Development of Supplementary Contextual Teaching Materials Based on Ecotourism and Natural Resource Management

A Z Ensiyawatin*, Sumarmi, and I K Astina
1 Postgraduate student, Geography Education Program, State University of Malang, Indonesia
2 Prof., Department of Geography, State University of Malang, Indonesia
3 I KomangAstina Ph.D., Department of Geography, State University of Malang, Indonesia

*ameezuhro@gmail.com

Abstract. Students need teaching materials to support learning. The 2013 curriculum demands students to learn contextually but not supported with sufficient teaching materials. The research purpose was to develop supplementary teaching materials about the distribution of tourism resources, especially ecotourism in Banyuwangi Regency that contains information, images, and understanding of students about ecotourism in Banyuwangi Regency. The study used the R&D method by the Borg and Gall model. Trial for the supplementary book was carried out at The Glenmore High School 1 of second-year students in social class. The results of the study showed that (1) the supplement book produced was very contextual and used as a teaching material supplement for students, especially in Banyuwangi Regency. (2) the supplement book explained the distribution of tourism natural resources in the Banyuwangi Regency. (3) the supplement book explained that ecotourism is the best step in managing natural resources with sustainable principles.

1. Introduction

Education in the 21st century has different challenges from the previous century. The times demand that every human being must have knowledge, skills, and expertise to face the challenges [10]. 21st-century individuals need six abilities to meet future challenges, one of which is the ability to learn contextually [9]. Contextual learning activities connect the subject matter with the circumstances around students and motivate them to apply it.

The application of contextual learning is needed in every subject, including geography. Geography examines natural conditions, human life, and the interaction between nature and humans. The problems that arise in geography must be studied and given the right solutions. The solution must be aligned between science and the real conditions at the location of the problem [2]. Contextual learning is expected to make students more sensitive to environmental issues [7].

The implementation of contextual learning requires learning tools, which is teaching material. Teaching materials are a set of learning tools containing topics, knowledge, methods, limitations, information, and evaluation that systematically arranged by teacher.
and students in the learning process to achieve learning goals and objectives [15] [11] [18] [19]. Teaching materials can be printed books or other learning media [21]. The availability of contextual teaching materials in geography subjects is still limited. The available teaching materials only present material in broad and general. Many geography textbooks have content that is not contextual to the surrounding environment and does not meet student learning needs [4]. It causes students to be less sensitive and less critical of the surrounding environment. Education in schools needs to develop contextual teaching materials with the following criteria: the content must be following the student's situation, provide learning that is relevant to real life, textbooks that are more specific than available on the market, and follow the current curriculum to meet future challenge [16] [5] [6].

The textbook used in high schools in Banyuwangi Regency has a topic of the distribution of tourism natural resources. It discusses the distribution of tourism resources in Indonesia and the classification of natural resources that can be updated and cannot be updated. The discussion is general and less contextual with where the students live. The textbook cannot provide relevant knowledge to the tourism conditions around students. Inappropriate teaching materials can hinder the 2013 Curriculum objectives [23].

Based on an interview with a geography teacher at SMA Negeri (National High School) 1 Glenmore, no book discusses explicitly the distribution of tourism resources, especially ecotourism in the Banyuwangi Regency. The teaching materials are not yet contextual and do not support the 2013 Curriculum objectives, which causes students to lack the understanding of tourism resources and potentials around [13]. The question is supported by the observations at Glenmore High School 1 showed that students are not familiar with ecotourism's tourism resources management. The results showed that students only have about ecotourism's object without knowing the concepts, benefits, and contributions to the community economy and the government of the Banyuwangi Regency.

Based on the problems that have been described, it is necessary to develop a contextual geography textbook as the supplement book to overcome the issues. The supplement book is expected to complement the distribution of tourism resources topic, especially ecotourism in the Banyuwangi Regency, which can provide information, descriptions, and understanding of students about ecotourism in Banyuwangi Regency.

2. Methods
The development research will be produced a supplement book for high school geography subjects about the distribution of ecotourism natural resources in the Banyuwangi Regency. The development model used the Borg and Gall model. Borg and Gall model consist of 10 stages, the 10 steps are described in the following chart [3].

![Diagram of the development stages of the Borg and Gall model](image)

Figure 1. The development stages of the Borg and Gall model
The development research was only carried out until the sixth stage, main field testing, which tests the teaching materials developed in small groups to produce the final product. The researcher prepared primary and secondary data as the content guidelines and instructions for writing teaching materials. It has been validated by material experts and learning experts. Then tests were conducted to the second-year students of National High School Glenmore in social class.

The validation test was carried out by material and learning experts. Experts assessed the supplement book using questionnaires. Product tests were conducted at Glenmore High School to 12 students in social class. The data was collected using questionnaires containing student responses to the presentation, language, topics, and illustrations. The questionnaire and the small group test was used a Likert scale of 1 to 5. The scoring guidelines for the questionnaire are described in Table 1.

| Achievement Criteria | Description |
|----------------------|-------------|
| 81% - 100%           | Very Contextual / Very Helpful | No need for revision |
| 71% - 80%            | Contextual / Helpful | Less revision |
| 61% - 70%            | Fairly Contextual / Fairly Useful | Revision |
| 51% - 60%            | Less Contextual / Less Useful | Fairly Revisions |
| 1% - 50%             | Not Contextual / Not Useful | Can not be used |

Source: Modifications from [1]

The percentage calculation is done with the following formula:

\[
\text{percentage} = \frac{\sum \text{score for all items}}{\sum \text{item x highest weight}} \times 100\%
\]

3. Results and Discussion

3.1. Information Gathering

The information was obtained by interviewing geography teachers and second-year students at Glenmore High School. The textbooks used do not explain tourism resources in Indonesia or tourism in Banyuwangi Regency. Apart from books, there are UKBM (Independent Learning Activity Units) used as assignments for students. In the UKBM, there are content explanations, group assignments, independent assignments, and questions, but it did not explain the distribution and management of natural tourism resources. The material and questions presented are not contextual following the Banyuwangi Regency area. Information about ecotourism is collected by conducting observations and interviews with ecotourism managers, regional stakeholders, and written data about ecotourism carried out in Banyuwangi. The results of observations and interviews are used as a reference for writing the contents of the book.

Planning for supplement product development is carried out by determining the points of ecotourism material that follow the learning objectives of the Natural Resources Management of Tourism, especially in the Banyuwangi Regency. The material developed helps achieve the learning objectives, such as (1) analyzing the potential and distribution
of natural resources in forestry, mining, marine, and tourism in Indonesia, and (2) analyzing the use of natural resources with the principles of sustainable development. The first learning objectives are developed in chapter 1 in the supplement books. The second objective is developed in chapter 2, which discusses ecotourism as a way to utilize natural resources with the principles of sustainable development. Chapter 3 discusses the role of ecotourism in development.

3.2 Product Development

The supplement book developed is organized into three chapters. Chapter 1 contains the wealth of natural and human resources in the Banyuwangi Regency. The chapter describes the location and area of Banyuwangi Regency, and natural and human resources based on the topography of the area, and questions. Chapter 2 discusses ecotourism, an explanation of ecotourism in Indonesia, ecotourism in the Banyuwangi Regency, and ecotourism destinations in the Banyuwangi Regency, and questions. Chapter 3 discusses ecotourism's role in physical, economic, mental and social development, nature and cultural conservation, and issues. The chapter explains that ecotourism development has contributed many benefits to many aspects [25] [26].

The advantages of supplement book products help students understand the differences in regional potential according to the topography of the area. An explanation of ecotourism destination areas in the Banyuwangi Regency is very contextual, and some sections relate to the experiences of students who have visited these ecotourism destinations [24].

In preparing the teaching material supplements, there are restrictions. First, the material developed focuses on tourism resources, especially ecotourism in Banyuwangi Regency. Second, three places for ecotourism were chosen, namely Using Kemiren Tourism Village as an example of a tourist village, Bangsring Underwater as an example of marine tourism, and Alas Purwo National Park as an example of conservation tourism. Ecotourism covers three areas of tourism, namely natural, cultural, and rural tourism. In ecotourism, there are efforts to conserve nature and culture [14]. Indonesia, which is rich in biodiversity, has dozens of conservation areas for flora and fauna. Conservation areas have developed as one of the favorite ecotourism destinations of tourists [12]. Third, the preparation of teaching material supplements is expected to help students understand the material distribution of tourism natural resources and its management with sustainable principles. Indonesia has abundant biodiversity, so it is called mega biodiversity. This diversity is slowly decreasing in number, and some are threatened with extinction. It is necessary to preserve and utilize this diversity as a source of learning geography to anticipate this problem [22].

3.3 Validation Test of Products

The supplement teaching materials are validated by material experts and learning experts. The purpose of validation is to assess the probability of a supplement product before being tested. The validators' assessments are described in table 2.

| Expert     | Value |
|------------|-------|
| Content    | 87%   |
| Learning   | 93%   |
| **Average**| **90%**|
Based on the results, the percentage of assessment from content experts is 87%, and learning experts is 93%. An average of 90% is obtained so that it is categorized as very contextual or very useful and worthy of being tested.

Small-Group Tests

Product trials were carried out in small groups of 12 students in social class at Glenmore High School. The test is to find out student responses about the book. The results are described in Table 3.

| Assessment Subject | Value |
|--------------------|-------|
| Design             | 84%   |
| Language           | 92%   |
| Material           | 93%   |
| Illustration       | 90%   |
| Average            | 90%   |

The result obtained a value of 90%, which is included in the very contextual category. The assessment of students in the presentation section gets a value of 84%. Five things are assessed: the physical appearance of the book, the suitability of the cover design with the contents of the book, a summary to help understand the content of the material, the size, and the type of font spacing makes it easier for the reader.

The language assessment in the book got a score of 92%. Language assessment includes the use of vocabulary and communicative language with readers. The language used to make it easier to understand the material, the effectiveness and efficiency of language, and the main concepts in each paragraph. Supplement books are prepared using language easily understood by high school students to understand the content. Unfamiliar words or terms are explained in the glossary so that students are helped in understanding the international language or terms they are just learned.

The content received the highest score of 93%. Content assessment includes: a systematic presentation of content, actualization of facts or data, understanding of the topic based on facts and data, clarity in describing the content, and student understanding of the material presented. Learning about natural resources is never dull, mainly if it is supported by teaching materials that contain teaching material relevant to the environment and student surroundings [6]. The suitability with the student environment helps students understand the material, makes it easier for students to apply knowledge to the daily lives, strengthens students' memory, and increases students' sense of curiosity [17]. Contextual teaching materials can increase the desire to ask questions and communication skills [20]. Natural resources are always changing all the time. The changes that occur are due to the way humans are used and managed so that natural resource materials are dynamic in times. Contextual teaching materials about natural resources can answer the needs of dynamic teaching materials according to community needs [4].

Contextual learning is needed by students to apply their knowledge or get the benefits of learning. Contextual teaching materials connect students' experiences with the subject, thereby strengthening their memory of the topics [25]. Contextual learning is taught on the potential and distribution of tourism natural resources in the utilization and management of tourism potential using the concept of ecotourism. Ecotourism is very suitable as a solution for sustainable development in Banyuwangi Regency [24].
Ecotourism keeps the preservation of the surrounding environment and makes conservation as part of education. Preservation or conservation was tried to provide understanding to foster concern for nature and the environment [8]. Ecotourism provides an opportunity for the community to get income and maintain the sustainability of its natural tourism resources [12].

The book illustration gets a score of 90%. Illustration assessment includes: suitability of illustrations to content, level of suitability of illustrations to content, illustration functions make it easier for students to remember the topic, illustration functions to help understand the topic, illustrations to attract student learning interest.

4. Conclusions

The development of contextual teaching materials is needed to meet the needs of the 2013 Curriculum's implementation. Contextual teaching materials make it easier for students to understand the subject and apply them in life. The supplement book produced was very contextual and used as a teaching material supplement for students, especially in Banyuwangi Regency. It explained the distribution of tourism natural resources in the Banyuwangi Regency. The supplement book also explained that ecotourism is the best step in managing natural resources with sustainable principles. Furthermore, contextual teaching material supplements can be produced by other researchers by using other content for students to understand the material and conditions around them.

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