

Developing Teaching Material Bajo's Local Wisdom Sea Preservation Thomson-Brooks/Cole Model

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Abstract

This research aims to identify the Bajo's local wisdom in preservation sea and coastal area in the form of teaching material in the Basic Natural Science (BNS) focused on environment preservation. The type of research is research and development. Teaching material is arranged based on the principle and procedures of developing a 4-D model, there are: define, design, develop, and disseminate. Teaching material draft validated by two matter experts, one language experts, and one design expert. Teaching material draft tried to the Language and Literature Education students with 10 people in the small group and 40 people in the large group. The average validation results were 83.73% (very good) and did not need revision. Revised sections: cover, image source, chapter display, and change the unsuitable image. The small group student trials result obtained 80.68% (good) and large groups obtained 82.95% (good). The implication of this research is as an alternative solution to maintain and enhance the local wisdom value of the Bajo's in preserving the sea and coast through teaching materials.

Keywords: Teaching Material, Local Wisdom, Bajo

1. Introduction

Teaching materials include all sources such as data, facts, information on research results, and literature studies. The form of teaching materials in the form of messages, people, materials, tools, techniques, and background or environment. Teaching materials can be used by students to study independently or in combination with classroom learning that makes it easy to achieve course learning outcomes. According to Efendi (2014) for students or students the existence of teaching materials is a guideline in the learning process and is a substance of competence that should be learned. According to Wahyudi et al. (2018) teaching materials are learning resources used in learning activities.

Consideration of the importance of developing teaching materials because it is one element in the process of teaching and learning activities at the College level. Teaching materials can facilitate lecturers in implementing one of the three tri dharma of higher education, namely teaching. Teaching materials can also help students in learning courses. According to Fatma et al. (2017) research material can facilitate students in the knowledge and practice of good things in their daily lives.

Local wisdom is the legacy of the ancestors regarding the values of life that are united in various forms, such as religion, culture, and customs. Local wisdom that is in harmony with the contents of the preservation of the natural environment should be studied and continued. According to Efendi (2014) local wisdom is a core cultural example developed by the indigenous people of Kuta by making the Leuweng Gede sacred forest cause a sustainable environment. According to Amalia et al. (2017) changes in the components of society need to be driven in the form of environmental conservation agencies by one of the ways to give books that give high appreciation to the environment. According to Suardiman (2007) local wisdom is containing positive values in tradition, *petatah*, *petitih*, motto, environmentally friendly order of life, in harmony with nature but much is forgotten by young people.

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The development of teaching materials based on local wisdom is based on constraints in the process of lecturing in the Basic Natural Sciences course in the Indonesian Language and Literature Education Study Program, Faculty of Teacher Training and Education, Sembilanbelas November University Kolaka (USN Kolaka). The obstacle is the lack of teaching materials, especially those that discuss the management of the surrounding community-based environment. Environmental management in the community can be in the form of the values of the local wisdom of the community to preserve the environment. This can create environmental awareness efforts in the form of harmony, harmony, and balance between students and the environment. According to [Indrawini et al. \(2017\)](#) the basis for developing thematic teaching materials for the sub-theme of environmental love is that books used in the classroom learning are not contextual and do not contain real pictures or photographs. According to [Wijiningsih et al. \(2017\)](#) the available teaching materials do not provide a real example around the environment of students being the main foundation for developing thematic teaching materials based on local culture.

Research and information about the local wisdom of the Bajo Tribe in preserving the environment, and its use as teaching material are still limited. Various research results that have been conducted are more directed to the customs and culture of the Bajo people only. Research has not yet led to local wisdom in managing the environment, especially the marine environment. General research is qualitative in nature and is written in a paper, which is still minimal in a book that can be used by students as teaching material. Research [Artanto \(2017\)](#) about the Bajo tribe called *bapongka* is applied to the value of coastal preservation but has not yet been developed into teaching material. Research [Suryanegara et al. \(2015\)](#) qualitatively explains the changes in Bajo ethnic culture that lead to modern and slightly affect the pattern of preservation of their marine environment, containing exposure to changes and not yet outlined in teaching materials. Research [Utina \(2014\)](#) also discusses Bapongka in the village of Bongganan, Banggai District, Central Sulawesi Regency qualitatively and has not been stated in teaching materials.

The specific purpose of this research is to identify the values of the local wisdom of the Bajo Tribe Society in preserving the sea and coast. The purpose of the development is to produce products in the form of teaching materials about marine management based on local wisdom to be used as Basic Natural Sciences (BNS) courses for students of the Indonesian Language and Literature Education Study Program, USN Kolaka. Teaching materials based on local wisdom of the Bajo Tribe for marine management are expected to be a contextual teaching material for students. That is because the Bajo Tribe is a familiar community group for students at USN Kolaka. The Bajo tribe is also not far from students around Southeast Sulawesi. According to [Tanjung & Fahmi \(2015\)](#) developing teaching materials based on local wisdom to understand the culture of the environment around students and make them able to identify according to the environment and territories around the place of residence. According to [Widyasari et al. \(2018\)](#) BNS teaching materials really need to be developed because it is a compulsory subject, in this case, developed for lectures.

Research and development of BNS teaching materials, especially environmental material, is important as an effort to improve students' knowledge, attitudes, and behavior. This research is expected to be able to meet the needs of contextual teaching materials and in accordance with the learning needs of students. The existence of teaching materials based on local wisdom, learning activities become more meaningful because they can be applied in daily life, especially in overcoming environmental problems. In addition, students get knowledge about the values of local wisdom in the community, especially in terms of marine management, so that it can be used as learning in daily life. In addition, providing input for students about the importance of environmental preservation stemming from the local wisdom values of the Bajo people. According to [Suastra et al. \(2017\)](#) learning with local wisdom can improve good character for students in terms of exploration, attention, elaboration, and confirmation in learning material. According to [Harianto et al. \(2019\)](#) and [Sukariasih et al. \(2019\)](#) the contextual learning that developed convenient with students cognitive development more effective in the learning.

An understanding of the values of local wisdom is very important for students to have. Therefore, the cultural values of traditional societies that are developed in the present context are very important to be made into studies in the eyes of BNS's focus on the preservation of the environment and natural resources. The values of the local wisdom of the Bajo Tribe people that will be studied are closely related to the learning of Basic Natural Sciences courses. For this reason, it is hoped that the development of this teaching material can instill the values of environmental stewardship in students. According to [Tinja et al. \(2017\)](#) developing teaching materials based on local wisdom can increase student activity to 80% and learning outcomes have a significant effect, development is contextual and increases students' concern for the existence of local culture. But there are no studies that specifically examine development of basic natural science teaching materials based on local wisdom of Bajo tribe marine conservation using the thomson-brooks/cole model. Based on this, the research team conducted research on the Development of Basic Natural Science Teaching Materials Based on Local Wisdom of Bajo Tribe Marine Conservation Using the Thomson-Brooks/Cole Model.

2. Method

The method used is research and development. Research and development of basic Natural Science teaching materials based on local wisdom about the values of local wisdom of the Bajo Tribe people adjusted to the 4-D steps that have been determined based on [Thiagarajan, Semmel, & Semmel \(1974\)](#). There are four stages in this model, namely (1) Define, (2) Design, (3) Develop, and (4) Disseminate. This research is aimed at developing and testing the effectiveness of Environmental Knowledge teaching material products. This teaching material is specifically intended for students of the Indonesian Language and Literature Education Study Program, FKIP, USN Kolaka which is used as the material in the Natural Sciences Basic course focusing on the environment. According to [Akbar & Hartono \(2017\)](#) the development of the 4D model consists of four main steps, namely define, design, develop, and disseminate.

In the definition stage analysis is carried out on the subject of development, namely students. Student analysis includes students' needs for contextual information by looking at teaching materials and those used in BNS learning by direct observation. Collecting data in the field in the form of material from observations, interviews, and documentation describing the preservation of the Bajo tribe in the Lemo Bajo Village, Wawolesea District, North Konawe Regency. According to [Akbar & Hartono \(2017\)](#) analysis of the needs of lecturers and students as well as concept analysis are at the core of the define stage.

The planning, development and dissemination stages. The design stage is carried out designing teaching materials, defining and designing teaching materials. The design of the development of teaching materials in this study uses the Thomson-Brooks/Cole Model. This model is widely applied in US geography books, one of them is Essentials of Physical Geography. Presentation of images becomes important in the design of the Thomson-Brooks/Cole model including laying of images (photos), image size, and image captions. The text and appearance of the chapter also has a good appearance and is easy for the reader to understand. According to [Aksa et al. \(2018\)](#) development models have their respective advantages, such as Beck and McKeown which can help students in solving problems and thinking creatively. According to [Prawindia et al. \(2016\)](#) the adoption of the structure of the Cambridge Fundamental of Geography book has advantages in adding activity and analyzing the topic of the material, taking the structure of other books also has advantages.

The development phase (Develop) is carried out to produce teaching materials, after the teaching materials are finished compiled, then validation is carried out. This validation is carried out to determine the suitability of teaching materials with standards for developing teaching materials. Input from the validator is used to improve/revise teaching materials in the form of developed teaching materials. The revision of the validation results will be continued until criteria are met that meet the percentage of good or very good so that teaching material can be used as a course in Basic Natural Sciences (BNS). According to [Wahyudi et al. \(2018\)](#) validation and revision are an inseparable part of the development of teaching materials.

According to [Laksono et al. \(2017\)](#) in the development of 4-D the role of expert validators as product determinants can be continued or not or referred to as expert judgment.

The product in this study in the form of teaching materials will be tested for eligibility with responses from students. The trial subjects of the teaching materials produced were students who had passed the BNS course by responding to the content or material, thus determining the feasibility of the aspects of language, presentation, and ease of understanding. Trial small groups of 10 students and large groups of one class (40 students). According to [Andriana et al. \(2017\)](#) trials are important to determine the level of readability of students' version. The disseminate phase (dissemination) of this teaching material is in the process of editing for publication to ISBN national publishers which can later be distributed at USN Kolaka, the Lemo Bajo community, and in general at bookstores. The research team also allocated 10 copies to the Bajo community.

The data obtained are grouped into two namely qualitative and quantitative. Qualitative data were obtained from observations and in-depth interviews at the research location. Quantitative data were obtained from response scores from expert validators, lecturers and students about the effectiveness of the use of teaching materials. Data collection techniques carried out by means of, namely: observation, interviews, documentation, and questionnaires. The questionnaire used was a questionnaire for expert validation and effectiveness testing. In addition, there are questionnaires for general data and interview guidelines.

3. Result and Discussion

The results of the research in the form of data presentation based on the development model used are 4-D development models, consisting of the stages of define, design, develop, and disseminate, along with an explanation. The define stage, the researcher carries out the guidance or validation process with material/content experts and material/curriculum experts. Material experts provide advice and input related to subject learning sub-achievement classified in the material on teaching materials so that the draft is in accordance with the indicators in the RPS of the BNS course focused on the Environment. The results of the validation with material experts after correcting the proposed draft teaching materials contained input of several key complementary points, namely: basic environment, local wisdom in environmental management, local wisdom in marine-coastal preservation, local wisdom in ecotourism, environmental ethics, marine environment, and sustainable coastal areas, and marine life.

Based on the advice and input of material expert validators, the decision of the writing team included was the addition of appropriate materials and in particular local wisdom material in coastal management. Local wisdom material, then entering into specific Bajo ethnic groups is expected to focus and tier students in studies that are appropriate to their environment, so that learning becomes contextual and meaningful. Students understand the general concepts first and then enter into specific examples to be more understanding and effective in learning the BNS subject sub environmental preservation material. According to [Alba et al. \(2019\)](#) the results of the questionnaire assessment and input by the validator must be considered first, presented, and classified.

In the validation stage of the material expert, the researcher is still designing teaching materials using the Thompson-Brooks/Cole model. The design of teaching materials when consulting with material experts, namely: the environment, the marine and coastal environment, local wisdom, Bajo Tribal local wisdom, Bajo Tribal local wisdom in the marine environment, Bajo Tribal local wisdom related to the economy, and local wisdom of the Bajo Tribe Bajo relation to marine. According to [Utina \(2014\)](#) one of the prohibitions on disposing of charcoal while at sea is containing carbon dioxide which disturbs animals in the sea.

The draft teaching material was then revised based on the results of validation, by including important material according to expert material input, namely the addition of local wisdom on the coast, local wisdom on ecotourism specific economics, and the Bajo Tribe's local wisdom on marine biota. The writing team also received advice and input from curriculum expert validators. The curriculum expert validator explained that the teaching material connectivity with the needs of students by looking at the BNS course learning tools focused on

Environmental Conservation in the Semester Lecture Plan (RPS). The local wisdom material that will be studied in teaching material should be included in the BNS course study. As for the format of writing teaching materials, it should be made more directed to the textbook writing format. According to [Wahyudi et al. \(2018\)](#) research output and development of teaching materials one of which leads to textbooks.

Decisions made based on suggestions and comments from material/curriculum experts are that the preparation of teaching materials does not follow the format of Dikti teaching materials, but rather refers to the format of the book because the teaching materials made only function as or reference material, not as the main handle in learning BNS courses.

In the define stage, there are two analysis: requirements analysis and concept analysis. Needs analysis is carried out on research subjects that are targeted for the development of teaching materials, namely students. Analysis of the need for teaching materials to be developed, and the formulation of the objectives of the development of BNS teaching materials focusing on the preservation of the marine and coastal environment based on local wisdom of the Bajo tribe. Needs analysis includes students' needs for contextual references by looking at teaching materials and books that have been used in BNS learning focusing on environmental preservation. Needs analysis is directed at identifying the main concepts that must be taught to students based on the RPS that have been prepared.

In the concept analysis stage, researchers make observations on students. Observation results show that in learning BNS courses focus on the Environment, students do not hold material either in the form of modules or other reference books from bookstores. But there are several reference books that are common in the USN Kolaka library and Kolaka District Government library. The most material obtained by students from browsing the internet. The learning process is also equipped with whiteboard media and sometimes uses an LCD to display material in a PowerPoint, but the material displayed is still theoretical and general. According to [Putri et al. \(2018\)](#) the absence of teaching materials that are in accordance with the environment of marine resources becomes the basis in making these teaching materials.

The results of observations with students also showed that only 94% of them did not use the library as a learning resource. Students also do not know about local wisdom in the Bajo Tribe because there are no students from the Bajo tribe. Students are spread over the Bugis, Tolaki, and Buton tribes, so it is necessary to prepare local wisdom teaching materials for the Bajo tribe because the local wisdom is still within the scope of Southeast Sulawesi which is surrounded by the sea and the coast. Based on these observations, it can be concluded that students still lack teaching materials, especially contextual teaching materials. According to [Tinja et al. \(2017\)](#) the contextual approach of local wisdom around students makes it easy for them to understand and preserve the good values contained therein.

After analyzing the needs, concept analysis is carried out by identifying the concepts of local wisdom values that will be developed in teaching materials. This process is carried out by researching the Bajo Tribe's local wisdom. The study was conducted for four weeks in Lemo Bajo Village, Wawolessea District, North Konawe Regency. The study was conducted by observing the activities of the Bajo people in Lemo Bajo village. In addition, researchers also conducted interviews with traditional figures and Bajo Tribe fishermen in Lemo Bajo. Finally, the documentation process was carried out both taking photos and collecting secondary data through the village government of Lemo Bajo. According to [Suryanegara et al. \(2015\)](#) interviewing elders in adat is one way to explore the local cultural values.

The results of the study stated that marine and coastal preservation of the Bajo tribe community in Lemo Bajo, including Kampong Bunga Village, Kampoh Cina Village, Barasanga Village, and Tanjung Bunga Village believed in customary rules that should not be violated when conducting activities at sea and the coast. Some restrictions that apply when carrying out activities at sea and coast are as Table 1.

Table 1. Bajo tribal rules when going to sea

rules when going to sea	Meaning
<i>Daha kita paradimungki kadilau</i>	Do not do a lot of strange things at sea

rules when going to sea	Meaning
<i>Daha aha, ruja-ruja kadilau</i>	Don't spit and just talk at sea
<i>Daha ngida kopi kadilau</i>	Don't throw coffee in the sea
<i>Daha kita cuci periuk kadilau</i>	Do not wash the pan in the sea
<i>Daha anusakita disapa</i>	Do not rebuke the strange at sea

The rules above have several additions such as: no chill and oranges can be thrown in the sea. Do not respond in a spoken way if there is a strange smell in the sea. Mustn't disturb sea turtles. The entire rules above shows that the Bajo have high respect for the sea, so they do not carry out activities that disturb the marine environment. Activities that do not recklessly exploit the sea make the marine environment more secure. Specifically, not disposing of coffee, food traces (including chili), and food scraps in a pan or plate at sea can save marine life such as jellyfish and small fish that can be disrupted by life if exposed to these liquids. According to [Utina \(2014\)](#) chili, ginger, orange peel water is tubal which can cause death to marine organisms.

In carrying out activities before or after going to sea, and other activities around the coast such as putting up a boat, a Maduae Pina Kadilao ceremony is held or asking for approval/permission for power at sea. Agreement by putting betel nut, a parcel of brown tobacco, and betel four each while reading the prayer: *Nabi Adam, Nabi Isa, Nabi Salima. Tulolitago niakami tuamunang mamna sindikka kakita terima anta kami ala-ala sendika kami. Kami namemia elakih kadilao, tabah kita melakuka kami dalli kappapua la taala lamunia ananta sala pamorahta kami.* This means that the Bajo tribe asks that alms received and given away to seek fortune at sea and there are no obstacles when doing activities at sea. In the area of coral called the Prophet Heler. The Bajo, in this case, believe that the high seas are guarded by the Prophet Adam, Isa, and Salima. While the reef to the coast area guarded by the Prophet Heler. With the presence of guards in every area of the sea makes them reluctant to carry out activities to damage the sea, especially using fish bombs when going to sea. According to [Mau et al. \(2019\)](#) the value of local wisdom can form a belief system. According to [Wijiningsih et al. \(2017\)](#) Local wisdom is part of the community in sustaining life, one of which is from beliefs that are rooted and difficult to break.

Bajo tribe releasing sea turtles if they make a mistake. Turtles are considered vehicles and friends of their ancestors. When they encounter sea turtles, they should not disturb them, as it is prohibited from disturbing sea turtles. This is an activity to protect marine biota in the form of sea turtles which in other areas are often captured for food. This is the basis for turtle breeding and releasing activities in several other areas that care about sea turtles. According to [Artanto \(2017\)](#) Sea Turtles are identical with the Bajo Tribe, there is even a saying to move the Bajo Tribe to the land as well as move the turtle to land or in other words take their lives.

Bajo tribe conducts activities at sea with the type of engine ships and wind power sails. The body of the ship is 8-9 m long with a bilge width of 1.5-2 m. Ship materials are made of wood and some use Viber. Especially for Viber because there is a school aid for making Viber Boat by the North Konawe Regency Government. The duration of fishing between 1-4 nights with the number of fishermen at most 3 people per boat. Activities looking for mackerel, *sunu*, and squid and other fish in the sea by fishing, fishing and releasing small fish, and using a tool called *bubu*. Size 25-30 strings and 8 and 15 hooks with various lures including toy fish lures. According to [Artanto \(2017\)](#) the use of simple tools without using bombs can preserve marine life in this case fish and corals. According to [Giyanto et al. \(2017\)](#) the use of explosives and poisons can damage coral reefs.

In fishing activities at sea, Bajo people use traditional tools and do not damage the marine or coastal environment. This is because the Bajo people are the dominant livelihoods as fishermen who rely on the sea. Five villages with the majority Bajo tribe, four of which 80% work as fishermen. They appreciate and live in the sea. Infants aged 7 days/14 days/15 days performed a bathing ceremony at sea for the baby's mother while lowering the betel nut and praying. After reaching the house, the remaining water bathing in the sea is added to the baby. The toddlers to the age of 10 have played and learned to swim in the sea, and the age of 17 has been invited to fish in the sea. According to [Artanto \(2017\)](#) God has given gifts in the form

of the sea so that since the Bajo tribe is introduced to be close to the sea, in this case, it will certainly not damage it.

Bajo Tribal Houses have shaped houses made of ironwood and dominant houses are wooden and thatched roofs. The technological developments of some clipboard and stone-walled houses and roofed roofs. There is a deck or a kind of wooden corridor road and the people maintain the cleanliness of the coast around their homes. Bajo people guard the coastline in the form of preserving mangroves, seagrass beds, and coral reflected because they live there. According to [Giyanto et al. \(2017\)](#) coral research samples in the Wakatobi, Central Buton, and Konawe areas which incidentally have many dominant Bajo tribes in the very good status category.

In the design stage, the research team validates with media experts for the guidance process related to the design of teaching materials. Validation of media experts to get input on the design of teaching materials and adjustments to the needs of students. Things that are validated, such as: format, type, cover design, and content of teaching materials. Format of teaching materials from Thompson-Brooks-Cole. According to [Wijiningsih et al. \(2017\)](#) format selection becomes one of the important things in the design stage.

The format of teaching materials refers to writing reference books. The format referred to in the introduction consists of: preface, table of contents, list of tables, and list of figures. The contents contain the subject matter. Closing contains a bibliography. According to [Hartini et al. \(2018\)](#) format is one of the important things in the assessment of development research.

The title of the teaching material is adjusted to the name of the material in the BNS course focusing on environmental preservation, so the title reads "Bajo Tribal Local Wisdom in Marine and Coastal Conservation". The material for each Chapter teaching material is developed based on the analysis of the concept of the define stage. Complementary information was obtained from various literature on marine conservation based on local wisdom. According to [Alba et al. \(2019\)](#) the design of teaching materials comes from the process of study or research. According to [Damhuri et al. \(2018\)](#) the research results can develop in form of learning source.

At the design stage, the researchers set the size and font used. Teaching material is printed on A5 paper size with Times New Roman font size 12. The book cover design is dominated by blue and sea photos and Bajo people. Cover design considerations that illustrate the overall content of teaching materials.

At the develop stage, researchers write teaching materials based on the results of needs analysis and concept analysis. The material is decided to be included in teaching materials based on the results of the material expert's validation. The results of research on the Bajo tribe are the main material for writing teaching material. The product description of teaching materials developed as follows. According to [Djidu & Retnawati \(2018\)](#) cultural values can be used as important lessons for students, especially in the attitude/affective values in teaching and learning activities.

The introduction consists of the front cover, preface, table of contents, and list of pictures. The front cover contains the identity of teaching materials, designed in blue, pictures and attractive layouts. The front cover is equipped with the title of the teaching material and the name of the drafting team. The back cover is blue and comes with a resume of the writer's team.

The content part is in the form of material taken from several references in the form of books and research journals. The contents are in the form of local wisdom of the Bajo people in preserving the sea and the coast obtained from the define stage research. The contents section contains 8 chapters with the following chapter titles: Basic concepts of the environment, marine and coastal environment, local wisdom, Bajo local wisdom, Bajo local wisdom on the ocean and coastal environment, ecotourism, Bajo local wisdom on ecotourism, wisdom local Bajo tribe against marine life, environmental ethics. Closing Section in the form of Bibliography containing information sources cited in the contents of the material. According to [Wijiningsih et al. \(2017\)](#) expert judgment and trials become an important component of the develop stage.

BNS courses focus on environmental preservation studied in semester 1, the trial subjects were 10 students who had passed the course (semester 3). The trial data results can be seen in Table 2.

Table 2. Percentage small group trial results

Aspect that validation	Rating	Max	%	product eligibility criteria
cover display (book cover)	33	40	82,5	Good
Discussion topic/chapter titke	33	40	82,5	Very good
Systematic presentation of material	33	40	82,5	Very good
Learning objectives	28	40	70	Good
Material presented	31	40	77,6	Good
Material application	36	40	90	Very good
Material essence	31	40	77,5	Good
Language	35	40	87,5	Very good
Development of the language used	32	40	80	Good
Use of terms	28	40	70	Good
Usability of teaching materials	35	40	87,5	Good
% of product overall	355	440	80,68	Good

The percentage results of all aspects by students are in the category of very good/very interesting/very appropriate/very effective with an effectiveness level reaching 80.68%. Teaching material that has been tested still accommodates revisions from students in terms of attractiveness of teaching materials, errors in the use of punctuation, typos, and mistakes in capital letters. Students also provide input so that they do not need to include supporting material, but according to the author, this teaching material needs to include supporting material. In general teaching materials developed are interesting and the delivery of content can be understood by students. According to (Apriyani et al., 2017) the small group test was used as a basis for revision and continued to the final stage of development.

Trial teaching materials overall get good qualifications. Student comments and suggestions are used as a basis for improvement in producing printed teaching material output. The large group trials are more or less the same as those found to be small groups, are in a very good category with an average score of 82.95 with a total score of 3650 out of 40 students. According to Widyasari et al. (2018) if the test results are declared to be feasible, then the teaching material is ready to be implemented in the field.

Table 3. Recapitulation of post validator assessment results per response item

Validator	%	VG	G	A	L	VL	Test Decision
Matter Expert 1	88,63	√	-	-	-	-	No Needs Revision
Matter Expert 2	81,81	√	-	-	-	-	No Needs Revision
Design Expert	74,24	-	-	-	-	-	Little Revision
Language Expert	90,27	√	-	-	-	-	No Needs Revision
Average	83,73	√	-	-	-	-	No Needs Revision

The results of the average validator assessment obtained a percentage value of 83.73% with very good criteria and feasible to use, which means the product of teaching materials developed does not need to be revised. This means that the teaching materials from the development are well received. The partial results there were a few slight revisions. According to Prawindia et al. (2016) the results of the validation determine whether or not the teaching material is tested after being implemented after the trial. According to Suyantiningsih et al. (2016) the results of the validation record must be revised first before proceeding to the next development stage.

Product revision is based on expert and respondent ratings. The revision was carried out in two stages, namely after expert validation and small-scale group trials. Revisions improve content, presentation and graphics, and grammar. The revised draft is a product that is ready to be used in learning. According to [Prawindia et al. \(2016\)](#) revision function to improve teaching material products. According to [Djido & Jailani \(2018\)](#) expert comments and trial results are important in developing research that determines product viability.

The first product revision was carried out after evaluating three validators in the form of numbers, suggestions, input, and the results of discussions between the validators. The results of the validation lead to improvements in material aspects, grammar, and material readability. Items that must be revised, namely: the cover design is done in the position of the placement of the title that is too upward, therefore the title is placed slightly downward. Revisions to the drawing must include the source of the image displayed on the teaching material.

Revisions to the chapter titles are done by designing the chapter titles in blue. The revised drawings explained more about ecotourism activities in the Bajo area of Southeast Sulawesi and were easier for students to understand. The Labengki Island area and Wakatobi National Park are familiar areas for students, so they are easy to know and understand. In addition to the pictures above, there are also a number of images that are replaced based on input from the material/content expert validator. North Konawe flood removal was also replaced by a mangrove area downstream around the Bajo settlement.

Typing errors in teaching materials are based on corrections from validators and students as test subjects. According to [Wijiningsih et al. \(2017\)](#) writing errors must be corrected. Some words that have typed errors are presented in Table 4.

Table 4. List of typing errors in teaching materials

Words error	Revision
<i>Dilaut</i>	<i>di laut</i>
<i>Ada</i>	<i>Pada</i>
<i>Ika</i>	<i>Jika</i>
Environment	Environment
<i>Masyarakat</i>	<i>Masyarakat</i>
<i>Ketia</i>	<i>Ketika</i>
<i>Pengrusakan</i>	<i>Perusakan</i>

Misuse of punctuation is a mistake by the writing team. Misuse of punctuation in teaching materials is based on corrections from validators and students as test subjects. According to [Indrawini et al. \(2017\)](#) punctuation errors also need attention in revising improvements. Some words that experience errors in the use of punctuation are presented in Table 5.

Table 5. List of punctuation marks for teaching materials

Error Punctuation Marks	Revision
<i>Pancing, bubu dan jaring</i>	After <i>bubu</i> add comma
(2013),	Comma erased after year
<i>Penting. Sedangkan</i>	Full stop replace with comma
<i>Peduli maka ecotourism lancer</i>	Add <i>jika</i> and comma before <i>maka</i>

Incorrect use of uppercase and lowercase letters in teaching materials based on corrections from validators and students. Some words corrected for writing capital letters and lowercase letters are presented in Table 6.

Table 6. List of capital or small font mistakes in teaching materials

Error Capital or Small Font	Revision
<i>ikan tenggiri, ikan sunu, cumi suku Bajo Kearifan Lokal laut dan pesisir</i>	<i>Ikan Tenggiri, Ikan Sunu, Cumi-cumi Suku Bajo kearifan lokal Laut dan Pesisir</i>

The development of teaching materials is one of the most popular research in the research and development category. The development of teaching materials provides output in the form of teaching materials provided to students. Research [Prawindia et al. \(2016\)](#) the main purpose of research and development is to produce geography teaching material for grade XI high school students in the distribution of mining matter. Research [Widyasari et al. \(2018\)](#) the results of research and development in the form of valid teaching material in Basic Natural Sciences courses. Research [Permata et al. \(2017\)](#) the development of teaching materials social studies subjects on economic literacy produces valid teaching material. This study also produced valid teaching material, results of expert validation and the student's trials.

Research and development of teaching materials currently lead to contextual matters. Surrounding environment or contextual material can improve the student understanding. That because they often interact in everyday environments. Research [Perwitasari et al. \(2018\)](#) teaching material on the themes of various jobs in class IV of primary schools are developed based on the types of work that exist in the student environment in Jombang and provide meaningful experiences for students. Research [Apriyani et al. \(2017\)](#) teaching material is developed based on contexts that are suitable for Palembang's agricultural land, making students able to use experience in learning. Research and development are currently developing based on the context of local wisdom, such as the Kalimantan Selatan *kawa saraba train* in the research [Hartini et al. \(2018\)](#), Malang local wisdom in the research [Alba et al. \(2019\)](#), the local wisdom of West Manggarai Nusa Tenggara Timur in the research [Tinja et al. \(2017\)](#), Badui local wisdom in the research [Andriana et al. \(2017\)](#), Nusa Tenggara Timur local wisdom in the research [Mau et al. \(2019\)](#), Bojonegoro local culture in the research [Wijiningsih et al. \(2017\)](#). This research also follows the development of the current research direction by raising the local wisdom of the Bajo Tribe.

Research and development of teaching materials currently also leads to publishing in the form of reference books. Research [Sutrisna et al. \(2018\)](#) developed technology in English into a coursebook. Research [Trisdiono et al. \(2019\)](#) developed a book to hold a new book that is different from existing books. Research [Rusilowati et al. \(2016\)](#) develops textbook with effective development principles. This research was registered with the Graha Ilmu publisher which later became a textbook for similar lecture themes. This research contribution provides teaching material and in the form of a useful reference book as one of the student lectures on Basic Natural Sciences courses at USN Kolaka in particular and the archipelago throughout Indonesia in general.

4. Conclusion

The research and development results obtained a reference book titled Bajo Tribe Local Wisdom in Marine and Coastal Conservation which was declared valid by a team of expert validators with very good qualifications and the average test decision does not need revision. But there are still revised parts such as: cover, image source, chapter display, changing the picture that is not suitable, changing the use of punctuation, capital/lowercase letters, and typing errors. The results of small group student trials obtained good qualifications. The results of a large group trial obtained good qualifications and there were revisions related to typos, punctuation, capital letters, and italics. Based on these results, after revisions were made according to validator and student input, the Bajo Tribal Local Wisdom teaching material in Marine and Coastal Conservation was appropriate to use.

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