

Development of Digital Comic Learning Materials on the Heyday of the Ayyubid Caliphate for Eighth-Grade MTs Students

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ABSTRACT

This study aims to develop and evaluate the feasibility of digital comic learning media covering the golden age of the Ayyubid Dynasty for eighth-grade students at MTs Miftahul Ulum, Kediri City. The research employs the Research and Development (R&D) method, utilizing the ADDIE model, which encompasses the stages of analysis, design, development, implementation, and evaluation. The study employs the Research and Development (R&D) method using the ADDIE model, which encompasses the stages of analysis, design, development, implementation, and evaluation. It involved 36 eighth-grade students: five participated in a limited practicality test, while 31 took part in the implementation phase. The product was evaluated through assessments by experts in media, subject matter, language, and evaluation, alongside a limited practicality test based on student feedback. Validation results indicate that the digital comic received average ratings of 90.63% from two media experts, 88.45% from two subject matter experts, 92.3% from a language expert, and 95.3% from an evaluation expert. All expert ratings fall into the "highly feasible" category according to the criteria used in this study. These findings suggest that the developed digital comic meets the feasibility criteria—as determined by expert assessment—to serve as an alternative learning medium for Islamic Cultural History (SKI) lessons on the golden age of the Ayyubid Dynasty. Further testing is required to evaluate its practicality among a larger group and its impact on student learning outcomes.

1. INTRODUCTION

The teaching of Islamic Cultural History (Sejarah Kebudayaan Islam: SKI) emphasizes not only mastery of historical facts but also an understanding of chronology, cause-and-effect relationships, and exemplary values. Wineburg, (2001) emphasizes the importance of interpretation and analysis in understanding historical events. However, presenting history solely through text and verbal explanations can limit students' opportunities to visually explore the context of events. Fahlevi & Sayekti, (2023) highlight the relevance of a storytelling approach in SKI instruction. Therefore, SKI instruction requires media capable of integrating historical information with narratives and visual representations that align with students' characteristics. This need has not yet been fully supported by the learning conditions at MTs Miftahul Ulum in Kediri City. Results from observations and interviews indicate that instruction is still dominated by worksheets, while the use of audiovisual media remains limited. The lack of projection equipment also causes learning activities to rely heavily on reading and completing exercises. Tirado-Olivares et al. (2024) emphasize the importance of technological support and formative assessment in developing historical thinking skills. Meanwhile, Putri et al. (2023) demonstrate that interactive digital media can be developed to support history learning. The gap between the need for contextual learning and these media limitations forms the basis for the development of interactive digital comics in this study. Digital comics offer a presentation of material through a combination of illustrations, narration, and dialogue that can connect various historical events. Hutami et al. (2021) have developed comic-based media for SKI

instruction, while Rosita (2021) discusses digital comics as an interactive learning medium for the same subject. The study by Annisa & Rustini (2023) also examined the use of interactive digital comics in relation to learning motivation. These various studies indicate that digital comics have garnered attention as an alternative learning medium. However, design characteristics and feature integration must be tailored to the subject matter and the learning needs targeted by the development. In this study, such adaptation is focused on the material regarding the Golden Age of the Ayyubid Dynasty for eighth-grade MTs students.

The development of the digital comic in this study emphasizes the integration of historical narrative and interactive learning features. The product's uniqueness lies in the use of a time-travel story to present the events and exemplary figures of the Ayyubid Caliphate era. von Reumont & Budke (2023) highlight the relevance of comics in presenting complex information through a combination of text and images. Mayer (2024) also emphasizes the importance of organizing verbal and visual information in multimedia learning. Based on these two perspectives, the product was developed with audio recitations of the Qur'an and Hadith, cross-content navigation, supplementary information, and interactive quizzes. This integration constitutes a key design contribution that connects historical narratives, Islamic values, and learning assessment within a single digital flipbook. Based on the learning gaps and the characteristics of the product, this study employs the Research and Development method using the ADDIE model. The study aims to produce an interactive digital comic as a learning medium on the topic of "The Golden Age of the Ayyubid Dynasty" for eighth-grade students at MTs Miftahul Ulum in Kediri City. Specifically, the study aims to describe the product development process and evaluate its feasibility based on expert assessment and initial student responses. The feasibility evaluation covers the aspects of media, content, language, and learning assessment components. The results of this study are expected to provide an alternative for developing SKI media that aligns with learning needs and the characteristics of Islamic history content.

2. METHODS

2.1 Research Design

This study employs the Research and Development (R&D) method using the ADDIE development model, which comprises five stages: analysis, design, development, implementation, and evaluation Branch (2010). The ADDIE model serves as a systematic framework for developing digital comic-based learning media on the topic of the advancement of Islamic civilization during the Ayyubid Caliphate for eighth-grade students at MTs Miftahul Ulum in Kediri City. This study focused on the product development process and the evaluation of the product's feasibility through expert validation. The evaluation was conducted using both quantitative and qualitative descriptive approaches to obtain an overview of the product's quality based on the validators' assessments, comments, and suggestions.

2.2 Development Procedure

The development of the digital comic learning media was carried out through the five stages of the ADDIE model, adapted to the needs and characteristics of the product being developed. The development procedure diagram is shown in Figure 1.

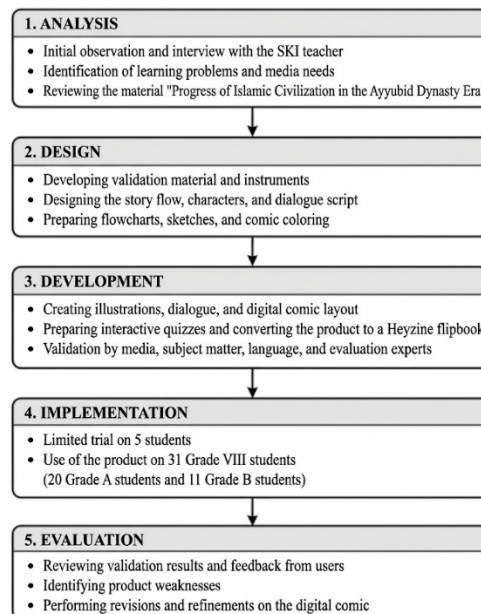


Figure 1. Flowchart of the ADDIE Model for Digital Comic Development

The analysis phase was conducted through initial observations and interviews with SKI teachers of eighth-grade students at MTs Miftahul Ulum in Kediri City. This activity aimed to identify learning conditions, the use of learning resources, and media development needs. The results of the initial analysis showed that learning was still dominated by the use of student worksheets (Lembar Kerja Siswa: LKS) with limited presentation of material. These findings formed the basis for the development of a digital comic that integrates historical material with visual illustrations and dialogue to provide an alternative way of presenting learning material. The Design phase included the development of instructional materials, validation instruments, and the digital comic design. The content was developed based on the learning outcomes and objectives for 8th-grade Islamic Cultural History (Sejarah Kebudayaan Islam: SKI) regarding the topic of the advancement of Islamic civilization during the Ayyubid Caliphate. Product design involved determining the storyline, characters, writing dialogue scripts, and creating flowcharts to illustrate the sequence of content presentation. The visual design was developed through sketching, determining color schemes, and organizing illustrations and dialogue within the comic pages. Additionally, a quiz component was designed as part of the learning assessment. This design served as a guideline for the media production process to ensure that the presentation of content, visual appearance, and assessment components were systematically integrated. The development phase involved turning the design into a digital comic. The production process included creating and coloring illustrations, inserting dialogue, page layout, and developing interactive quizzes. The completed comic was then converted into a digital flipbook using the Heyzine platform. The final product was validated by two media experts, two subject matter experts, one language expert, and one evaluation expert. Validation was conducted to assess the quality of the visual presentation and media use, the accuracy of the content, the appropriateness of the language, and the quality of the learning assessment components. The validators' comments and suggestions were used as input for refining the product.

The implementation phase involved a small-group pilot test and the use of the media with a larger group. The small-group pilot test involved five eighth-grade students who used the digital comic as a learning medium. Subsequently, the product was implemented with 31 eighth-grade students at MTs Miftahul Ulum in Kediri City, drawn from two classes consisting of 20 and 11 students, respectively. The implementation was carried out to apply the product in an SKI learning context. The reporting of implementation results in this article is limited to the procedures for using

the media, while testing its effectiveness on critical thinking skills is not the focus of the analysis. The implementation phase consisted of a small-group pilot test and the use of the media with a larger group. The small-group pilot test involved five eighth-grade students to gain initial experience with the product. Subsequently, the media was used in lessons involving 31 students from the two classes, comprising 20 and 11 students, respectively. The implementation took place within the context of SKI instruction using the developed digital comics. In this article, the implementation results are reported on a limited basis as part of the product development process, without focusing the analysis of effectiveness on changes in critical thinking skills. The Evaluation phase was conducted by reviewing the results of expert validation and information obtained during the development process and product trials. The evaluation focused on the quality of the content, the media's visual presentation, language use, and learning assessment components. Expert assessment scores were used to determine the product's suitability, while the validators' comments and suggestions served as considerations for refining the media. Thus, the evaluation in this article is directed toward assessing the quality and suitability of the digital comics based on the available development evidence.

2.3 Research Subjects and Data Collection Instruments

The study was conducted at MTs Miftahul Ulum in Kediri City, involving six expert validators and eighth-grade students as product users. The validators consisted of two media experts, two content experts, one language expert, and one evaluation expert. The content experts included university lecturers with expertise in the subject matter as well as SKI teachers from MTs Miftahul Ulum in Kediri City. The small-group pilot test involved five students, while the broader-group implementation involved 31 students from two classes. Research data were collected through observation, interviews, documentation, and validation questionnaires. Observations and interviews with SKI teachers were used to identify learning conditions and needs. Documentation was used to obtain supporting information regarding the learning process and product development. Validation questionnaires were used to obtain quantitative assessments as well as comments and suggestions from the experts regarding the quality of the developed media. The validation instruments were designed based on evaluation aspects corresponding to each validator's area of expertise. The media expert instrument consisted of 16 statements covering the accuracy, usefulness, ease of use, appropriateness, and appeal of the media. The subject matter expert instrument consists of 13 items covering the appropriateness, accuracy, completeness, and depth of the content, as well as language and presentation. The language expert instrument contains 13 items covering the accuracy, usefulness, ease of use, and appropriateness of the language. Meanwhile, the expert evaluation instrument consists of 15 items covering the alignment of the evaluation with the content, the quality of the evaluation instrument, language and presentation, as well as the appropriateness of the learning evaluation. Expert assessment uses a four-point scale: highly appropriate (4), appropriate (3), less appropriate (2), and inappropriate (1). The use of a graded scale is based on considerations regarding the selection of response categories in the development of assessment instruments by Taherdoost, (2019). Quantitative data obtained through the questionnaire were used to determine the product's suitability level, while the validators' comments and suggestions served as input for evaluating and refining the instructional media.

2.4 Data Analysis Techniques

The research data were analyzed using quantitative and qualitative descriptive techniques. Quantitative analysis was conducted on the assessment scores of media experts, content experts, language experts, and evaluation experts. The eligibility percentage was calculated by comparing the total score obtained with the maximum possible score, then multiplying by 100%. The data analysis conducted was both qualitative and quantitative. The qualitative analysis consisted of interviews,

documentation, critiques, and suggestions from media experts. The quantitative analysis utilized expert validation and product response calculations using the following formula:

$$\rho = \frac{\sum x}{\sum x maks} \times 100\%$$

Notes:

ρ : Acceptability percentage
 $\sum x$: Total sum of validator response scores (actual values)
 $\sum x maks$: Total sum of the highest response scores (expected values)

The test qualification criteria include the following ranges: $80 \leq P \leq 100$ (highly acceptable), $65 \leq P < 80$ (acceptable), $55 \leq P < 65$ (fairly acceptable), $39 \leq P < 55$ (less acceptable) with a note indicating partial revision, and $0 \leq P < 39$ (unacceptable) with a note indicating total revision. Qualitative analysis was conducted by reviewing the validators' comments, critiques, and suggestions. The feedback was grouped based on the aspects of media, content, language, and evaluation to identify the product's weaknesses and determine the necessary improvements. The results of the quantitative and qualitative analyses were used together to describe the quality of the digital comics and to support decision-making regarding the product's suitability as a SKI learning medium.

3. RESULTS AND DISCUSSION

RESULTS

The development of interactive digital comic learning media on the topic of "The Golden Age of the Ayyubid Dynasty" was carried out through the five stages of the ADDIE model: analysis, design, development, implementation, and evaluation. The results of this study focus on the product development process, the characteristics of the resulting media, and the product's feasibility based on expert assessments and initial student feedback. Each stage yielded information used as the basis for designing, refining, and evaluating the quality of the digital comics.

3.1 Presentation of Pilot Test Data

Analysis Stage

The development of interactive digital comics began with a needs analysis through classroom observations and interviews with Islamic Cultural History (SKI) teachers of eighth-grade students at MTs Miftahul Ulum in Kediri City on February 9, 2026. The analysis revealed that instruction was still dominated by the use of student worksheets (LKS), while the use of audiovisual media was relatively limited. Learning activities generally consisted of reading the material, completing exercises, and discussing them with the teacher. The availability of projection equipment in the classroom was also limited, so its use required additional preparation. Interview results showed that students were not allowed to bring smartphones to school for daily activities but could use them with permission for educational purposes. These conditions were taken into consideration when selecting digital media that could be accessed via electronic devices during instruction. The analysis of the material focused on the topic of the Golden Age of the Ayyubid Caliphate, covering the history of the dynasty's founding, the advancement of Islamic civilization, and the exemplary values and cultural legacy of the Ayyubid civilization. Based on these findings, the development of digital comics is aimed at providing an alternative SKI learning medium that presents historical material through illustrations, narration, and dialogue. The selection of digital media also takes into account the limited availability of learning devices in the classroom as well as the possibility of students using electronic devices with school permission.

Design Phase

Table 1. Stages of Designing Interactive Digital Comic Learning Media

No	Stage	Description																
1	Development of Learning Media Quality Instruments	The researcher used various sources as a basis for developing the media quality assessment instruments. These instruments included media validation, content validation, language validation, and evaluation validation.																
2	Material Development	The content of the interactive digital comic learning media was based on the “Surat Keputusan Direktur Jenderal Pendidikan Islam No. 3302 tahun 2024”, which specifies the learning outcomes for Islamic Cultural History (Sejarah Kebudayaan Islam: SKI) at Phase D. The material selected for the media was the chapter entitled “The Golden Age of the Ayyubid Dynasty.”																
3	Media Design	The learning media developed by the researcher was digital (soft-copy format) and created using the Heyzine website. The media took the form of a flipbook, resembling a conventional book. The design stages for the Heyzine Flipbook-based interactive digital comic learning media included organizing the content, preparing the comic storyline, developing the comic characters, writing the script, designing the flowchart, creating sketches, and selecting colors.																
4.	Storyboard Development	The comic featured four main characters: an Islamic Cultural History teacher, a male student, a female student, and Salahuddin Al-Ayyubi. In Chapter I, the male and female students were studying in the classroom with their teacher. The teacher then explained the material and transported them into an imaginary world, taking them back to the era of the Ayyubid Dynasty. Within this imaginary world, the material on “The Establishment of the Abbasid Dynasty” was presented. Salahuddin Al-Ayyubi subsequently explained the material to them. Chapter II followed a similar storyline but differed in the initial setting before entering the imaginary world. In this chapter, Salahuddin explained “The Advancement of Islamic Civilization during the Abbasid Period.” Chapter III followed a similar pattern, with the initial setting returning to the classroom, as in Chapter I. The material presented was “The Exemplary Values and Civilizational Legacy of the Ayyubid Dynasty.” Each chapter concluded with a quiz related to the material, followed by a relevant religious text (dalil) accompanied by audio beneath the quiz link.																
5.	Navigation Flow	- Adapted to the Heyzine website navigation. - On the table of contents and concept map pages, users can tap to go to the desired page. - On each page, tapping the screen will return the user to the table of contents. - There is an audio explanation at the end of each chapter that corresponds to the material. - There is a Wayground online quiz at the end of each chapter to measure progress in media development.																
6.	Character	<table><tr><th>No.</th><th>Character Name</th><th>Character Traits</th><th>Illustration</th></tr><tr><td>1.</td><td>Ms. Choi</td><td>A SKI instructor who is smart and firm, yet fun and engaging. She also likes to surprise her students.</td><td></td></tr><tr><td>2.</td><td>Shalahuddin Al-Ayyubi</td><td>The first ruler and founder of the Ayyubid Dynasty. He possesses the traits of a military commander and a wise leader: he is dignified, charismatic, and gallant.</td><td></td></tr><tr><td>3.</td><td>Nami</td><td>A female student who knows more about the Ayyubid Dynasty than her classmate Harun. Nami is easily fascinated and asks a lot of questions.</td><td></td></tr></table>	No.	Character Name	Character Traits	Illustration	1.	Ms. Choi	A SKI instructor who is smart and firm, yet fun and engaging. She also likes to surprise her students.		2.	Shalahuddin Al-Ayyubi	The first ruler and founder of the Ayyubid Dynasty. He possesses the traits of a military commander and a wise leader: he is dignified, charismatic, and gallant.		3.	Nami	A female student who knows more about the Ayyubid Dynasty than her classmate Harun. Nami is easily fascinated and asks a lot of questions.	
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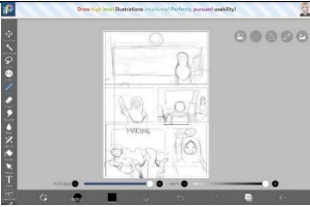
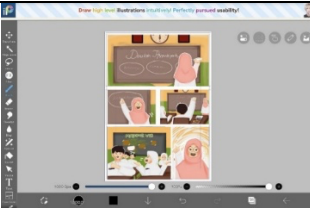
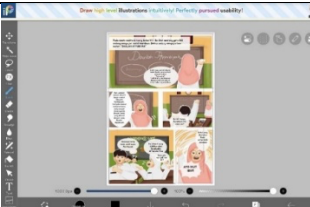
	4.	Harun	A male student who asks a lot of questions and is always fascinated by Shalahuddin’s leadership style.	
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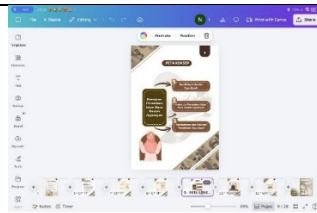
The digital comic is structured around three main themes: The Founding of the Ayyubid Caliphate, The Advancement of Islamic Civilization During the Ayyubid Caliphate, and The Exemplary Nature and Legacy of Ayyubid Civilization. The storyline in the first two sections employs a time-travel concept, moving from the present day to the era of the Ayyubid Caliphate, while the third section presents the characters’ reflections on their experiences. The characters developed include Ms. Choi as the Islamic Studies teacher, Nami and Harun as students, and Salahuddin al-Ayyubi as a historical figure. The design process involved drafting dialogue scripts, creating panel sketches or storyboards, and developing flowcharts that link the table of contents, content sections, and quizzes. Interactive components were designed through cross-content navigation, access to supplementary information, audio recitations of Qur’anic verses and Hadiths, and learning quizzes developed using the Wayground platform. This design served as a guideline for creating a flipbook-based digital comic that integrates visual presentation with learning activities.

Development Phase

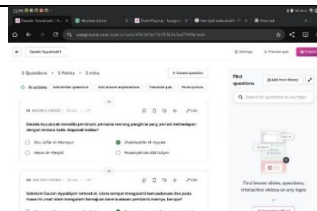
The development phase is the stage in which the researcher transforms the digital comic design into an interactive learning medium for the SKI subject in Phase D of 8th grade, in accordance with the material “The Golden Age of the Ayyubid Dynasty.” The first step is preparation for production, aligned with the design phase. The second step is the process of creating the comic; the details are as follows.

Table 2. Stages of Interactive Digital Comic Media Development

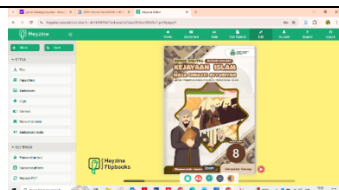
N	Illustration Stages	Stage
1		Drafting a Sketch
2		Coloring Sketches
3		Providing Dialogue



Converting comic book layouts into easy-to-read digital flipbooks



Creating Interactive Quizzes



Uploaders of comics on Heyzine Flipbook to make them easier to access and read

The third step involved submitting the interactive digital media to validation experts prior to testing. Validation was conducted by subject matter experts, media experts, language experts, and a small-scale study involving 5 students selected at random to assess the media's suitability. The result of the development phase was a digital comic created through a process of illustration using IbisPaint X, page layout using Canva, and conversion of the product into a flipbook via Heyzine. The comic includes three quiz sections developed using Wayground and linked within the media. The product was then validated by two media experts, two subject matter experts, one language expert, and one evaluation expert. The validation process yielded quantitative assessments and qualitative feedback, which served as the basis for revising the product. Revisions included the addition of audio recitations of Qur'anic verses and Hadiths, the provision of navigation instructions, improved access to supplementary materials, refinement of historical information and the chronology of events, and the alignment of assessment questions with learning objectives and the characteristics of eighth-grade students.

Implementation Phase

The implementation phase took place after the interactive digital comic learning material was revised based on feedback from the validators. The implementation involved 31 eighth-grade students at MTs Miftahul Ulum in Kediri City from two classes with relatively similar characteristics: 20 students in Class A and 11 students in Class B. Both classes followed the same learning procedures and used the media in the same way. Data on the implementation results were collected through pre- and post-assessments. The assessment results showed that the average pretest score for Class A was 60.5 and for Class B was 62.7, while the average posttest scores were 85.7 and 83.7, respectively. Overall, the study reported an increase in the average score from 61.6 to 84.7 following the use of the interactive digital comic. These findings illustrate changes in students' assessment results following the use of the media. However, given that the implementation was conducted without a control group, these score changes cannot be directly attributed to the use of the digital comics.

Evaluation Phase

This step was carried out after obtaining feasibility results from experts and the final results from the distribution of the media to students to observe the effects before and after its use. The researchers welcomed all forms of criticism, suggestions, and feedback, which were later used to revise both the media and the content in accordance with the validators' critiques and

recommendations. For Media Experts 1 and 2, product revisions included adding verses from the Qur'an or Hadith to each story accompanied by audio, adding a navigation menu so readers could explore Heyzine's features, and enhancing interactivity by incorporating supplementary material.

3.2 Data Analysis

Data analysis was derived from expert validation and testing of the interactive digital comic media. First, we will present the analysis of the expert validation data to assess the media's suitability from various aspects.

Table 3. Analysis of Expert Data

Validator	Percentage	Category
Media Expert 1	87,50%	Highly Qualified
Media Expert 2	93,75%	Highly Qualified
Average Media Expert	90,63%	Highly Qualified
Content Expert 1	84,60%	Highly Qualified
Content Expert 2	92,30%	Highly Qualified
Average Subject Matter Expert	88,45%	Highly Qualified
Language expert	92,30%	Highly Qualified
Evaluation expert	93,33%	Highly Qualified

The validation results in Table 3 show that the digital comic received a "highly suitable" rating in all assessment areas based on the criteria used in the study. The average rating from media experts was 90.63%, while the average rating from subject matter experts was 88.45%. The language experts' rating of 92.30% indicates that the language and dialogue are appropriate for eighth-grade students, while the evaluation experts' rating of 93.33% reflects the suitability of the learning evaluation components based on the validators' assessments. However, the validation results do not indicate that the product is entirely free of weaknesses. Feedback from the validators identified several aspects requiring improvement, particularly navigation, audio, the completeness of the history material, and the alignment of test items with the learning objectives.

Table 4. Small-Scale Test

Name	Score Obtained	Maximum Score	Amount	Criteria
APM	69	72	95%	Highly Qualified
AMS	66	72	91%	Highly Qualified
MMPR	57	72	79%	Qualified
TSS	68	72	94%	Highly Qualified
LDP	61	72	84%	Highly Qualified
Total	321	360	89,17%	Highly Qualified

The results of the small-group pilot test shown in Table 4 indicate that the five students gave positive evaluations of the interactive digital comic medium that was developed. Based on a total score of 321 out of a maximum of 360, the user response rate was 89.17%, which falls into the "highly acceptable" category according to the research criteria. These results indicate a positive initial assessment of the media's visual appeal, ease of use, learning content, engagement, and benefits. However, since this pilot test was limited to five students, the findings cannot yet be generalized to a broader user group. Overall, the research results indicate that the interactive digital comic learning medium on the topic of "The Golden Age of the Ayyubid Dynasty" was developed through the five stages of the ADDIE model. Assessments by media experts, subject matter experts, language experts, and evaluation experts indicate that the product falls into the "highly suitable" category based on the research criteria. The results of the small-group pilot test also reveal positive responses from students toward the developed media. However, these findings are still limited to expert suitability assessments and initial user responses; therefore, they cannot yet be used to conclude the media's effectiveness on student learning outcomes.

DISCUSSION

The results of the needs analysis indicate that the teaching of Islamic Cultural History (Sejarah Kebudayaan Islam: SKI) is still dominated by the use of worksheets, while the use of digital media has not yet been optimized. This situation highlights the need for alternative media capable of presenting historical events in a more contextual manner. Noer et al. (2025) examined the use of worksheets in history instruction, while Hutami et al. (2021) demonstrated the relevance of comics as a medium for teaching SKI. However, the use of worksheets is not the direct cause of learning limitations, as their quality is also influenced by teaching strategies. Therefore, digital comics were developed as a complementary medium to enrich the presentation of historical material. This need underpins the use of a narrative approach in the design of digital comics. The narrative approach is realized through a time-travel story that connects present-day life with the history of the Ayyubid Dynasty. Dialogue and interactions among characters are used to present historical information in a coherent and contextual manner. Fahlevi & Sayekti (2023) emphasize the relevance of storytelling methods in SKI learning, particularly through storytelling activities. Meanwhile, Rosita (2021) highlights the potential of digital comics as an interactive medium in SKI learning. In this study, the narrative approach has the potential to help students understand the relationships between characters and events, although its impact has not yet been specifically tested. This narrative presentation is further enhanced through the integration of illustrations, audio, navigation, and interactive quizzes.

Multimedia integration in digital comics is achieved through illustrations, audio, navigation, and interactive quizzes. The combination of text and visuals allows historical material to be presented through complementary representations. This principle aligns with Mayer's multimedia learning theory, which emphasizes the importance of organizing verbal and visual information in the learning process. Rosita (2021) research also demonstrates the potential of digital comics as an interactive medium for SKI learning. Meanwhile, the use of Heyzine and Wayground provides access to supplementary materials and digital assessment activities. This integration highlights the importance of a systematic development process to ensure that every media component aligns with learning objectives. Systematic media development is carried out using the ADDIE model, which links needs analysis, design, production, implementation, and evaluation. Each stage provides a basis for decision-making in producing a product that meets learning needs. Molenda (2003) describes ADDIE as an instructional design framework involving a continuous process of development and evaluation. In this study, the results of the needs analysis served as the basis for designing the comics, while expert validation was used to refine the product. This process demonstrates that the quality of educational media is determined not only by visual appeal but also by the appropriateness of the content, language, and assessment components. Therefore, the suitability of digital comics must be assessed through expert reviews from various fields of expertise. The validation results indicate that the digital comic was categorized as "highly suitable" based on expert evaluations of media, content, language, and assessment. These evaluations reflect the product's quality in terms of visual aspects, accuracy of content, readability, and the appropriateness of the learning assessment. Jannah & Reinita (2023) utilized media, content, and language validation to assess the quality of digital comics in learning. In line with this, Safitri & Asih (2023) reported on the suitability of digital comics based on expert evaluations of media, content, and language.

Thus, a product's suitability should be understood as the result of an assessment of various learning components, not merely a high overall score. These evaluations also serve as the basis for identifying components that require improvement before the product is used. Product improvements are made based on validators' feedback regarding navigation, audio, historical content, and assessment tools. Refinements to navigation and audio are aimed at clarifying access and the presentation of information within the digital comics. Meanwhile, verification of historical chronology and adjustments to dialogue are necessary to maintain the accuracy and relevance of the

learning content. Hutami et al. (2021) indicate that the development of comics for SKI instruction must consider the alignment of the medium with learning objectives. In line with this, Jannah & Reinita (2023) highlight expert evaluation as a crucial component in ensuring the validity of digital comics. After the revision process, product evaluation continues by examining the initial responses of students as media users. Initial student responses indicated that digital comics received a positive rating of 89.17% in a small-group pilot study. These ratings covered visual appeal, ease of use, content, engagement, and the benefits of the medium. A study by Annisa & Rustini (2023) identified the potential of interactive digital comics to support learning motivation. Meanwhile, a literature review Sutomo & Kusmaryono (2025) outlines the potential of digital comics in supporting independent learning and critical thinking. However, the participation of only five students is insufficient to indicate broad acceptance of the product. Therefore, these initial responses must be interpreted while considering the study's limitations and the characteristics of media usage. Research limitations include the small number of participants in the initial pilot test and the product's continued reliance on an internet connection. Additionally, the audio feature does not yet allow for continuous playback when users navigate between comic pages. These conditions highlight the need to improve the media's accessibility and ease of use. Although the product was rated as "highly suitable," the results of expert validation and user feedback have not yet proven its effectiveness in terms of learning outcomes. Future research should involve a broader user group and employ an appropriate evaluation design to test the impact on learning. Thus, the development of this digital comic provides a foundation for refining the medium and conducting further testing in SKI learning.

4. CONCLUSION

This study produced an interactive digital comic learning resource on the topic of "The Golden Age of the Ayyubid Dynasty" for eighth-grade students at MTs Miftahul Ulum in Kediri City, developed through the five stages of the ADDIE model. The product was developed as a digital flipbook that integrates illustrations, historical narration, dialogues between characters, supporting audio, navigation, and interactive quizzes. Validation results showed that the medium was categorized as "highly feasible" based on expert assessments of the medium, content, language, and evaluation. A small-group pilot test also revealed positive responses from five students, with an evaluation rating of 89.17%. These findings indicate that the digital comic meets the feasibility criteria used in this study and has the potential to serve as an alternative learning medium for SKI. This study was limited to evaluating the product's suitability through expert validation and the initial responses of five students; therefore, the results cannot yet be generalized or used to draw conclusions about learning effectiveness. Additionally, the use of this medium still depends on an internet connection and has limitations regarding audio functionality across pages. Future research should involve a broader user base, improve the medium's accessibility, and test its effectiveness through appropriate research designs and instruments.

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