

## DEVELOPMENT OF E-MAGAZINE ON SUNAN AMPEL RELIGIOUS TOURISM THEME ON THE MATERIALS OF ELEMENTS, COMPOUNDS, AND MIXTURES

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### Abstract

The purpose of this research is to determine the validity and responses of students towards the E-Magazine learning media themed Religious Tourism of Sunan Ampel on the material of elements, compounds, and mixtures. This research is a type of R&D research with the ADDIE development model. The study was conducted in the even semester of the 2024/2025 academic year at SMP Negeri 4 Surabaya with research subjects from class VIII-A and IX-F. This study uses an instrument in the form of a validation questionnaire for media experts and material experts. The results of the study showed that the media expert assessment had a percentage of 91.67%, and the material expert assessment had a percentage of 88.75%. This result is supported by data on student responses to the e-Magazine themed Religious Tourism of Sunan Ampel with a percentage of 82.36%, categorized as very good. Therefore, the research results show that the e-Magazine on the theme of Religious Tourism of Sunan Ampel, regarding the materials of elements, compounds, and mixtures that were developed, is very valid to be used as a media for learning science and received very good responses from the students.

**Keywords:** E-Magazine, Sunan Ampel Religious Tourism, elements compounds and mixtures.

### INTRODUCTION

Education is a conscious, planned effort undertaken by educators and students to create an atmosphere of learning and instruction. The intended definition of learning is the process of interaction or continuous activity to create learning activities carried out by educators and students [1]. Learning between educators and students can be conducted online or offline. Educators are known as teachers. The teacher's role during learning activities must be to guide and teach students to understand all the subjects being taught [2]. One of the compulsory subjects taught at junior high and Islamic junior high schools is science. Science stands for Natural Sciences, which is the science that studies, explains, and deepens understanding of concepts related to natural phenomena in all their aspects [2]. Based on the results of an interview with a science teacher in Surabaya, the science teacher said that science subjects were considered difficult because students did not understand the concepts, abstracts, and symbols in reading and visualizing information on a science

problem, especially on the material of elements, compounds, and mixtures.

Elements, compounds, and mixtures are among the topics taught in science. This material discusses the characteristics and grouping patterns of matter in the context of everyday life. This material is considered difficult because it contains explanations of abstract, symbolic, and conceptual concepts of symbols and element configurations that require students to read and visualize information about elements, compounds, and mixtures [3]. This was reinforced by pre-research with interviews at one of the junior high schools in Surabaya which showed that science teachers said that students found it difficult to learn about elements, compounds, and mixtures because the use of chemical symbols (C for carbon, Ca for calcium) and molecular formulas ( $\text{CaCO}_3$  for calcium carbonate) are examples of symbols in the material on elements and compounds so that students need to read and visualize the information on the material. Furthermore, the questionnaire results showed that 62.5% of students experienced difficulties with elements, compounds, and

mixtures. This is because if the material is presented to students without contextual learning, students may find it difficult to learn and are at risk of developing misconceptions [4]. Therefore, from these problems, a new innovation is needed for students to understand the material, including by applying or linking local wisdom in student learning contextually.

There's a wealth of local wisdom that can be incorporated into learning, such as the Sunan Ampel Religious Tourism, a historical cultural heritage tourism destination that encompasses local wisdom and embodies the religious character of Indonesian Islamic history, drawing interest from tourists. This tourism destination is located on Jalan Nyamplungan, Surabaya City, East Java Province [5]. This tourist attraction possesses charm and local wisdom, offering educational value for visitors. Furthermore, indicates that the Sunan Ampel Religious Tourism Area can be used as an idea and reference for learning. This is further supported by the results of a student questionnaire, which revealed that 84.38% of students are interested in learning that links the local wisdom of Sunan Ampel Religious Tourism. This explanation suggests the need to develop learning media that connects the local wisdom of Sunan Ampel Religious Tourism, for example, through an e-Magazine.

E-Magazine is a magazine media that contains information and images that are designed digitally or electronically and presented in a simple and attractive way to make it easier to understand the concept. The magazine also contains learning materials that can broaden the horizons of its readers [6]. E-magazines were deemed highly valid and well-received by students. Therefore, innovative learning materials in the form of electronic magazines or e-magazines can enable students to achieve predetermined learning achievement standards, thus supporting teachers in the learning process [7]. In addition, learning materials using e-Magazines integrated into science lessons can make it easier for students to understand science concepts because they are designed to be as attractive as possible, containing detailed material information and displaying images, videos, and quizzes as practice questions

[8]. The results of the student questionnaire revealed that 81.25% of teachers had never taught using e-Magazines in science lessons. Based on this explanation, e-Magazines are suitable for development as a learning medium in science lessons.

Based on the explanation, there are several problems, namely that students still experience difficulties in understanding the material of elements, compounds, and mixtures. Another problem is the lack of innovation in teaching materials related to the theme of Sunan Ampel Religious Tourism which is integrated into science learning, as well as the lack of learning using e-Magazine media. Thus, the researcher decided on a study entitled **“Development of an E-Magazine with the Theme of Sunan Ampel Religious Tourism on the Material of Elements, Compounds, and Mixtures.”**

## METHOD

Based on the introduction that has been described previously, this research method uses the R&D (Research and Development) research type with the ADDIE development model. This research focuses on developing and designing an e-magazine product that integrates Sunan Ampel's Religious Tourism with the topic of elements, compounds, and mixtures. The subjects of this study were eighth and ninth grade students at SMP Negeri 4 Surabaya. This research design adopted the ADDIE development model [9], which consists of the following stages.

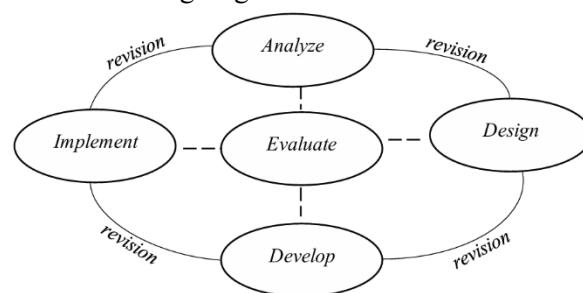


Figure 1. ADDIE Development Model

### a. Analyze Stage

Analysis using the ADDIE model is the first stage in analyzing media development. This stage aims to observe obstacles encountered during learning activities at school

so that appropriate solutions can be found. The analytical aspects required for the ADDIE development model in this study consist of three components: curriculum analysis, student needs, and materials. The methods used in this analysis were interviews and student questionnaires.

A curriculum analysis was conducted to determine the curriculum implemented at SMP Negeri 4 Surabaya. This analysis was conducted through interviews with science teachers. The interviews revealed that SMP Negeri 4 Surabaya uses the Merdeka Belajar curriculum.

A student needs analysis is conducted to determine their needs during science learning activities. This is achieved by distributing questionnaires to students. The results of the student questionnaire in the pre-research in grade IX showed that students needed learning resources other than science textbooks. In addition, students are interested in learning based on local wisdom of Sunan Ampel Religious Tourism and students are also more interested in digital learning media. In addition, students are interested in learning based on local wisdom of Sunan Ampel Religious Tourism and students are also more interested in digital learning media.

Material analysis was conducted to determine an appropriate and suitable theme for the e-magazine development. The e-magazine featured Sunan Ampel Religious Tourism because most students were already familiar with this local wisdom and its direct connection to the surrounding environment, which was linked to the topic of elements, compounds, and mixtures. The material selected was also based on the results of a pre-research questionnaire which indicated that students experienced difficulties in the material on elements, compounds and mixtures.

b. Design Stage

In this design stage, the media is developed and designed according to the analysis stage. The goal of this stage is to design the development of the media being created this stage begins with selecting the software used to create the product design, namely using Canva,

Wordwall, and the Heyzine website. The e-magazine contains several reading materials related to science material, quiz content such as crosswords, along with additional information from sources such as short stories, fairy tales, poetry, rhymes, quizzes, pictures and videos.

c. Develop Stage

The development phase is the next step after designing the e-magazine. At this stage, the e-magazine is validated by two validators: two media experts and two content experts. Media expert validators are selected based on their expertise in the field of digital learning media and their expertise in the field of school science media. Material expert validators are selected based on their expertise in the field of school chemistry material and their expertise in the field of school science material. Product validation is carried out to assess the validity of the product and provide feedback on the media so that improvements to the e-Magazine can be made according to suggestions and input that have been previously provided and then implemented. If the product is declared valid, the e-magazine product trial will proceed. At this stage, a student questionnaire will also be developed as a product trial. The product trial consisted of an individual trial of 3 students in class IX-F and a small group trial of 10 students in class IX-F at SMP Negeri 4 Surabaya which was conducted after validation by material experts and media experts.

d. Implement Stage

The implementation phase was carried out to apply the developed product to research subjects. The subject selection mechanism in this phase used purposive sampling. The e-magazine developed in the development phase was implemented in a large group of 25 students in grade VIII-A at SMP Negeri 4 Surabaya.

e. Evaluate Stage

The evaluation stage is the final step, measuring media quality, determining its impact on improving students' scientific literacy, and eliciting student responses to the media. Formative evaluation is conducted at each development phase, from analysis to implementation. The purpose of formative

evaluation is to identify minor errors in the developed product. Summative evaluation is conducted at the final stage to determine the product's overall validity. Summative evaluation was also carried out at the final stage of implementation, where the evaluation was obtained from the results of the student response questionnaire after the implementation of the E-Magazine with the theme of Sunan Ampel Religious Tourism on the material of elements, compounds, and mixtures

### Research and Development Instruments

The research and development instruments used in this study included instrument validation sheets and student response questionnaires.

#### 1. Media Expert Validation Questionnaire

Media validation is used to test the validity of media. The validation sheet contains statements with scaled answers. The sheet is measured using a Likert scale. The media expert validation sheet outline is presented in Table 1.

Table 1. Media Expert Validation Sheet Grid

No.	Aspect	Criteria
1.	Graphics	a. E-Magazine Size
		b. E-Magazine cover design
		c. E-Magazine content design
2.	Language	a. Use of language that is straightforward, communicative, dialogic, and interactive
		b. Alignment with student development
		c. Alignment with EYD V

Modification [10]

#### 2. Material Expert Validation Questionnaire

The development of an e-magazine with the theme of Sunan Ampel Religious Tourism includes material on elements, compounds, and mixtures related to the local wisdom of Sunan Ampel Religious Tourism. The material included in the e-magazine will be validated by subject matter experts. The validation sheet was used to determine the validity of the content of the e-Magazine. The

sheet was measured using a Likert scale with four options. The outline of the material expert validation sheet is shown in Table 2.

Table 2. Grid of Material Expert Validation Sheet

No.	Aspect	Criteria
1.	Contents	a. Suitability of material with CP
		b. Accuracy of material
		c. Update of material
2.	Presentation	a. Presentation technique
		b. Presentation support
		c. Coherence and sequence of thought flow
3.	Theme	a. The relationship between material and local wisdom
		b. Suitability of material with scientific literacy indicators

Modification [11]

#### 3. Participant Response Questionnaire

The student response questionnaire in this study was used to assess student responses to the media created, namely an e-magazine with the theme of Sunan Ampel Religious Tourism, on the topic of elements, compounds, and mixtures. This questionnaire contained statements with scaled answers. The questionnaire contained both positive and negative statements. Prior to this, the students' responses were validated by a validator. The validation sheet was used to determine the validity of the students' responses. The sheet was measured using a Likert scale with four options. The validation sheet outline is shown in Table 3.

Table 3. Grid of Student Response Questionnaire Validation Sheet

No.	Aspect	Indicator
1.	Instruction	a. Clarity of student response questionnaire instructions b. Completeness of student response questionnaire instructions
2.	Category coverage	a. Clarity of student response questionnaire categories b. Completeness of student response categories
3.	Language	a. The language used is easy to understand b. Clarity of language in each sentence of the student response questionnaire

The grid of the student response questionnaire can be displayed in Table 4.

Table 4. Student Response Questionnaire Grid

No.	Aspect	Criteria
1.	Quality of content and purpose	a. Accuracy b. Completeness c. Interest and attention
2.	Quality of learning	a. Provide learning opportunities b. Can have an impact on students c. Can have an impact on teachers and learning
3.	Technical quality	a. Easy to use b. Display quality
4.	Readability	a. The material presented is easy to understand b. The language used is communicative

Modification [12]

## Data Analysis Techniques

Analytical techniques are methods for processing data into information to generate conclusions. Data analysis was conducted to assess validity, improve scientific literacy, and assess student responses to the Sunan Ampel Religious Tourism e-Magazine. The data analysis techniques used in developing the Sunan Ampel Religious Tourism e-Magazine include.

### a. Validity Analysis

Validity tests in this study included learning tools, e-magazine products, science literacy tests, and student response questionnaires. Validity testing is one step in assessing the content of an instrument. The purpose of validity is to assess the validity of an instrument in a study [13]. The assessment criteria use a Likert scale on the validation sheet. The percentage of validity can be measured using the following formula.

$$PV = \frac{Tse}{Tsh} \times 100\%$$

Modification [14]

Information:

PV : Validity percentage

Tse : The total score is obtained

Tsh : Maximum total score

The percentage criteria for the validity test are shown in Table 5.

Table 5. Percentage Criteria for Validity Test

Percentage	Validity Criteria
$81,25\% \leq PV \leq 100\%$	Very Valid
$62,5\% \leq PV < 81,25\%$	Valid
$43,7\% \leq PV < 62,5\%$	Less Valid
$25\% \leq PV < 43,75\%$	Invalid

Modification [15]

### b. Student Response Questionnaire Analysis

Student responses to the e-Magazine media with the theme of Sunan Ampel Religious Tourism were obtained from a questionnaire submitted to respondents, namely class VIII students of SMP Negeri 4 Surabaya. Analysis of the student response questionnaire was determined by calculating the percentage of students who selected the answers on the questionnaire. The assessment criteria for the

student response questionnaire are presented in Table 6.

Table 6. Assessment Criteria for Student Response Questionnaire

Assessment Criteria	Score on Statements	
	Positive	Negative
Strongly Agree (SA)	5	1
Agree (A)	4	2
Disagree (D)	3	3
Don't Agree (DA)	2	4
Strongly Disagree (SD)	1	5

Source: [16]

The results of the student response questionnaire can be calculated using the following formula.

$$N = \frac{S}{T} \times 100\%$$

Modification of [17]

Information:

PS : Score percentage

S : Score obtained

T : Maximum total score

The percentage results of student responses to the e-Magazine on the theme of Sunan Ampel Religious Tourism are seen based on the determined criteria. The percentage results of student response criteria are as shown in Table 7.

Table 7. Percentage Criteria for Student Responses

Persentase	Kriteria Validitas
$81,25\% \leq PV \leq 100\%$	Very Good
$62,5\% \leq PV < 81,25\%$	Good
$43,7\% \leq PV < 62,5\%$	Not Good
$25\% \leq PV < 43,75\%$	Very Not Good

Modification [15]

## RESULTS AND DISCUSSION

This research is a type of R&D research that aims to develop and design learning media in the form of an e-magazine with the theme of Sunan Ampel Religious Tourism to improve the scientific literacy of educator participants. The materials used are elements, compounds, and mixtures. The e-magazine was developed using the ADDIE model which includes the stages of analyze, design,

develop, implement, and evaluate. The results and data analysis are described in the following explanation.

The analysis stage examines obstacles encountered during learning activities at school to find appropriate solutions. This stage encompasses three types of analysis: curriculum analysis, student needs analysis, and materials analysis. The curriculum analysis was conducted to determine the curriculum used at SMP Negeri 4 Surabaya. The student needs analysis was conducted to identify the problems and needs of students in science learning activities. Meanwhile, the material analysis aims to determine science material that aligns with the themes discussed in the e-Magazine. This analysis phase was based on interviews with science teachers and a student needs questionnaire. The results of the analysis phase are presented in Table 8 below.

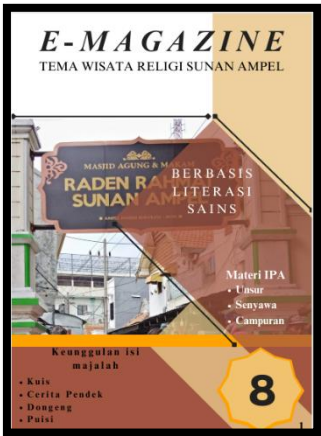

Table 8. Results of the Analysis Stage

Stages	Results
Curriculum Analysis	The curriculum at SMP Negeri 4 Surabaya uses the Merdeka Belajar curriculum.
Student Needs Analysis	<ol style="list-style-type: none"> <li>1. Students need learning resources other than science textbooks.</li> <li>2. Students are interested in local wisdom-based learning in Sunan Ampel Religious Tourism.</li> <li>3. Students are more interested in digital learning media.</li> <li>4. Peserta belum pernah melakukan pembelajaran dengan menggunakan <i>e-Magazine</i>.</li> <li>5. Students need e-Magazine learning materials based on local wisdom of Sunan Ampel Religious Tourism on the material of elements, compounds, and mixtures.</li> </ol>
Material Analysis	The topic discussed was one of Surabaya's local wisdoms, the Sunan Ampel Religious Tourism. Sunan Ampel Religious Tourism was chosen because most students already knew about this local wisdom

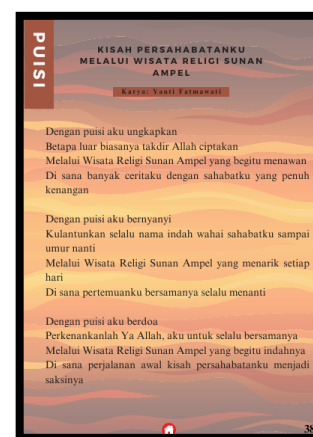
Stages	Results
	and its direct connection to the surrounding environment. The material chosen was also based on the results of a pre-research questionnaire, which indicated that students experienced difficulties with the topic of elements, compounds, and mixtures.

The planning stage begins with selecting the software used to create the product design, namely Canva. The next step is determining the format and components used in the e-magazine. These components include the front cover, editorial, comics, short stories, fairy tales, poetry, rhymes, quizzes, images, and videos. The final stage is to determine the software used to design the quiz, namely wordwall, and the software used to publish the e-Magazine, namely heyzone flipbook. The e-Magazine creation design storyboard is shown in Table 9.

Table 9. E-Magazine Creation Design Storyboard

Stages	Results
Edit the cover, foreword and background using Canva.	
Create media content.	

Stages	Results
	Editing material in magazines using Canva.

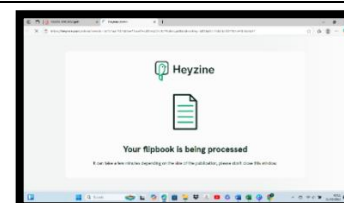


Creating magazine components such as comics and poetry.

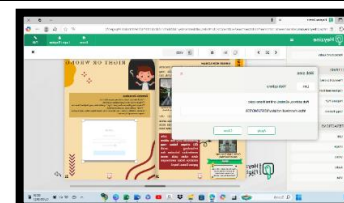
Create a quiz using wordwall software.



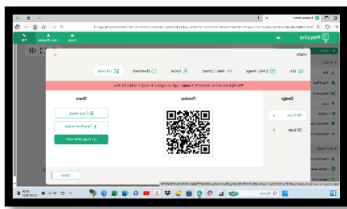
Submit e-magazine PDF files on heyzone flipbook software.



Adding learning videos and quizzes to the Heyzone flipbook software.





Stages	Results
Save e-Magazine and publish using heyzine flipbook software.	

The development stage involves assessing the e-Magazine's validation by validators, namely media and content experts. Product validation by media and content experts aims to assess the validity of the product. This stage also includes developing a questionnaire for validators and students. The final step involves conducting individual trials with three students and small group trials with 10 students, following validation by content and media experts.

In the implementation stage, the e-Magazine application was implemented in teaching and learning activities. This stage was carried out in large groups of 25 students. Learning was carried out for 3 meetings with the STAD type cooperative model. According to research by Yeni et al., (2023) that the STAD type cooperative model was carried out by grouping students heterogeneously with 4 to 5 members in each group. In the learning process, students observed and studied the material using the e-Magazine on the theme of Sunan Ampel Religious Tourism which was accessed via mobile phones (HP). Students were also given worksheets (LKPD) to make it easier for students to complete assignments contained in the e-Magazine.

The first meeting, studying the material of elements where the e-Magazine discusses the definition of elements, examples of elements related to Sunan Ampel Religious Tourism, naming and symbols of elements, and grouping of elements. The Sunan Ampel Religious Tourism Theme E-Magazine also contains 3 practice questions that are done by students in groups in student worksheets (LKPD). Question number 1 discusses the iron that makes up the fence of the Sunan Ampel Mosque, including elements because iron is a pure substance or a single substance that cannot be broken down into other simpler substances through chemical or physical reactions, where iron is a chemical element with the symbol

Fe from the Latin word ferrum. Question number 2 discusses the location of an element group in the periodic table, where iron (Fe) is included in group VIIIB, aluminum (Al) is included in group IIIA, and copper (Cu) is included in group IB. Meanwhile, the last question number 3 discusses the grouping of elements, where iron (Fe) is included in metal elements, hydrogen (H) is included in non-metal elements, and silicon (Si) is included in semi-metal/metalloid elements.

The second meeting, studying compound material where the e-Magazine discusses the definition of compounds, examples of compounds related to Sunan Ampel Religious Tourism, and types of compounds. The Sunan Ampel Religious Tourism Theme E-Magazine also contains 3 practice questions that are done by students in groups in student worksheets (LKPD). Question number 1 discusses Calcium carbonate ( $\text{CaCO}_3$ ) which is a component of the marble floor of the Sunan Ampel Mosque, which is a compound because calcium carbonate ( $\text{CaCO}_3$ ) is composed of two or more different elements that bond or combine through chemical reactions, where calcium carbonate is formed from three different types of chemical elements, namely: Calcium (Ca), Carbon (C), and Oxygen (O) with a fixed ratio and produces a new substance with different properties from its constituent elements, then  $\text{CaCO}_3$  is a compound. Question number 2 discusses the various compounds in the Sunan Ampel Religious Tourism Area which include calcium carbonate ( $\text{CaCO}_3$ ), water ( $\text{H}_2\text{O}$ ), and salt ( $\text{NaCl}$ ). Meanwhile, the last question number 3 discusses the types of compounds, where perfume alcohol ( $\text{C}_2\text{H}_5\text{OH}$ ) is an organic compound and water ( $\text{H}_2\text{O}$ ) is an inorganic compound.

The third meeting, studying the mixture material where the e-Magazine discusses the definition of mixture, types of mixtures associated with Sunan Ampel Religious Tourism, and separation of mixtures. The Sunan Ampel Religious Tourism Theme E-Magazine also contains 3 practice questions that are done by students in groups in student worksheets (LKPD). Question number 1 discusses coconut milk curry maryam Ampel which is a mixture not a compound because it is not formed through a chemical



reaction with a fixed mass ratio, and its components do not chemically bond to form new substances with different properties, then the mixture can also be separated into its components through mixture separation methods such as filtering. Question number 2 discusses the type of mixture, where the coconut milk of gulai maryam ampel is a homogeneous mixture because there is no sediment and the oil chili sauce of gulai maryam ampel is a heterogeneous mixture because there is sediment in the mixture. Meanwhile, the last question number 3 discusses the type of mixture separation, where the mixture of coconut milk and grated coconut uses the filtration mixture separation type and the mixture of chili sauce and oil uses the decantation mixture separation type. After the learning at the end of the meeting, a student response questionnaire was distributed to obtain student responses to the e-Magazine on the theme of Sunan Ampel Religious Tourism. The main objectives in the implementation stage is to ensure that at the end of the learning, students provide responses to the e-Magazine media on the theme of Sunan Ampel Religious Tourism used during the learning.

The ADDIE model has a final stage, namely the evaluation stage. This stage has two forms of evaluation, namely formative and summative evaluation [18]. The implementation of formative evaluation aims to refine the product that has been created according to the suggestions obtained at each stage carried out. Summative evaluation is carried out at the final stage of implementation where the evaluation is obtained from the results of student responses after the implementation of the e-Magazine with the theme of Religious Tourism.

#### 1. Media Validity Test

The analysis of media validity results serves to see the validity of the Sunan Ampel Religious Tourism theme e-Magazine to improve students' scientific literacy. The validators selected as media experts are lecturers from the science education study program as validator 1 and science teachers as validator 2. Validity reviewed from a media perspective includes several aspects, namely graphic aspects and linguistic aspects. The

results of validity reviewed from a media perspective can be seen in Table 10.

Table 10. Media Validity Results

No.	Aspect	Validity	Criteria
1.	Graphics	91,67%	Very Valid
2.	Language	91.67%	Very Valid
Total average		91.67%	Very Valid

In the graphic aspect, both validators gave an average score of 91.67%, representing a very valid criterion. This aspect is supported by one of the indicators that received the highest score of 100%, namely the indicator "the arrangement of layout elements on the front cover is appropriate so as to provide an attractive appearance." Based on the obtained scores, the cover design was successfully developed very well and attractively. This validity value is important for attracting students' interest in reading, that a cover design designed with an attractive appearance can influence reading interest in the media being developed.

In terms of language, both validators also gave a score of 91.67%, meeting the very valid criteria. This score indicates that the e-Magazine is very well developed in terms of communicative, dialogic, interactive, straightforward, and harmonious language use, as well as its conformity to the Enhanced Indonesian Spelling (EYD). That language aspects can influence students' understanding and acceptance of the material.

Based on the media validity data obtained as shown in Table 10, the average total media validity was 91.67%. This indicates that the e-Magazine media with the theme of Sunan Ampel Religious Tourism is highly valid. Valid learning media means that the resulting product is of high quality and suitable for use.

#### 2. Material Validity Test

The analysis of the material validity results serves to assess the level of validity of the material contained in the e-Magazine. The validators selected as material experts are lecturers from the science education study

program as validator 1 and a science teacher as validator 2. Validity reviewed from a material perspective includes several aspects, namely content, material presentation, and theme. The results of validity reviewed from a material perspective can be seen in Table 11.

Table 11. Material Validity Results

No.	Aspect	Validity	Criteria
1.	Contents	87,50%	Very Valid
2.	Presentation of Material	87,50%	Very Valid
3.	Theme	93,75%	Very Valid
<b>Total average</b>		<b>88,75%</b>	<b>Very Valid</b>

The content validity aspect received a score of 87.50%, a very valid criterion. This shows that in terms of the material's up-to-dateness, the suitability of the material with learning outcomes, and the accuracy of the material in the e-Magazine learning media are included in the very valid category. In the e-Magazine with the theme of Sunan Ampel Religious Tourism, the material on the chapter on elements is presented with the first sub-chapter regarding the definition of elements, then continued with the chapter on various elements, along with the closing chapter of the chapter on elements, namely the differences between metal, non-metal, and metalloid elements, which shows that the content validity aspect is valid with an indicator of the suitability of the material with learning outcomes. That delivering material that connects scientific concepts can facilitate students in the learning process.

The material presentation aspect received a score of 87.50% for the very valid criteria. From this, it can be seen that the completeness and coherence of the flow of thought, presentation techniques, and supporting presentation of the e-Magazine are included in the very valid category. In the e-Magazine with the theme of Sunan Ampel Religious Tourism, complete material on elements, compounds, mixtures, and separation of mixtures is presented with a very coherent

flow, which indicates that the material presentation aspect is valid in terms of completeness and coherence of the flow of thought. That good material presentation can facilitate answering questions and measure understanding of the material presented.

In the theme aspect, the average result was 93.75%. These results indicate that in terms of the relevance of the material to local wisdom and the suitability of the material with the indicators of scientific literacy, the e-Magazine is considered very valid. In the e-Magazine with the theme of Sunan Ampel Religious Tourism, complete material on elements, compounds, and mixtures is presented which is related to the local wisdom of Sunan Ampel Religious Tourism and then activities are also given which are related to the indicators of scientific literacy, which shows that the theme aspect is valid with the relevance of the material to local wisdom and the suitability of the material with the indicators of scientific literacy. That one of the influential methods to encourage students' interest in reading is by utilizing learning media that is related to local wisdom.

The results of the analysis of the validation data of each aspect of the material in the e-Magazine with the theme of Sunan Ampel Religious Tourism obtained a value of 88.75% of the very valid criteria. From the results obtained in Table 11, the validity of the material aspects in the e-Magazine with the theme of Sunan Ampel Religious Tourism is very valid, making it easier for students to gain knowledge and understanding of the material of elements, compounds and mixtures. In accordance with Jean Piaget's cognitivism theory regarding the cognitive development of students, namely students gain knowledge and understanding through the material presented in the e-Magazine [19].

### 3. Results and Analysis of Student Response Questionnaire Data

Student responses were tested using a questionnaire validated by validators and proven valid. This questionnaire was administered after learning activities using the Sunan Ampel Religious Tourism e-magazine. A

Likert scale was used to measure the questionnaire response data.

The individual trial stage was conducted in class IX-F with 3 students and the small group trial stage was conducted in class IX-F with 10 students. The next stage was the large group implementation stage in class VIII-A with 25 students. The following results of the student response questionnaire at the implementation stage are shown in Table 12.

Table 12. Results of the Student Response Questionnaire for the Large Group Test

No.	Aspect	Large Group Test	
		Percentage	Criteria
1.	Quality of content and purpose	80,67%	Good
2.	Quality of learning	84,13%	Very Good
3.	Technical quality	83,40%	Very Good
4.	Readability	81,20%	Good
<b>Total Average</b>		<b>82,36%</b>	<b>Very Good</b>

The student response questionnaire assessed 4 aspects, namely the quality of content and objectives, learning quality, technical quality, and readability. Each indicator has positive and negative statements. The first aspect, namely “quality of content and objectives,” received a percentage of 80.67% of good criteria. These results explain that students are interested in reading the e-Magazine on the theme of Sunan Ampel Religious Tourism to improve students' scientific literacy because it is equipped with materials, quizzes, short stories, and poetry. The completeness of components in an e-Magazine that is in accordance with the format of compiling a magazine will produce media with good content quality and objectives for students to read.

The second aspect, namely “learning quality,” obtained an average percentage of 84.13% with very good criteria. These results explain that by using the e-Magazine with the theme of Sunan Ampel Religious Tourism to improve students' scientific literacy, it can have an impact on students to learn local wisdom

through e-Magazine by containing the relationship between original science (Sunan Ampel Religious Tourism) and scientific science, so that students feel that the e-Magazine is useful. Utilizing learning media based on local wisdom, it will have a significant impact on students' experiences in the teaching and learning process.

The third aspect, “technical quality,” achieved a very good score of 83.40%. These results indicate that students were interested in reading the Sunan Ampel Religious Tourism e-magazine to improve their scientific literacy. This is because the e-magazine is easy to access and the images are not blurry. Easily accessible media and clear images in learning media can influence students' reading and learning interests.

The fourth aspect, “readability,” achieved a good score of 81.20%. These results demonstrate that students easily understood the content of the Sunan Ampel Religious Tourism e-Magazine, designed to improve scientific literacy. This is due to the communicative language used in the e-Magazine, which presented the material easily. Learning media using communicative language positively impacts students' interest and understanding of the material.

Based on the results that have been discussed, at the implementation stage of the large group for the e-Magazine with the theme of Sunan Ampel Religious Tourism, it was 84.32%, which shows that the level of student response to the e-Magazine with the theme of Sunan Ampel Religious Tourism was included in the very good criteria. This indicates that the e-magazine on Sunan Ampel's Religious Tourism theme was well-received by students as a learning aid. Students must be provided with stimuli such as learning media to facilitate a response, specifically understanding the material contained in the media.

Suggestions that can be given regarding the development of an E-Magazine with the theme of Sunan Ampel Religious Tourism on the material of elements, compounds and mixtures, namely the E-Magazine can be equipped with a feature that provides an answer column to answer questions

directly on the E-Magazine. When collecting data, pay attention to the allocation of time so that the implementation and filling out of the questionnaire can run according to plan. The E-Magazine in this study was developed using flipbook creator software that can only be accessed online, so it is hoped that for further development research, software that can be used offline can also be selected if there are internet network constraints.

## CONCLUSION

Overall, it can be concluded that the validity results reviewed from the media aspect obtained a percentage of 91.67% with very valid criteria and reviewed from the material aspect obtained a percentage of 88.75% with very valid criteria. Students' responses to the e-Magazine with the theme of Sunan Ampel Religious Tourism on the material of elements, compounds, and mixtures obtained an average value of 82.36% with very good criteria. The conclusion of the study shows that the e-Magazine with the theme of Sunan Ampel Religious Tourism that was developed is very valid to be used as a science learning medium and received a very good response from students.

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