

The Development of Spring Encyclopedia in Klaten as Social Studies Learning Media for Middle and Islamic Middle School students

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ABSTRACT

The research and development were carried out at Islamic Middle school 5 Klaten. The school has never used the surrounding environment as a learning resource and has not had a learning media such as an encyclopedia for social studies learning activities in the classroom. The research and development aimed to develop and determine the feasibility level of the spring encyclopedia in Klaten Regency as social studies learning media for students of Islamic Middle school 5 Klaten. The research was conducted using the ADDIE development model. The data collection instrument used a questionnaire as a validation sheet. The validation sheet was intended to material experts, media experts, two social studies subject educators who became the validator team, and product trials for 14 students at 8th grade students of Islamic Middle school 5 Klaten. The validation sheet was useful to determine the feasibility level of the spring encyclopedia in Klaten Regency. Data were analyzed using a stratified scale for product assessment and a Guttman scale for product trials. The feasibility assessment of encyclopedia products by material experts was 82.22%, media experts were 85%, two social studies educators were 97.18%, and product trials are 98.01%. Based on this assessment, the product of the spring encyclopedia in Klaten Regency was very feasible to be used as social studies learning media for middle or Islamic middle school students.

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Keywords: *Development, Encyclopedia, Spring, Media, Suitable.*

1. INTRODUCTION

Social studies subjects are a combination of various sections of the social sciences such as geography, economics, sociology, history, law, politics, and culture which are connected with aspects of students' real life. One of the methods to juxtapose students with objective reality in their lives is the provision of learning media that can bring students to learn anything directly with everyday phenomena. This can be done by utilizing the surrounding environment as a source of learning [8]. One of the efforts that can be implemented to utilize the surrounding environment as a learning resource is to

bring sources from the surrounding environment into the classroom. This can be done by choosing speakers, products, designs, and selected collections into the class [13]

Learning media is a matter that must be used in learning activities. The use of learning media has an important contribution in learning activities [23]. Educators must be good at determining appropriate media with the plans to be conveyed and can help in achieving the success of learning activities [7]. Based on the results of an interview with one of the social studies subject educators at Islamic middle school 5 Klaten, it is

known that social studies teachers only carry out learning activities in class by referring to the workbook and textbooks. The learning process of social studies subjects in the classroom is focused on the teacher as the main source of knowledge (teacher center). The social studies teacher feels that students' interest in social studies subjects is still considered low. So, the result of the condition is less than optimal of the learning outcomes.

One of the alternative interesting learning media and easy to understand in helping achieve learning objectives is an encyclopedia. The encyclopedia is organized into several articles with one review theme in each article arranged by alphabetically, category, and volume of publication [22]. The encyclopedia is equipped with various pictures to make the encyclopedia more interesting [9]. Encyclopedias provide descriptions that can raise or increase students' interest in the stages of learning activities [10]. Encyclopedias that are used as learning media can increase the interest and motivation to study their contents, because readers will get a variety of new information related to something [6]. Islamic middle school 5 Klaten does not yet have a learning media like an encyclopedia for social studies learning activities in the classroom.

Spring is a term in Javanese which means a spring that has many benefits for living things. The social studies teacher at Islamic middle school 5 Klaten admits that there are various kinds of spring scattered in several sub-districts in Klaten Regency. Spring is a unique and good environment to be used as a learning resource. So, it attracts students' interest in learning. Based on the results of pre-research questionnaire at 8th grade of class A students of Islamic middle school 5 Klaten, it is known that students' knowledge about the characteristics of Klaten Regency area and especially about the various kinds of spring spread across several sub-districts in Klaten Regency is still very low. There needs to be an effort to increase understanding and knowledge about it. It is also useful to help students recognize the unique characteristics of the surrounding environment.

Klaten Regency has various kinds of springs spread over several sub-districts with different characteristics. There are many springs in Klaten Regency because some areas of Klaten Regency are located on the slopes of Mount Merapi and most of Klaten Regency is lowland [15]. Springs are often used for therapy, improve economic and social welfare [5]. Springs scattered in several sub-districts in Klaten Regency have water discharge from 5 to 1850 liters per second [20]. Springs in Klaten Regency has clear and fresh water as well. Trees and rocks make the springs feel more natural and cooler. Trees can improve health and social well-being by reducing air pollution, reducing stress, and

promoting physical activity [21]. Spring is used as a public bathing place (springs water tourism), releasing fatigue from routine activities, and as an interesting photo spot with a nature theme. Springs water tourism in Klaten Regency has a lot of uniqueness and affordable prices. This makes water tourism in Klaten Regency more and more popular and makes the visitors interested to come in.

Based on this description, studying about springs in Klaten Regency through encyclopedias can add insight, increase students' reading interest, and alternative learning media for students. Utilization of visual aids such as pictures can increase students' interest in reading texts [24]. Therefore, it is necessary to conduct research and development with the title "The Development of the Springs Encyclopedia as Social Studies Learning Media for Middle and Islamic Middle School Students".

Product Specifications Developed



Figure 1 Developed Products

The goods that are realized from the research and development carried out are an encyclopedia using the following details.

- 1) Goods that developed as learning media is an encyclopedia with springs substance in Klaten Regency.
- 2) The encyclopedia of springs in Klaten Regency is arranged in print media with A5 size (148 mm × 210 mm).
- 3) The encyclopedia contains of brief explanation material of the characteristics of the Klaten Regency area, the origin of the formation of the spring, illustrations or pictures of the spring, the name of the spring, the opening sentence related to the described of the spring, the sketch of the spring, a description of the location of the spring, a description of the characteristics of the spring, and potential description of the spring.

- 4) The spring in Klaten Regency in the encyclopedia that developed are divided into 17 springs, those are: Ponggok Springs, Manten Springs, Besuki Springs, Pelem Springs, Cokro Springs, Gedaren Springs, Nilo Springs, Sigedang Springs, Kapilaler Springs, Pluneng Springs, Brintik Springs, Sibirarak Springs, Geneng Springs, Susuhan Springs, Brondong Springs, Jolotundo Springs, and Lumban Tirta Springs.
- 5) The systematics in writing spring encyclopedia in Klaten Regency, such as: cover, editor's name, foreword, table of contents, encyclopedia contents or materials, bibliography, glossary, index, and author's biography.

1.1. Development Assumption

The development assumption of the research carried out is the resulting of encyclopedia that can be used by educators and students as alternative learning media. The research was carried out using the Research and Development (R & D) method with the aim of producing an item of spring encyclopedia in Klaten Regency. The development version used is the ADDIE Model development version. The development steps are analysis, design, development, implementation, and evaluation.

An encyclopedia product validation is handled by a group of validators that consists of one material expert, one media expert, and two social studies educators at the middle or Islamic middle school. The product trials on a small scale are carried out to obtain student responses regarding the feasibility of the spring encyclopedia product in Klaten Regency which is realized as learning media.

2. RESEARCH METHOD

The research was carried out using research and development methods with the aim of realizing a spring encyclopedia product in Klaten Regency as social studies learning media. The development model in the research conducted was in the form of the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation).

The development procedures in the research, as follow:

2.1. Product Development

The steps of development design in the research conducted referring to ADDIE model, such as:

2.1.1. Analysis

The potential of the research conducted was to develop the spring encyclopedia in Klaten Regency to

become social studies learning media for students. This development potential intended to solve problems of the low student interest in learning in social studies subjects, low knowledge of students about the characteristics of the Klaten Regency area, and low student knowledge about various kinds of spring in Klaten Regency. So, the students could recognize the unique characteristics of the surrounding environment. One of the basic competencies contained in social studies subjects at grade 8th was the potential of natural resources (types of resources, distribution on the land and the sea).

2.1.2. Design

The design of development carried out was collecting references or reference materials, taking supporting pictures, and determining software in making the product.

2.1.3. Development

Product creation started by working on the framework of the encyclopedia.

2.1.4. Implementation

Validation was carried out by one material expert, one media expert, and two social studies educators. The validator team provides assessments, criticisms, and suggestions were used as revision material.

2.1.5. Evaluation

After repairing the product in accordance with the revision given by the validator team, then the product was tested on a small scale.

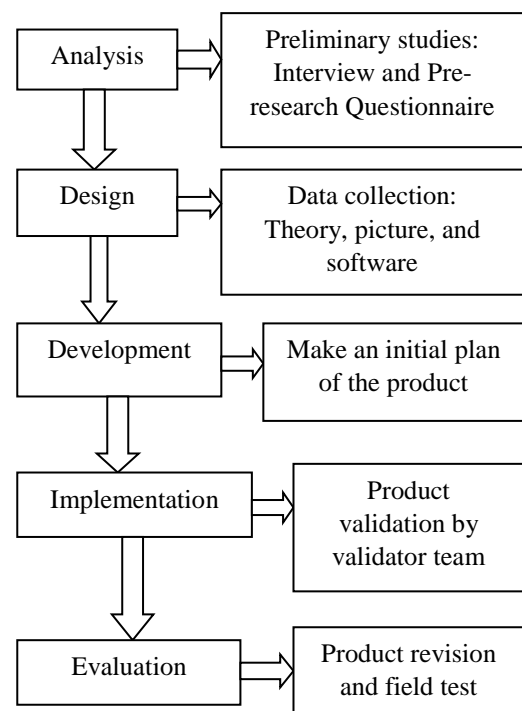


Figure 2 The research flowchart [19]

2.2. Product Assessment and Trial

2.2.1. Experimental design

Product trials were carried out with small-scale trials. The stages carried out by researchers when carrying out product assessments by the validator team and product trials on a small scale were guided by research [2] with the following procedures: a) explaining to the validator team and students the intention and implementing product assessments and product trials, b) explain the contents of spring encyclopedia in Klaten Regency and an assessment questionnaire addressed to the validator team and students, c) the validator team and students read the encyclopedia of spring in Klaten Regency that has been developed, then give an assessment on the prepared questionnaire sheet, d) researcher analyzed the results of questionnaires from the validator team and students, and e) researcher obtained the results of assessments and product trials in verification form by the validator team and student responses regarding the feasibility of the spring encyclopedia in Klaten Regency.

2.2.2. Experimental subjects

The experimental subjects in product assessment were one material expert, one media expert, and two social studies educators. The validator team provides assessments, criticisms, and suggestions were used as revision material. The experimental subjects in the product trial were students at 8th grade class A of Islamic middle school 5 Klaten who were selected using a purposive sampling technique.

2.2.3. Data type

The type of data in the assessment and product trial was quantitative data obtained from the results of verification questionnaires by the validator team and student response questionnaires regarding the feasibility of the encyclopedia product that has been developed.

2.2.4. Data collection techniques and instruments

Data collection techniques in the assessment and product trial were using a questionnaire. The types of questions in the questionnaire used were closed questions.

2.2.5. Data analysis techniques

The data analysis technique of the verification instrument by the validator team used a graded scale, while the verification of student responses used the

Guttman scale. The assessment was taken from the material or content, language, presentation, and media design. The data used in the assessment questionnaire was a statement symbolized by the number [3].

Table 1. Assessment Criteria [4]

Symbol	Assessment criteria
1	Very Less
2	Not Enough
3	Enough
4	Good
5	Very good

The data obtained, carried out to find the percentage of encyclopedia eligibility through the formula [1]:

$$Percentage = \frac{Total\ Score}{Maximum\ Score} \times 100\%$$

The percentage categorization of the eligibility level of the spring encyclopedia in Klaten Regency was shown in the following table:

Table 2. Eligibility Criteria [1]

Percentage	Category
0% - 20%	Not Feasible
21% - 40%	Less Worthy
41% - 60%	Decent Enough
61% - 80%	Worthy
81% - 100%	Very Worthy

3. FINDING AND DISCUSSION

3.1. Finding

The researcher carried out a preliminary study to find out the potential and problems. Based on the results of an interview with one of the social studies teachers at Islamic Middle school 5 Klaten, it was found that the social studies teacher only carried out learning activities in the classroom by referring to the worksheets and textbooks. The social studies teacher acknowledged that the various kinds of springs scattered in several sub-districts in Klaten Regency were a unique and good

environment to serve as a learning resource that can attract students' interest in learning. Based on the results of a pre-research questionnaire for 8th grade students class A of Islamic middle school 5 Klaten, it is known that students' knowledge about the characteristics of the Klaten Regency area and in particular about the various kinds of springs spread across several sub-districts of Klaten Regency was still very low.

Based on the results of interviews and pre-research questionnaires, an innovation was needed to create interesting and easy-to-understand learning media. The researcher chose the learning media of an encyclopedia to introduce the characteristics of the Klaten Regency area and about the various kinds of springs scattered in several sub-districts in Klaten Regency to students. It was because Islamic middle school 5 Klaten has never used an encyclopedia as a learning media and there was limited time if the learners have to do learning activities outside the classroom.

3.1.1. Data collection

The data collection step was carried out by collecting reference material related to the characteristics of Klaten Regency area and various kinds of springs scattered in several sub-districts in Klaten Regency. The author also took some pictures directly in the field and adapted to the needs of the material. The software used in the development was Microsoft Word 2010, CorelDraw X7, and ArcGis 10.2.

3.1.2. Product design

Product design begins with the creation of the first draft of the encyclopedia. The first draft consists of front cover and back cover, editor's name, introduction, table of contents, chapter opening, content or material (consisting of: characteristics of the Klaten Regency area, the formation of springs in Klaten Regency, and springs in Klaten Regency), bibliography, glossary, index and author biographies. The aim of the first design was to get the product design concept that developed.

The next step was to create an encyclopedia validation instrument. Validation instruments were used to evaluate the developed encyclopedia. Validation instrument for material experts, media experts, and social studies subject teachers.

3.1.3. Product validation

3.1.3.1. Material expert validation

The assessment of encyclopedia products was based on three aspects of assessment, as follow: the feasibility of content, language, and presentation. The results of the encyclopedia product assessment by material experts

stated that the percentage results of the encyclopedia eligibility were 80% for the content feasibility indicator, 86.67% for the linguistic indicator, and 80% for the presentation indicator. The total score of the percentage of eligibility for encyclopedia products was 82.22%.

3.1.3.2. Media expert validation

Encyclopedia product assessment was based on media design aspects, such as: readability of writing, appropriateness of graphics, color, attractiveness of covers, layouts, illustrations or pictures, quality of books, and printouts. The results of the assessment of encyclopedia products by media experts stated that the total score of the percentage of eligibility for encyclopedia products was 85%.

3.1.3.3. Social Studies teacher validation

The spring encyclopedia product in Klaten Regency was validated by a team of validators, two social studies teachers from Islamic middle school 5 Klaten. The assessment of encyclopedia products was based on four aspects of the assessment, as follows: the feasibility of content, language, presentation, and media design. The results of the assessment of the encyclopedia product by two social studies subject teachers showed that the percentage of encyclopedia eligibility was 96.67% for the content feasibility indicator, 100% for the linguistic indicator, 93.33% for the presentation indicator, and 98.75% for the media design indicator. The total score of the percentage of eligibility for encyclopedia products was 97.18%.

3.1.4. Field test

The field test was carried out to obtain student responses regarding the feasibility of the spring encyclopedia product in Klaten Regency as learning media. The field test was carried out by 14 students at 8th grade class A of Islamic middle school 5 Klaten on November 2nd, 2021. The assessment of the encyclopedia product was based on 3 aspects of assessment, as follow: the material aspect, the display aspect, and the language aspect. The results of the field test showed that the percentage of the feasibility of the spring encyclopedia in Klaten Regency was 98.01%.

3.2. Discussion

The encyclopedia of springs in Klaten Regency has the main topic related to the characteristics of the Klaten Regency area (the explanation given includes the geography and administrative boundaries of the Klaten Regency, topography of the Klaten Regency, geohydrology of the Klaten Regency, geology and geomorphology of the Klaten Regency area), the

formation of springs in Klaten Regency, springs in Klaten Regency (consisting of Besuki spring, Brintik spring, Brondong spring, Cokro spring, Gedaren spring, Geneng spring, Jolotundo spring, Kapilaler spring, Tirta spring, Manten spring, Nilo spring, Pelem spring, Pluneng spring, Ponggok spring, Sibirarak spring, Sigedang spring, and Susuhan spring). The main topic of the spring chapter in Klaten Regency is complemented by a map of the location of the distribution of the springs in Klaten Regency. This is supported by [11], that the use of maps in teaching materials can make it easier for students to understand the material, because maps present material visually and attractively.

The main topic of each spring discussed is the illustration or picture of the spring, the springs' name, the opening sentence related to the spring described, the plan of the spring, description of the location of the spring, description of the characteristics of the spring, and a description of the potential of the spring. This is supported by [18], that the illustrations or pictures in learning can attract students' interest and motivation to learn. The preparation of encyclopedia products is balanced based on certain groupings, so the encyclopedia is easy for students to use. This is supported by [16], that grouping material based on certain classifications make it easier for students to understand diverse material into easy-to-understand groupings.

The completed encyclopedia is then validated by validators' team including material experts, media experts, and two social studies subject educators for middle or Islamic Middle school in order to obtain the feasibility of the developed encyclopedia product. The results of the validation by material experts, media experts, and two social studies subject educators can be observed in the following graph:

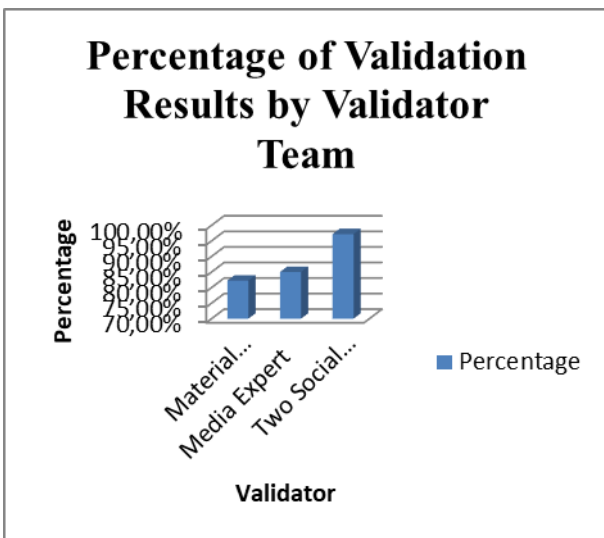


Figure 3 Graph of the Percentage of Validation Results by the Validator Team

Based on the graph, the percentage of validation results by the validator team shows that the spring encyclopedia product in Klaten Regency is in very good category and deserves to be used with revisions according to criticism and suggestions.

The percentage of encyclopedia eligibility based on assessment by material experts is 82.22%. This shows that the content or material provided in encyclopedia products can add new insights, increase students' understanding, arouse curiosity for students, provide easy-to-understand explanations because it uses effective and efficient language, and the material presented is communicative. This is in appropriate with [14], that the feasibility of teaching materials can be used as a source of student learning, so that it can assist in achieving learning objectives. Criticisms and suggestions for improvement from material experts including the name of the supervisor being the 2nd author, names of material experts and media experts have not been filled in, some words are not written correctly, sentences are not typed neatly, opening sentences are still not systematic, and there are no photos of the author's biography and the 2nd author's biography (supervisor).

The percentage of the feasibility level of the encyclopedia product based on assessment by media experts is 85%. This shows that the product of the spring encyclopedia in Klaten Regency has harmonious language and images, both from a parameter point of view or the message to be conveyed. The placement of illustrations and pictures according to each page does not interfere with the clarity of the information. The illustrations or images are in a good quality or clear. The descriptions of the illustrations or pictures are quite clear and in sync. Placement of text and illustrations or images are quite proportional. The illustration on the cover illustrates the discussion of the material. The color on the cover is in harmony with the color in the contents of the encyclopedia and the cover design is attractive or unique. An attractive or unique cover is important for the first sight, so that students are interested in studying or reading the contents of the encyclopedia. This is based on the research [17], an attractive book cover design is an important element in book publications, because it can cause interesting feeling for the first time. Several criticisms and suggestions for improvement from media experts include the incomplete illustrations or pictures of the spring on the cover, the placement of illustrations or images that have not been focused on the discussion, and the layout of the media needs to be improved according to the differences of the chapters.

The percentage of encyclopedia eligibility based on assessments by two social studies subject educators is 97.18%. This showed that the spring encyclopedia product in Klaten Regency can add new knowledge,

increase student understanding, arouse curiosity for students, provide easy explanations to understand because it used effective and efficient language, and the materials presented were communicative. In addition, the product of the spring encyclopedia in Klaten Regency also had harmonious language and images, both from a parameter point of view or the message to be conveyed. The placement of illustrations or pictures on each page did not interfere the clarity of the information contained in the encyclopedia. The image had a good or clear quality. The descriptions of the illustrations were quite clear and appropriate. The placement of text and images was quite proportional. The illustration on the cover illustrated the discussion of the material. The color on the cover was in harmony with the color in the contents of the encyclopedia and the cover design was attractive. An attractive cover was important for the first attraction so that students were interested in studying or reading the contents of the encyclopedia.

The encyclopedia of springs in Klaten Regency which had been validated was tested to 14 students of 8th grade of class A of Islamic Middle school 5 Klaten. The percentage of students' responses to the feasibility of encyclopedia products was 98.01%. It meant that the spring of encyclopedia product in Klaten Regency had easy understood material by the students, because it related to everyday life and the environment around students. In addition, the encyclopedia also used simple and easy sentences to understand, the pictures provided were quite clear and not blurry, the placement of illustrations or pictures did not interfere with the readability of the texts or writings in the encyclopedia, and the appearance of the encyclopedia book was quite good and attractive. It was suitable with the research [12], that the explanation of the material was easy to understand, the components of the cover, content, and cover were interesting, besides being able to motivate students in learning, it also made it easier for educators to improve students' cognitive abilities.

The final result of the development of spring encyclopedia product in Klaten Regency that finished through product validation tested and field tested showed that the developed encyclopedia product had an attractive, light, and useful as a learning media. Overall, the product of the spring encyclopedia in Klaten Regency was sufficient for the assessment toward material, appearance, and language aspects in a very good category. Therefore, the product of the spring encyclopedia in Klaten Regency can be used as a learning media for students.

4. CONCLUSION

Based on the results of the research and development of spring encyclopedia products in Klaten

Regency as a learning media for middle or Islamic Middle school students, it can be concluded:

- a. The research and development carried out by the researcher resulted a product of spring encyclopedia in Klaten Regency which could be used as a learning media for students of middle or Islamic Middle school grade. The development model used was ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation). The development step started with a preliminary study or analysis, product planning or design, product development or development, product validation or implementation, and product revision and field testing or evaluation.
- b. The assessment of the feasibility of encyclopedia products by material experts obtained a total score of 82.22%, media experts obtained a total score of 85%, two social studies subject teachers received a total score of 97.18%, and the assessment in the field test obtained a total score of 97.18%. a score of 98.01%. Based on the assessment, the product of the spring encyclopedia in Klaten Regency was included in the very feasible category to be used as a learning media for middle or Islamic middle school students.
- c. The weaknesses in the research and development carried out were the material provided in the spring encyclopedia in Klaten Regency was only used for social studies subject that was integrated with the environment, field tests were only limited to 14 students at 8th grade class A of Islamic middle school 5 Klaten, and the limitations of taking the spring picture during the covid-19 pandemic.
- d. The next researcher is expected to be able to realize the development of encyclopedia products related to natural resources or the environment by combining modern technology such as Augmented Reality, so the students are more interested in studying the contents of the developed encyclopedia.

THE AUTHOR'S CONTRIBUTION

1. Author 1 is Asna Nur Rachma who contributed as a researcher.
2. Author 2, namely Dr. Puspita Indra Wardhani, S.Pd., M.Sc. who contributed as a supervisor of the research.

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