

Analysis of Maritime Learning Material Development Needs Using Google Form

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Abstract—Indonesia has vast potential of maritime resource. It is necessary to increase knowledge through education. The purpose of this study is to find out student's perceptions about the development of maritime teaching materials. This study was used quantitative as a research design and was conducted from May to June 2019. The instrument was developed by the researcher through several stages namely literature study, expert validation, and trial. The terms of the instrument could be said as valid if they have a high validity coefficient ($> 75\%$). The samples were taken from STKIP AL-Washliyah students in Banda Aceh. The results of instrument indicate that the instrument of needs analysis is valid and reliable with Cronbach's alpha value r table which is $0.877 > 0.378$. The results shows that the students needed maritime teaching materials to support the course. It can be seen from the student statement of the students who desperately need lecture teaching materials as much as 62.5% of the students who agreed and "on the statement of enthusiasm of the lecture if complete facilities" students answer strongly agree (80%). Based on the results of the research, the development of maritime teaching material is necessary.

Keywords: development, learning, maritime

I. INTRODUCTION

Indonesia has maritime potential that stretches across the western and eastern regions. Indonesia's maritime potential includes maritime culture, marine resources, infrastructure, maritime connectivity, maritime diplomacy, and maritime defense [1]. Indonesia's potential as a maritime axis can be continuously strengthened by taking into account four basic components. The four components include 1) maritime resources, 2) society, 3) geographical position, and 4) government support [1-3].

However, Indonesia's potential become a world maritime axis country still has a number of problems. First, the resilience of the Indonesian maritime sector is still weak. This is evidenced by the some foreign vessels that are still free to take marine resources in Indonesian border [4]. Secondly, the government still give less attention on the potential of Indonesian marine resources [5]. Third, lack of public awareness of the importance of maintaining marine resources to support Indonesia as a World maritime country. This can be seen from the number of fishing practices that damage marine ecosystems [6].

One important factor to develop Indonesia's maritime potential is to increase public knowledge of Indonesia's potential. Increased knowledge of the community is carried out considering the community plays an important role that

directly utilizes the potential of the sea, especially for 11.25% of the total population of Indonesia who live on the coast [1]. This increase in knowledge can be done through the introduction of culture and maritime education in learning [7-9].

Learning is dependent on the course of supporting components of learning. One of them is teaching material [10]. Good teaching materials contain six criteria, namely 1) have instructions for use, 2) final goals contained in competency indicators, 3) additional supporting information, 4) exercises, 5) worksheets, and 6) evaluation [11] [12]. In addition, good teaching materials also present problems contextually and contain illustrations of picture and graphics that are in accordance with the topic of discussion [13] [14].

Several stages to develop teaching material are needed. The first stage is to analyze the development needs. The analysis aims to determine the importance of developing a product. It is also referred to as a formal process in determining the gap between what is available and what is ideally desired [15]. The analysis of development needs requires analyzing the curriculum, observing the conditions of learning, and knowing perceptions. Perception is very important to be explored because developers can know the real situation in the field through perception. Perception can also provide answers and expectations of a problem that will be solved.

To find out the perceptions, it is required a perception instrument on maritime teaching materials. This instrument aims to determine the state of maritime teaching materials in the field and expectations of instructional materials developed. Development of instruments used web assistance. Web assessment aims to make data collected faster and have a wider scope [16]. The collected data was collected and analyzed to get a comprehensive result.

Development of perception instruments on maritime teaching materials used the assistance of google form. Google form is a web-based tool that can help research by sending surveys or gathering information from google platforms that are already very familiar to the public [17]. Google form has many advantages over other survey websites. The advantages of google form include storage that works in a google drive system that has a large storage capacity. It is easy to implement because of its simple display. Then, it can be accessed as long as there is an internet connection, does not require installation and upgrading, and it is accessed for free [18]. Based on the

advantages provided by google form, the tool used to collect perceptual answers to maritime teaching materials was google form.

Based on the research background, this study aimed to determine the perception of the development of maritime teaching materials. The research subjects were STKIP Al-Washliyah students. This research was a small part of the research "Development of Aceh's maritime strategic position teaching materials to Realize Indonesia as the World Maritime Axis". This research was a basic research in developing teaching materials and can be used as a reference for the importance of developing maritime teaching materials.

II. METHOD

The purpose of the study was to determine the students' perceptions of the development of maritime teaching materials. This research used quantitative data. The research subjects were geography education students STKIP Al-Washliyah Banda Aceh. The study was conducted from May to June 2019. Research was included in the descriptive research category.

The instrument was used an instrument of student perceptions of maritime teaching materials. The researchers had not found a standard instrument to determine student perceptions. Therefore, the instrument was developed by the researchers themselves. The instrument was used to assess student perceptions. To develop the instrument, the researchers have been done several stages namely literature study, expert validation, and trial. The questionnaire was validated by linguist and material experts. The results of the validation were revised before the trial. The terms of the instrument could be said as valid if they have a high validity coefficient ($> 75\%$).

The trial was conducted on 20 students in STKIP Al-Washliyah. Perception in this study means that students' views or judgments about the existence and quality of maritime teaching materials. The quality of teaching materials included the components of language, content, graphics, facts / data, and presentation of material. Assessment used the assistance of Google Form. The instrument consisted of 30 questions with 4 rating scales from scale 1 (strongly disagree) to 4 (strongly agree).

The trial results were implemented to assess students' perceptions of maritime teaching materials. Implementation was carried out by gathering students in a Whatsapp group "development of Aceh's maritime strategic position teaching materials". The data of students contact number were obtained from the class leader from each level. The next step was to share the google form link with the group. Students who join the group were required to fill out a questionnaire on the perception of maritime teaching materials. Students may only participate once in answering the questionnaire.

Data analysis used percentage descriptive statistics. Data analysis used the following formula:

$$\text{Percentage} = \frac{\sum \text{score}}{n \times \text{highest value for question}} \times 100\%$$

Where:

n = Number of all questionnaire items

r = Total number of respondents [19]

Data that had been presented were then categorized into four categories, namely as follows:

Table 1. Percentage Criteria of Perception Questionnaire on Maritime Teaching Materials

Percentage of Achievement (%)	Perception Category
81 – 100	Very Good
61 – 80	Good
41 – 60	Enough
21 – 40	Less

III. RESULTS AND DISCUSSION

3.1 Instrument Development Stage

The instrument was developed to student perceptions of maritime teaching materials. The instruments was developed by researchers. Through a comprehensive literature study, the authors found five indicators of student perceptions of teaching materials. The five indicators were 1) ease of understanding 2) conformity with learning 3) conformity with the material 4) Conformity with actual phenomena (contextual) and 5) attractiveness of appearance. Research from [20] mentions teaching materials must be suitable with the material and the ultimate goal of learning. Furthermore, research from [21] teaching materials help achieve students' understanding of concepts, help students understand abstract concepts, and can represent concepts that are difficult to understand by contextual. Moreover, research from [22] discuss the instructional materials must be interesting both in terms of appearance and the language used to increase students' motivation to learn. The five indicators of perception in teaching materials were developed into 28 questions. Indicators specification can be seen in the following table 2:

Table 2. Specification of Perception Instruments on Maritime Teaching Materials

Indicator	No. Question	Total
Ease of understanding	2,3,4,10,22	5
Conformity with learning	5,8,9,11,15,17	6
Conformity with the material	6,12,16,18,28	5
Conformity with real phenomena	1,7,13,26,27	5
Display attractiveness	14,19-21,23-25	7

The next step was to do expert validation. Validation of the questionnaire involved two experts. The validity questionnaire was revised to obtain a validity coefficient ($> 75\%$). The results of expert validation can be seen in Table 3 below:

Table 3 Results of Linguist Validation

Assessment	Percentage	Category
Language Clarity	80%	Good
Conformity with Indonesian	79%	Good
Use of punctuation	94%	Very Good
Communicative	90%	Very Good
Conformity of instructions with questionnaire	90%	Very Good
Consistency of terms	89%	Very Good
Average percentage	89%	Very Good

Some expert advices were improved. One of the suggestions was to revise some questions so that they were more easily understood by students. After performing expert validation, the instrument was then developed using the assistance of google form.

Create a google form, needs to access a gmail account [18]. Gmail account used the researcher email account, "ridhwan.awan.10@gmail.com". After entering through a gmail account, the instrument was inputted into google form and a description was added by setting the type of answer with a linear scale.

The development instruments were tested on 20 students of STKIP Al-Washliyah. Students who took the trial were combined in a whatsapp group "test instrument test". The researcher shared the google form link with the students. The trial aimed to test the validity, reliability, and student response to the instrument. This is also supported by research [23] which says that in the development of instruments assessment is need to determine the value of reliability, validity and the quality of the instrument. The results of the validation showed 28 instruments of student questionnaire perceptions of maritime teaching materials were valid, while the 2 items were not valid so they were revised. Reliability results showed that the instrument was reliable with the Cronbach alpha r table value which was $0.877 > 0.378$. The results of student responses to perceptual maritime teaching materials instruments can be seen in Table 4 below:

Assessment	Percentage	Category
Clarity of fulfilling instructions	80%	Very Good
Communicative language	87%	Very Good
The sentence is clear and systematic	77%	Good
Systematic question	90%	Very Good
Average percentage of response ratings	83,5%	Very Good

Table 4 Results of Student Responses

Based on the table. 4, it can be seen that the results of the test instrument "analysis of the needs of maritime teaching

materials" has average percentage of responses is very good with a value of 83.5%. On the assessment of clarity the charging instructions, the use communicative language, and systematic questions get a very good percentage of assessment. Whereas in sentence clarity and systematic sentences get a good percentage with a value of 77%.

3.2 Measurement Stage

The measurement phase was carried out from May to June 2019 involve all of STKIP AL-Washliyah geography education students. Research on student perceptions of maritime teaching materials was carried out with the assistance of google form. Then, students were collected into the WhatsApp group " Development of Aceh's maritime strategic position teaching materials". The data of Student phone number were collected from each class of each level. The researcher gave a google form web link that students will answer. The results were divided into five perceptual indicators, namely ease of understanding, conformity with learning, compatibility with the material, conformity with the actual phenomenon, and display attractiveness. The results of Student Perception on maritime teaching materials can be seen in the following table 5:

Table 5 Results of Student Perceptions of the Development of Maritime Teaching Materials.

Indicator	No.	Statements	Responds							
			SS		S		TS		STS	
			N	%	N	%	N	%	N	%
Ease of understanding	2	I really need teaching materials during lectures	22	27,5	50	62,5	6	7,5	2	2,5
	3	Teaching materials limit my creativity and decrease the enthusiasm for learning (R)	0	0	9	11,3	60	75	11	13,8
	4	Teaching materials make learning more interesting	23	28,8	51	63,8	6	7,5	0	0
	10	I have trouble in understanding lecture material through teaching materials (R)	1	1,25	1	1,25	70	87,5	8	10
Conformity with learning	22	I like learning to use textbooks	10	12,5	48	60	15	18,8	7	8,75
	5	Teaching materials greatly support classroom learning	36	45	41	51,3	3	3,75	0	0
	8	Teaching materials must be in accordance with the final competencies expected of the lecture activities	10	12,5	30	37,5	34	42,5	6	7,5
	9	My lecturers always use teaching materials when giving lectures in class	10	12,5	29	36,3	38	47,5	3	3,75
	11	Learning becomes monotonous when using teaching material (R)	30	37,5	40	50	9	11,3	1	1,25
	15	I feel enthusiastic in attending lectures if the facilities are complete	64	80	11	13,8	4	5	1	1,25
Conformity with the material	17	I am lazy to look for lecture support material (R)	48	60	18	22,5	10	12,5	4	5
	6	I feel that teaching materials are very important to explain concepts abstractly	36	45	29	36,3	13	16,3	2	2,5
	12	The use of maritime teaching materials greatly helps students' understanding of the regional maritime potential	19	23,8	56	70	2	2,5	3	3,75
	16	I have difficulty in understanding lecture material with the method used during lectures (R)	9	11,3	5	6,25	57	71,3	9	11,3
	18	I prefer learning than playing	8	10	27	33,8	37	46,3	8	10
	28	During this time, the available lecture teaching materials can only be obtained by downloading it on the Internet (R)	58	72,5	20	25	1	1,25	1	1,25
Conformity with real phenomena	1	Teaching materials will be very interesting if they contain contextual events	6	7,5	48	60	14	17,5	12	15
	7	Teaching materials should contain illustrations that can describe phenomena in the environment	17	21,3	61	76,3	2	2,5	0	0
	13	Aceh's maritime potential is suitable for use as contextual teaching material	45	56,3	16	20	15	18,8	4	5
	26	I like to update the latest information from various media	11	13,8	59	73,8	10	12,5	0	0
	27	I don't like maritime topics because it's boring (R)	2	2,5	6	7,5	58	72,5	14	17,5
Display attractiveness	14	I will read easily if the letters are not too small	42	52,5	16	20	20	25	2	2,5
	19	I have the habit of reading by pointing letters	0	0	1	1,25	67	83,8	12	15
	20	I have the habit of reading in a loud voice	6	7,5	12	15	45	56,3	17	21,3
	21	I like colorful teaching materials	45	56,3	31	38,8	3	3,75	1	1,25
	23	I like teaching materials that have a variety of fonts	4	5	28	35	40	50	8	10
	24	I like the position of images, graphics, and tables in the middle of the page	5	6,25	39	48,8	34	42,5	2	2,5
	25	I like the appearance of clear images	64	80	16	20	0	0	0	0

Note

SS = Very Agree

S = Agree

TS = Not agree

STS = Strongly disagree

(R) = Negative statement

Based on the results of student perceptions presented in Table 5, it is known that students have a positive response to the development of maritime teaching materials. This can be seen in the student statement on the indicator of ease of understanding "I really need teaching materials during the lecture" most of the students answered with agreement (62.5%). Research from [21] which says that teaching materials aim to facilitate students' understanding of material that is difficult to understand. Likewise, 80% of students answered strongly agree for a positive statement of "students feel enthusiastic about attending lectures if they have complete facilities". This is consistent with research [24] which says that learning facilities are important to support increased learning motivation which has implications for improving learning outcomes. In addition, 58% of students answered strongly agree that they had difficulties in obtaining lecture teaching materials all this time which could only be obtained by downloading sources on the Internet. This is also supported by research [15] which states that Indonesia is currently still very poor in teaching materials and learning support facilities so that most teachers and students are confused to find learning resources and mostly from the internet especially in new materials such as maritime resilience. This has an impact on the difficulty of the teacher to implement the curriculum especially with scientific approach. Based on student responses, it was necessary to develop maritime teaching materials that were contextual in nature.

IV. CONCLUSSION

The study resulted a questionnaire instrument for students' perceptions on the development of maritime teaching materials. The instrument was developed through several stages, namely literature study, development, and evaluation. The instrument was developed from five indicators, namely ease of understanding, compatibility with learning, conformity with the material, conformity with the actual phenomenon, and display attractiveness. The instrument was validated by Linguist, and tested on geography education students of STKIP Al-Washliyah. The results of the response to the development of maritime teaching materials were students who responded positively to the development of maritime teaching materials. It caused by the absence of maritime teaching materials that support lectures. Furthermore, students also found the difficult to find lecture teaching materials. Students expected that maritime teaching materials were developed suitable with lecture material and were contextual in nature. This research can be one of the foundations of the need analysis for developing contextual maritime teaching materials.

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