

# Development of the *Umbul* Encyclopedia in Klaten as Social Studies Learning Media for SMP/MTs Students

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## ABSTRACT

The study and development was based on one of the Klaten Regency's schools, MTs N 5 Klaten. The school has never exploited the surrounding environment as a learning resource, and there is no learning media in the form of an encyclopedia in the classroom for social studies learning activities. The goal of the research and development is to build and understand the level of feasibility of the spring water encyclopedia in Klaten Regency as a social studies learning medium for students of MTs N 5 Klaten. The research comprises both research and development utilizing the ADDIE development approach. A questionnaire as a validation sheet was employed as the data collection instrument. The validation sheet is meant for material experts, media experts, the validator team of two social studies educators, and product testing for 14 students in class VIII A MTs N 5 Klaten. The validation sheet is important for determining the level of practicality of the spring water encyclopedia in Klaten Regency. The collected data was then evaluated using a multilevel scale for product evaluation and a Guttman scale for product testing. Material specialists rate the feasibility of encyclopedia products at 82.22 percent, media experts at 85 percent, social studies educators at 97.18 percent, and product trials at 98.01 percent. Based on this assessment, the result of the Klaten Regency spring water encyclopedia is characterized as very feasible for usage as a social studies learning medium for SMP/MTs students.

**Keywords:** *Development, Encyclopedia, Spring Water, Media, Feasible.*

## 1. INTRODUCTION

The subject matter of social studies is a combination of diverse branches of social science such as geography, economics, sociology, history, law, politics, and culture, which is then applied to students' real-life experiences. Holding learning media that may lead students to study that is closely connected to everyday phenomena is one approach of juxtaposing students with objective reality in their lives. This may be accomplished through making use of the surrounding environment as a source of learning [8]. Raising sources from the surrounding environment into the classroom is one of the activities that may be undertaken to use the outside world as a source of learning [13].

Learning media is a subject that must be employed in educational activities. The implementation of learning media has a significant impact on learning activities [23]. An educator must be skilled in determining the proper medium to use with the message to be delivered and can increase in the effectiveness of learning activities [7]. According to the findings of an interview with one of the social studies subject educators at MTs Negeri 5 Klaten, social studies teachers only conduct learning activities in the classroom using LKS books and textbooks. The method of learning activities in

social studies classes is exclusively centered on the teacher, who is the primary source of knowledge.

An encyclopedia is a fun and easy-to-understand alternative learning resource and can help learning goals. The encyclopedia is divided into various articles, each with one review subject sorted alphabetically, by genre, and by volume of publishing [22]. The encyclopedia is equipped with various images to make the encyclopedia more interesting [9]. Encyclopedias provide descriptions that might stimulate or attract a student's attention in various phases of learning activities [10]. Encyclopedias used as learning medium can boost students' interest and drive to study their contents by providing a wealth of fresh knowledge [6]. For social studies learning activities in the classroom, MTs Negeri 5 Klaten does not yet have a learning material in the form of an encyclopedia.

Spring water is a Javanese phrase that translates to "spring with numerous blessings for living things." The social studies teacher at MTs N 5 Klaten acknowledges that the numerous types of banners distributed across Klaten Regency are a unique and good setting to be used as learning tools that can stimulate students' interest in studying. Based on the results of a pre-research questionnaire administered to class VIII A students at MTs N 5 Klaten, it is known that students'

understanding of the Klaten Regency region, particularly the many types of spring water spread throughout several sub-districts of Klaten Regency, is still quite poor. An attempt should be made to expand awareness and information about it. It is also effective in assisting students in recognizing the distinctive aspects of their environments.

Klaten Regency has a variety of spring water spread among multiple sub-districts, each with unique characteristics. Because certain portions of Klaten Regency are on the slopes of Mount Merapi and the majority of Klaten Regency is lowland, there are several spring water or springs [15]. Springs are frequently utilized for rehabilitation, as well as to improve economic and social well-being [5]. The water output from umbul/springs spread across Klaten Regency ranges from 5 to 1850 liters/second [20]. Spring water in Klaten Regency boasts clean and pure water, as well as trees and rocks that add to the natural and cool atmosphere of the place. Trees can benefit health and social well-being by lowering air pollution, reducing stress, and encouraging physical activity [21]. Apart from being utilized as a public bathing area (air umbul tourism), which is ideal for relieving weariness from normal tasks, the banner also serves as an appealing photo location with a natural theme. Spring water tourism in Klaten Regency is not only recognized for its distinctiveness, but it is also known for being very inexpensive, making water spring water tourism in Klaten Regency increasingly popular and in demand by visitors.

According to this description, studying spring water in Klaten Regency via encyclopedias can provide insight, boost students' reading enthusiasm, and provide as an alternate learning medium for pupils. Students' interest in reading texts can be increased by using visual aids such as images [24]. Therefore, research and development is needed with the title "Development of the Umbul Encyclopedia as Social Science Learning Media for SMP/MTs Students".



**Figure 1** Product Developed

Several things have been realized as a result of research and development in the form of an encyclopedia utilizing the following details:

- 1) In Klaten Regency, goods created in the shape of learning media in the form of an encyclopedia with significant material.
- 2) The Klaten Regency spring water encyclopedia is organized in the form of print media in the A5 format (148mm 210mm).
- 3) The encyclopedia contains material in the form of a brief explanation of the Klaten Regency area's characteristics, the origin of the formation of the spring water in Klaten Regency, illustrations/pictures of the spring water, the name of the spring water, opening sentences related to the spring water explained, the floor plan of the spring water, a description of the spring water's location, a description of the spring water's characteristics, and a description of the penn
- 4) The spring water in Klaten Regency in the developed encyclopedia are divided into 17 spring water, including: Umbul Ponggok, Umbul Manten, Umbul Besuki, Umbul Pelem, Umbul Cokro, Umbul Gedaren, Umbul Nilo, Umbul Sigidang, Umbul Kapilaler, Umbul Pluneng, Umbul Brintik, Umbul Siblarak, Umbul Geneng, Umbul Susuhan, Umbul Brondong, Umbul Jolotundo, dan Umbul Lumban Tirto.
- 5) The cover, editor's name, introduction, table of contents, encyclopedic contents/materials, bibliography, glossary, index, and author's biography are all part of the systematics of writing in the Klaten Regency spring water encyclopedia.

**Development Assumption**

The research's development premise is that the resultant encyclopedia may be used by educators and students as alternative learning material. The research was carried out utilizing the Research and Development (R&D) approach, with the goal of establishing a spring water encyclopedia in Klaten Regency. The ADDIE Model development version was employed in this case. Analysis, design, development, implementation, and evaluation are the development phases.

The validation of Encyclopedia products is overseen by a validator group comprised of 1 material expert, 1 media expert, and 2 social studies educators at the SMP/MTs level. Small-scale product trials were conducted to gather student feedback on the viability of the spring water encyclopedia product in Klaten Regency, which was realized as a learning medium.

**2. RESEARCH METHOD**

The research was conducted out utilizing the research and development process, with the goal of producing a spring water encyclopedia product as a social studies learning medium in Klaten Regency. The development model used in the research was the ADDIE development model (Analysis, Design, Development, Implementation, & Evaluation).

The following development processes were used in the research:

**2.1 Product Development**

The development design in the research carried out refers to the ADDIE model, the steps are as follows:

a) Analysis

The study has the potential to transform the Klaten Regency spring water encyclopedia into a social studies instructional material for students. This development potential aims to reduce problems such as students' lack of interest in learning social studies subjects, as well as students' lack of knowledge about the Klaten Regency area and various types of banners in Klaten Regency, so that students can recognize the unique characteristics of the surrounding environment. The potential of natural resources is one of the fundamental competences covered in social studies courses for class VIII (types of resources, distribution on land and sea).

b) Design

Collecting references or reference materials, obtaining supporting photographs, and deciding software for product manufacturing are all part of the development design.

c) Development

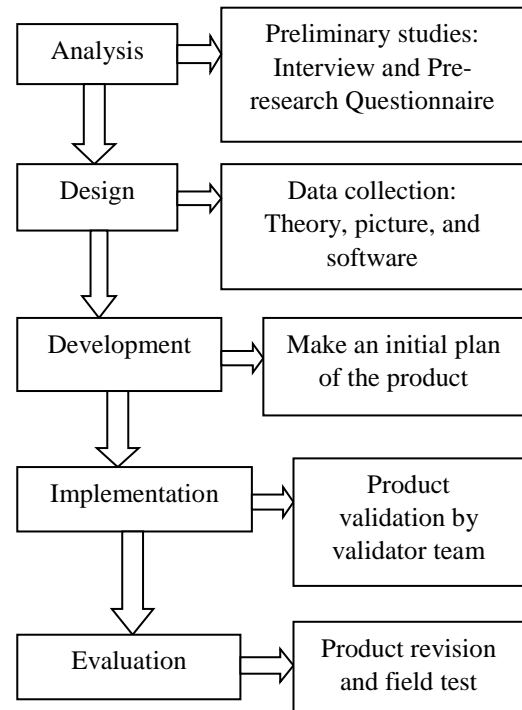
Working on the encyclopedia's original foundation is the first step in product production.

d) Implementation

One material expert, one media specialist, and two social studies educators validated the data. The validator team offers evaluations, comments, and ideas that are utilized as revision material.

e) Evaluation

After repairing the product in line with the validator team's revision, the product is tested on a small scale.



**Figure 2** Research Flowchart [19]

**2.2 Product Rating and Trial**

1) Experiment Design

Small-scale trials are used for product testing. The processes that researchers go through while conducting product evaluations with a team of validators and small-scale product trials led by research [2] with the following procedure: a) explaining the intent and purpose of implementing product assessments and product trials to the validator team and students, b) explaining the contents of the spring water encyclopedia in Klaten Regency as well as an assessment questionnaire addressed to the validator team and students, c) Team validators and students read the developed spring water encyclopedia in Klaten Regency, then provide an assessment on the prepared questionnaire sheet; d) researchers analyze the results of questionnaires from the validator team and students; and e) researchers obtain results of assessments and product trials in the form of verification by the validator team and student responses

regarding the feasibility of the spring water encyclopedia in Klaten Regency.

2) Experiment Subject

One material expert, one media expert, and two social studies educators served as experimental subjects in product evaluation. The validator team offers evaluations, comments, and ideas that are utilized as revision material. The product trial's experimental participants were students from class VIII A MTs Negeri 5 Klaten who were chosen using a purposive sampling technique.

3) Types of Data

The sort of data on the assessment and product trial is quantitative data obtained from the results of the validator team's verification questionnaire and student response questionnaires evaluating the feasibility of the created encyclopedia product.

4) Technique and Instrumen Collecting Data

A questionnaire is a type of data collecting tool that is used in product lists or trials (questionnaires). Closed questions are the sort of questions that were utilized in the questionnaire.

5) Technique Analysis Data

The validator team employed a graded scale to analyze the data from the verification instrument, while the Guttman scale was used to verify student replies. Material/content, language, presentation, and media design are all evaluated. The data in the assessment questionnaire is a statement represented by a 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 gathered is then used to calculate the percentage of encyclopedia eligibility using the formula [1]:

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

The percentage categorization of the eligibility level of the spring water encyclopedia in Klaten Regency is 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. RESULT AND DISCUSSION**

**3.1 Research Result**

The researcher's first step was to conduct a preliminary investigation to determine the potential and difficulties. According to the findings of an interview with one of the social studies teachers at MTs N 5 Klaten, the social studies teacher exclusively carried out classroom learning activities by referring to worksheets and textbooks. The social studies teacher agreed that the numerous types of spring water strewn around Klaten Regency are a one-of-a-kind and ideal atmosphere for serving as a learning resource that may stimulate students' interest in studying.

Based on the findings of interviews and pre-research surveys, an innovative approach is required to generate engaging and simple-to-understand instructional material. The researcher picked learning material in the form of an encyclopedia to teach students to the peculiarities of the Klaten Regency region and the numerous types of spring water spread throughout the sub-districts of Klaten Regency. This is due to the fact that MTs Negeri 5 Klaten has never utilized an encyclopedia as a learning medium, and time is restricted if you have to complete learning activities outside of the classroom.

1) Collecting Data

The data collection process was completed by gathering reference information pertaining to the features of the Klaten Regency region as well as various types of banners spread throughout the Klaten Regency's sub-districts. In addition, the author shot several photos immediately in the field and altered them to the demands of the content. Microsoft Word 2010, CorelDraw X7, and ArcGIS 10.2 were utilized in the creation.

## 2) Product Design

The construction of the first draft of the encyclopedia is the starting point for product design. The first draft has a front and rear cover, editor's name, introduction, table of contents, chapter opening, content/material (including: Klaten Regency region characteristics, spring water development in Klaten Regency, and Klaten Regency spring water), bibliography, glossary, index, and author biographies. The initial design's goal is to be able to locate the produced product design idea.

The following stage is to design an encyclopedia validation instrument. The produced encyclopedia is evaluated using validation tools. The validation tool is designed for subject matter specialists, media experts, and social studies teachers.

## 3) Product Validation

### **Material Expert Validation**

The evaluation of encyclopedia products is based on three criteria: content feasibility, language, and presentation. According to the findings of the encyclopedia product evaluation by material specialists, the encyclopedia eligibility percentage results were 80 percent for the content feasibility indicator, 86.67 percent for the language indicator, and 80 percent for the presentation indicator. The overall score for the proportion of encyclopedic product eligibility is 82.22 percent.

### **Media Expert Validation**

The evaluation of encyclopedia products is based on media design factors such as readability of content, appropriateness of visuals, color, attractiveness of cover, layout, illustrations or photos, book quality, and printed quality. According to the results of media experts' evaluation of encyclopedia products, the overall score of the percentage of eligibility for encyclopedia goods was 85 percent.

### **Social Studies Teacher Validation**

A team of validators, consisting of two social studies teachers from MTs Negeri 5 Klaten, verified the spring water encyclopedia product in Klaten Regency. The evaluation of encyclopedia goods is based on four criteria: content feasibility, language, presentation, and media design. The percentage results of the encyclopedia eligibility were 96.67 percent for the content feasibility indicator, 100 percent for

the linguistic indicator, 93.33 percent for the presentation indicator, and 98.75 percent for the media design indicator, according to the results of the assessment of the encyclopedia product by two social studies subject teachers. The overall score for the proportion of encyclopedic product eligibility is 97.18 percent.

## 4) Field Test

The field test was conducted to get student feedback on the viability of the spring water encyclopedia product as a learning medium in Klaten Regency. On November 2, 2021, 14 students from MTs Negeri 5 Klaten's class VIII A participated in a field exam. The encyclopedia product was evaluated based on three criteria: the material aspect, the presentation aspect, and the language aspect. The field test findings reveal that the feasibility of the spring water encyclopedia in Klaten Regency is 98.01 percent.

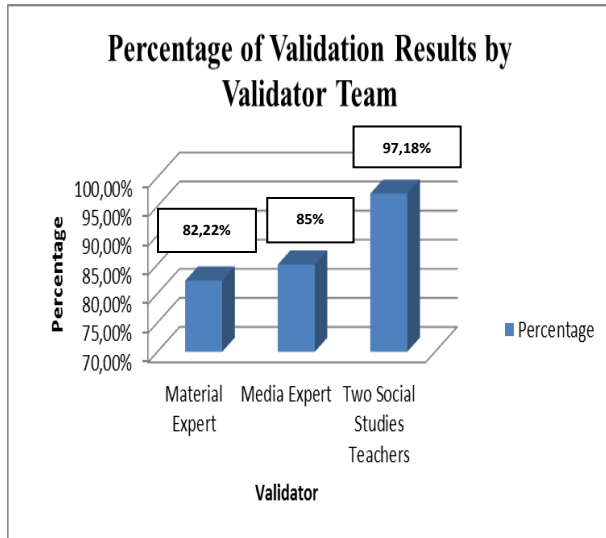
## **3.2 Discussion**

The encyclopedia of banners in Klaten Regency has topics related to the characteristics of the Klaten Regency area (the explanation given includes the geography and administrative boundaries of the Klaten Regency, the topography of the Klaten Regency, the geohydrology of the Klaten Regency, as well as the geology and geomorphology of the Klaten Regency), the formation of the spring water in Klaten Regency, spring water in Klaten Regency (include: Umbul Besuki, Umbul Brintik, Umbul Brondong, Umbul Cokro, Umbul Gedaren, Umbul Geneng, Umbul Jolotundo, Umbul Kapilaler, Umbul Lumban Tirta, Umbul Manten, Umbul Nilo, Umbul Pelem, Umbul Pluneng, Umbul Ponggok, Umbul Sibirarak, Umbul Sigedang, dan Umbul Susuhan). The subject matter of the spring water chapter in Klaten Regency is supplemented by a map showing the spring water distribution in Klaten Regency [11]. It is believed that the use of maps in teaching materials might help students learn the topic more easily since maps can display material visually and pleasantly.

The subject matter of each spring water discussed is an illustration/picture of the spring water, the name of the spring water, the opening sentence related to the spring water described, the spring water's plan, a description of the spring water's location, a description of the spring water's characteristics, and a description of the spring water's potential. This is supported by [18], that the use of images or visuals in learning may stimulate students' attention and motivate them to learn. The development of encyclopedia products is balanced based on certain groups, so that the encyclopedia is

convenient to use for students. This is supported by [16], that grouping content based on particular classifications can help students learn different material by breaking it down into easy-to-understand sections.

The finished encyclopedia is next evaluated by a team of validators comprised of material specialists, media experts, and two social studies subject educators at the SMP/MTs level to determine the practicality of the encyclopedia product under development. The following graph depicts the findings of the validation by material specialists, media experts, and two social studies subject educators:



**Figure 3** Graph of The Percentage of Validation Results by The Validator Team

Based on the graph, the validator team discovered that the assessments from material experts, media experts, and two social studies subject educators showed that the spring water encyclopedia product in Klaten Regency was in the very good category and deserved to be used with revisions based on criticism and suggestions.

Based on a review by material specialists, the proportion of encyclopedia eligibility is 82.22 percent. This demonstrates that the content/material offered in encyclopedia goods may bring fresh insights, boost students' knowledge, stir students' curiosity, and provide simple explanations since it employs effective and efficient language and the information presented is communicative. This is in accordance with [14], that the viability of teaching materials may be used as a source of student learning, so assisting in the achievement of learning objectives. Material experts' criticisms and suggestions for improvement include the supervisor's name as the second author, the names of material experts and media experts that have not been filled in, some words that have not been written correctly, sentences that have not been justified, opening sentences that are still missing, and the author's

biography section. there are no images or biographies of the second author (supervising lecturer).

Based on an assessment by media specialists, the encyclopedia product has an 85 percent feasibility level. This demonstrates that the product of the Klaten Regency spring water encyclopedia has harmonious language and images, whether observed from the point of view of parameters or the mandate to be expressed, the placement of illustrations and images according to each page does not interfere with the clarity of the information contained in the encyclopedia. The illustrations/images are of good/clear quality, the descriptions of the illustrations/images are quite clear and synchronous, the placement of text and illustrations/images is quite proportional, the illustrations on the cover illustrate the discussion of the material, the colors on the cover are in harmony with the colors contained in the encyclopedia's contents, and have an attractive/unique cover design, because an attractive/unique cover is one thing that is desirable. This is in accordance with research [17], that an appealing book cover design is a crucial component in the release of a book since it may produce appealing data the first time. According to media experts, the illustration/picture of the spring water on the cover is still unfinished, the placement of illustrations/pictures is still not focused on the topic, and the arrangement of the media has to be changed based on the variations in the chapters.

Based on examinations by two social studies subject instructors, the proportion of encyclopedia eligibility is 97.18 percent. This demonstrates that the spring water encyclopedia product in Klaten Regency can contribute new knowledge, boost students' comprehension, raise students' curiosity, and give simple explanations since it employs effective and efficient language and the material supplied is communicative. Furthermore, the product of the spring water encyclopedia in Klaten Regency has harmonious language and images, whether observed from the point of view of parameters or the message to be conveyed, the placement of illustrations/pictures according to each page does not interfere with the clarity of the information contained in the encyclopedia, the images have good/clear quality, descriptions of image illustrations are quite clear and appropriate, and the placement of text is quite clear and appropriate. The illustrations on the cover illustrate the discussion of the material, the colors on the cover are in harmony with the colors contained in the encyclopedia's contents, and have an appealing cover design, because an appealing cover is important for the first attraction so that students are interested in studying or reading the contents of the encyclopedia.

The authenticated spring water encyclopedia in Klaten Regency was then tested on 14 students from MTs Negeri 5 Klaten's class VIII A. The percentage of

students that think encyclopedia products are feasible is 98.01 percent. This demonstrates that the spring water encyclopedia product in Klaten Regency has content that students may readily understand since it relates to everyday life and the surroundings around students. Furthermore, the encyclopedia uses simple and easy-to-understand sentences, the images provided are clear and not blurry, the placement of illustrations/images does not interfere with the readability of the encyclopedia's texts/writings, and the appearance of the encyclopedia book is quite good and appealing. This is in accordance with research [12], that an easy-to-understand description of the topic, the components of the cover, content, and an intriguing conclusion, in addition to motivating students to study, also makes it simpler for educators to increase students' cognitive capacities.

The final result of the creation of the spring water encyclopedia product in Klaten Regency, which has gone through product validation testing and field tests, demonstrates that the created encyclopedia product has an appealing look and is light in its usage as a learning medium. Overall, the spring water encyclopedia in Klaten Regency is sufficient to rate the substance, appearance, and language elements with a very excellent category. As a result, the Klaten Regency spring water encyclopedia product may be utilized as a learning medium for students.

#### 4. CONCLUSION

Based on the findings of the study and development of spring water encyclopedia products in Klaten Regency as a learning medium for SMP/MTs students, it is possible to conclude:

- a. The research and development conducted led in a product in the form of a spring water encyclopedia in Klaten Regency that could be utilized as a learning medium for SMP/MTs students. The ADDIE development approach was employed in this project (Analysis, Design, Development, Implementation, and Evaluation). A preliminary study/analysis, product planning/design, product development/development, product validation/implementation, product revision, and field test/evaluation are all part of the development process.
- b. The assessment of the feasibility of the encyclopedia product by material experts received a total score of 82.22 percent, the assessment by media experts received a total score of 85 percent, the assessment by two social studies subject teachers received a total score of 97.18 percent, and the assessment in the field test received a total score of 98.01 percent. Based on this evaluation, the result of

the Klaten Regency spring water encyclopedia is classified as extremely viable for usage as a learning medium for SMP/MTs students.

- c. The weakness in the research and development carried out is the material provided in the spring water encyclopedia in Klaten Regency is only used for social studies subject matter that is integrated with the environment, field tests are only limited to 14 students from class VIII A at MTs Negeri 5 Klaten, and the limitations of taking images of the spring water during the spread of the covid-19 virus.
- d. The next researcher is expected to be able to actualize the creation of encyclopedia products connected to natural resources or the environment through the use of contemporary technology such as Augmented Reality, so that students are more interested in studying the contents of the produced encyclopedia.

#### AUTHOR CONTRIBUTIONS

1. The first Author is Asna Nur Rachma who contributed as a researcher.
2. The second author is Dr. Puspita Indra Wardhani, S.Pd., M.Sc. who contributed as a supervisor in the research conducted.

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