

The expert validation reported in Table 2 was conducted on the digital video comic prototype before its integration with Edpuzzle. Therefore, the validity scores reflect expert judgments of the video content, cultural representation, language, and visual design, rather than the interactive features subsequently added through Edpuzzle. Following the validation process, the researchers integrated the validated video into Edpuzzle and embedded questions at selected points to facilitate student responses during video playback. This integration represented a subsequent stage in the development of the interactive learning media and did not form part of the original expert validation. Before the practicality evaluation, the integrated media needed to be checked to ensure that the embedded questions,

response mechanisms, and feedback settings functioned as intended. Accordingly, the expert validation results were interpreted within the scope of the video prototype assessed by the four experts. The practicality of the integrated media was to be examined separately through the subsequent evaluation process.

3.1.3 Practicality of AI-based Digital Video Comic Interactive Media

The practicality evaluation was conducted to examine teachers' and students' responses to the AI-based digital video comic featuring local cultural elements for folklore text learning. The evaluation involved Indonesian language teachers as educational practitioners and students as the primary users of the developed media. The assessment focused on the visual presentation, readability, language accuracy, curricular relevance, representation of local culture, accessibility, and audiovisual features of the media. From the teachers' perspective, the evaluation also considered the suitability of the content for Indonesian language learning under the Independent Curriculum and the potential of the media to support the presentation of folklore texts in classroom activities. The video was subsequently integrated into Edpuzzle, with questions embedded at selected points during playback to provide opportunities for students to respond to the presented material. Accordingly, the practicality evaluation addressed the integrated media as experienced by teachers and students during the evaluation process. The results of the teacher questionnaire are presented in Table 3.

Table 3. Teachers' Responses to AI-Based Digital Video Comic Interactive Media

No.	Item atau Indikator	Mean	Conversion	Interpretation
1.	The visual appeal of interactive digital comic videos containing local culture for students to learn.	5.00	100.0	Very Practical
2.	The clarity and readability of the text (subtitles and dialogue balloons) in digital comic video displays.	5.00	100.0	Very Practical
3.	The accuracy of grammar and sentence structure in comic videos to facilitate students' understanding of literary terms.	4.33	86.6	Very Practical
4.	The alignment of folklore material in AI-based digital comic videos with the Learning Objectives/Learning Outcomes for Indonesian.	5.00	100.0	Very Practical
5.	The alignment of local cultural narratives presented in comic videos with the learning objectives of the hikayat texts to be achieved.	4.67	93.4	Very Practical
6.	The presentation of proportional, engaging visualizations of hikayat characters that represent local cultural identity.	4.67	93.4	Very Practical
7.	The use of AI-generated audio narration, animation, and interactive questions to support students' engagement in listening to and reading folklore texts.	4.00	80.0	Very Practical
8.	The flexibility and accessibility of using interactive digital comic videos (via barcode scanning) in learning both inside and outside the classroom.	5.00	100.0	Very Practical
9.	The ease of synchronizing animation and AI-based audio narration in comic videos to help students understand the storyline of the hikayat presented.	4.33	86.6	Very Practical

No.	Item atau Indikator	Mean	Conversion	Interpretation
10.	The effectiveness of AI-based interactive digital comic videos in expanding students' knowledge of local wisdom values.	4.67	93.4	Very Practical
Total		4.67	93.4	Very Practical

The results in Table 3 show that the teachers gave a positive evaluation of the developed media, with a reported overall mean score of 4.67 and a conversion percentage of 93.4%, categorized as very practical. The highest scores were obtained for visual appeal, clarity and readability of the text, alignment with Indonesian language learning outcomes, and accessibility through barcode scanning, each with a mean score of 5.00. These results indicate that the teachers appreciated the media's visual presentation, supporting text, curricular relevance, and ease of access. The alignment of local cultural narratives with the learning objectives of hikayat texts and the visualization of characters representing local cultural identity each received a mean score of 4.67. The items concerning grammatical accuracy and sentence structure, as well as the synchronization of animation and AI-generated narration, each obtained a mean score of 4.33. The item concerning virtual assistants and AI-based interactive stimulation received a mean score of 4.00. Taken together, the responses indicate that teachers perceived the media as highly practical for presenting folklore texts through audiovisual content that incorporates local culture and can be accessed conveniently during learning activities.

The practicality evaluation from the students' perspective examined their responses to the presentation, content, accessibility, and learning-related features of the digital video comic. The questionnaire addressed students' interest in learning folklore texts through the media, their perceptions of the moral values presented in the stories, the clarity of the storyline, the animation of characters, and the readability of the supporting text. It also examined their responses to the representation of local cultural elements, the correspondence between character visualizations and the original folklore texts, and the accessibility of the media through barcode scanning. In the integrated version, Edpuzzle provided opportunities for students to respond to questions presented at selected points during video playback. The student questionnaire was used to gather their perceptions of the media after they had experienced the learning resource. These responses provided information about how students received the audiovisual presentation and the incorporation of local cultural content into folklore learning. The results of the student practicality questionnaire are presented in Table 4.

Table 4. Students' Responses to AI-Based Digital Video Comic Interactive Media

No.	Item atau Indikator	Mean	Conversion	Interpretation
1.	The development of this AI-based interactive digital comic video featuring local culture has captured my interest in learning folklore texts.	4.75	95.0	Very Practical
2.	The folklore stories presented in this digital comic video contain many positive character values and moral examples.	4.70	94.0	Very Practical
3.	The storyline of the folklore presented in this interactive digital comic video is clear and easy to follow.	4.55	91.0	Very Practical
4.	The AI-driven animated images perfectly reflect the characters' expressions and emotions in the folklore.	4.48	89.6	Very Practical
5.	The language and supporting text (subtitles) used in this digital comic video are simple, making them easy to understand.	4.51	90.3	Very Practical
6.	The AI-generated audio narration, animation, and interactive questions encourage me to engage more actively in learning folklore texts.	4.56	91.20	Very Practical
7.	This interactive digital video comic featuring folklore text is very practical because I can access it anywhere and anytime (via barcode scanning).	4.51	90.3	Very Practical
8.	The visual design of the folklore characters, rich in local cultural nuances, is very appealing to me.	4.63	92.6	Very Practical
9.	The characterization and visualization of the characters in this digital comic video are consistent with the depiction of the original characters in the folklore text.	4.36	87.2	Very Practical
10.	The combination of the colors of the digital comic and the dynamic nature of the AI-powered interactive video is so captivating that it compelled me to listen and read the story all the way through.	4.55	91.0	Very Practical

No.	Item atau Indikator	Mean	Conversion	Interpretation
	Total	4.56	91.2	Very Practical

Table 4 shows that students' responses to the media were generally favorable, with a reported overall mean score of 4.56 and a conversion percentage of 91.2%, categorized as very practical. The highest mean score was recorded for students' interest in learning folklore texts through the media, at 4.75. This was followed by the item concerning positive character values and moral examples in the folklore stories, which obtained a mean score of 4.70. The visual design of characters incorporating local cultural elements received a mean score of 4.63, indicating that students responded positively to the cultural and visual presentation. Other items, including storyline clarity, subtitle readability, character animation, accessibility, and the use of interactive features, also received favorable ratings. The lowest mean score was recorded for the consistency between character visualization and the descriptions of the original characters in the folklore text, at 4.36, which was still interpreted as very practical according to the study's classification criteria. Overall, the findings indicate that students appreciated the media's presentation and perceived it as a practical resource for engaging with folklore texts that incorporate local cultural elements.

The teacher and student responses collectively indicate that the AI-based digital video comic was well received in terms of visual appeal, text readability, accessibility, and cultural representation. The favorable ratings for visual presentation and supporting text highlight the importance of audiovisual design in presenting literary content to learners. The teachers' positive assessment of curricular alignment also indicates that the medium was perceived as suitable for Indonesian language learning activities involving hikayat texts. Meanwhile, students' responses to the storylines, character illustrations, and moral values demonstrate their appreciation of the way the folklore material was presented. The production process incorporated AI-supported voice narration using ElevenLabs and character animation using Adobe Express, while CapCut was used to combine the illustrations, narration, animation, and subtitles into the video. These production tools supported the development of an audiovisual learning resource that combines literary content with visual representations of local culture. The overall practicality ratings therefore indicate that the media was favorably received by both teachers and students as a resource for folklore text learning.

The integration of the video into Edpuzzle extended the presentation of the learning material by placing questions at selected points during playback. This arrangement allowed the learning activities to include opportunities for students to respond to questions about narrative events, character actions, vocabulary, and

cultural values represented in the story. The integration also provided a way to combine audiovisual presentation with question-based participation within the same learning environment. The favorable student responses to the media's appeal and presentation suggest that the digital video comic offered a learning resource that students found engaging and accessible. The teacher responses similarly highlighted the visual quality, text clarity, curricular relevance, and accessibility of the media. In addition, the representation of West Sumatran cultural elements provided a local context for presenting folklore content in Indonesian language learning. Overall, the findings from the practicality evaluation support the use of the developed media as an alternative resource for presenting folklore texts through AI-supported audiovisual production and Edpuzzle-based question integration.

3.2 Discussion

This study confirms that artificial intelligence (AI)-based digital learning media plays a crucial role in Indonesian language learning because it has been shown to help teachers deliver folklore texts more concretely. Empirical findings from teacher and student responses indicate that a learning environment rich in multimedia stimulation can significantly increase student engagement and satisfaction and positively influence learning behavior when integrated with local wisdom material (Nevy et al., 2026). Furthermore, the use of multimedia input that combines audio narration components, animated character movements, and supporting text (captions) has proven practical in supporting students' mastery of archaic vocabulary and listening skills (Jeong, 2018; Zhang & Zou, 2022). The advantages of this interactive digital comic video media also contribute to reducing students' cognitive anxiety and increasing their courage to respond to evaluation questions because the system provides a safe, independent learning space (Apostolou & Linardatos, 2023). However, the level of teacher involvement and active guidance in the classroom remains the main determining factor that triggers positive emotions and students' independent motivation in appreciating classical literature (Wang et al., 2026). Therefore, the use of this AI-powered interactive learning medium is no longer merely a supplementary instrument but an essential resource for achieving adaptive language learning in the digital era (Qu, 2025). Thus, this innovation successfully bridges the needs of a modern curriculum without neglecting the essence of preserving local culture.

In terms of product development, the AI-based digital comic video interactive format is highly worthy of consideration as an innovative solution because it

combines visual elements of folklore, dialogue text, audio narration, and interactive simulation into a single, contextual media unit. By reconstructing the folktale story into a moving comic, the findings indicate that this media was perceived as highly practical and engaging by teachers and students in facilitating reading comprehension and lexical mastery compared to conventional approaches based on textbooks alone (Fikroh Gani & Ismahani, 2025). The integration of artificial intelligence (AI) technology from ElevenLabs and Adobe Express strengthens the differentiation of this media through efficient production of natural sound, precise visualization of cultural characters, and the presentation of adaptive personalized feedback (Sadiku et al., 2025; Uddin et al., 2025). Based on this novelty, evaluating the validity and practicality aspects is a crucial step to ensure that the resulting product is not only strong in terms of literary content but also feasible and user-friendly for classroom application. The latest multimedia development patterns consistently emphasize the importance of synergy between expert validation, teacher feedback, and student responses to ensure the alignment of visual design and instructional feasibility in the field. Through this series of evaluations, this AI-based interactive media product was demonstrated to be highly valid, highly practical, and ready for implementation as a user-friendly tool in Junior High School literature learning.

3.2.1 Implications

The findings of this study offer theoretical and practical implications for Indonesian language education in the digital era. Pedagogically, the integration of AI-supported production tools provides an approach to presenting classical literature through audiovisual learning materials and interactive questions. This multimodal presentation offers students an alternative way to engage with archaic vocabulary and traditional West Sumatran folklore narratives. Practically, the development process illustrates how local cultural heritage can be incorporated into digital formats while preserving the central narratives and cultural elements of the source texts. Furthermore, the developed medium provides a practical reference for Indonesian language teachers seeking to design contextual learning activities aligned with the principles of Kurikulum Merdeka. These findings highlight the potential of AI-supported, culturally grounded media as a resource for literature instruction in comparable secondary educational settings.

3.2.2 Research Contributions

This research contributes to the development of educational technology for literature learning. Methodologically, it presents a development process that combines AI-generated speech synthesis using ElevenLabs and character animation using Adobe Express to transform folklore texts into digital video comics. Conceptually, the study demonstrates an approach to integrating local cultural values into audiovisual learning materials while maintaining the connection between literary narratives and cultural

representation. Empirically, it reports expert validation of the video prototype and practicality evaluations of the media integrated with Edpuzzle based on teacher and student responses. The resulting media and development procedures provide practical references for instructional designers and future researchers. Overall, this study illustrates how AI-supported production tools can facilitate the creation of culturally grounded digital resources for Indonesian language and literature learning.

3.2.3 Limitations

Despite its positive findings, this study has several limitations that provide directions for further research. First, the field implementation and practicality testing involved a specific group of junior high school students and teachers, indicating the value of examining the media across diverse school contexts and geographic regions. Second, the media requires internet connectivity for barcode scanning, video streaming, and accessing the Edpuzzle-integrated questions, which may influence its use in schools with limited digital infrastructure. Third, the study evaluated expert-rated validity of the video prototype and the practicality of the integrated media based on teacher and student responses. The research did not include longitudinal measurements of learning achievement. These considerations provide a basis for broader implementation and further evaluation.

3.2.4 Suggestions

Building on the findings, several recommendations are proposed for educators and future researchers. Teachers are encouraged to provide clear instructions on accessing the video and responding to interactive questions embedded in Edpuzzle. Future researchers should examine the media across diverse student populations and school contexts to assess its applicability. Furthermore, subsequent studies could employ experimental and longitudinal designs to investigate its effects on students' folklore comprehension and language skills. Technology developers may also explore offline access options to improve accessibility in educational settings with limited internet connectivity.

4. CONCLUSION

The development research resulted in an innovative learning medium in the form of an AI-supported digital video comic integrating West Sumatran local cultural values for teaching folklore texts at the junior high school level. Based on expert validation and practicality evaluations, the developed video met the very high validity criteria, while the integrated medium received positive responses from teachers and students. The use of ElevenLabs for speech synthesis and Adobe Express for character animation supported the production of audiovisual materials that present folklore narratives through narration, animation, and cultural illustrations. The integration of the video into Edpuzzle further provided opportunities for students to respond to

questions during playback. The practicality findings indicate that the media was favorably received in terms of visual appeal, readability, cultural representation, and accessibility. The study focused on the development, validation, and practicality evaluation of the media rather than directly measuring its effects on learning outcomes. Therefore, the findings provide a basis for considering this media as an alternative resource for folklore learning within the Independent Curriculum. Further development may explore its application across different school contexts and learning conditions.

Based on these findings, several recommendations can be proposed for education practitioners and future researchers to support further development and implementation. Teachers are encouraged to introduce the media through clear instructions on accessing videos, responding to embedded Edpuzzle questions, and engaging with the presented folklore content. Future researchers may examine the media with more diverse student populations and investigate its effects on comprehension, vocabulary acquisition, and cultural understanding through appropriate learning outcome measures. Further studies may also explore additional interactive features and evaluate their contribution to students' participation during learning activities. Schools and education authorities may support implementation by providing adequate digital infrastructure and professional development in educational technology. These efforts can facilitate the integration of local literary heritage into contemporary Indonesian language learning while responding to classroom needs and technological conditions. Through collaboration among teachers, researchers, and educational institutions, this AI-supported digital video comic may contribute to the continued development of accessible learning resources that connect local cultural knowledge with digital media.

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6. AUTHOR CONTRIBUTION STATEMENT

HF conceptualized the study, developed the media prototype, and drafted the manuscript. VI designed the research methodology, oversaw data collection, and performed the statistical analysis. KU conducted the

expert validation, interpreted the practicality results, and critically revised the manuscript for resubmission. All authors have read and approved the final manuscript.

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