Analysis of Maritime Learning Material Development Needs Using Google Form

Ridhwan¹, Rima Melilita Sari¹, Sumarni²

¹ Geography Education Department
² Universitas Negeri Malang

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 results showed 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 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:

\[ \text{Percentage} = \frac{\sum \text{score}}{n \times \text{highest value for question}} \times \frac{100}{r} \]

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:

| Percentage of Achievement (%) | 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:

| 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       | 90%        | Very Good|
| with questionnaire               |            |          |
| 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 the following table 5:

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

| 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          | 90%        | Very Good  |
| with questionnaire                  |            |            |
| Consistency of terms                | 89%        | Very Good  |
| Average percentage                  | 89%        | Very Good  |

Table 4 Results of Student Responses

Based on the table, 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:
| Indicator                      | No. | Statements                                                                 | Responds | Responds | Responds | 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       |
|                               | 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        |
| Conformity with learning      | 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     |
|                               | 17  | I am lazy to look for lecture support material (R)                         | 48       | 60       | 18       | 22,5     | 10       | 12,5     | 4        | 5        |
| Conformity with the material  | 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        |
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.

V. ACKNOWLEDGMENTS

The researchers’ gratitude to Education Fund Management Institute (LPDP) which allowed authors to participate in international conference. Then, the researchers gratitude to the Malang State University which provides learning opportunities, and to all parties who help writers to complete research.

REFERENCES

[1] BIG 2015 Paradigma Geomaritim:Strategi Mewujudkan Indonesia Sebagai Poros Maritim Dunia dalam Perspektif Geografi [Geomaritim Paradigm: Strategies for Realizing Indonesia as the World Maritime Porors in the Geography Perspective]. Jakarta: BIG

[2] Roe M 2016 Maritime Governance. London: Springer

[3] Yulianti Y 2016 Kejayaan Indonesia sebagai negara maritim (jalesveva jayamahe) [The glory of Indonesia as a maritime country (jalesveva jayamahe)] Jurnal Pendidika, Pancasila, dan Kewarganegaraan 27(2)

[4] Fadhil H 2019 KKP Tangkap 6 Kapal Asing Terkait Illegal Fishing di Laut Indonesia diunduh tanggal 20 Mei 2019 dari https://www.detik.com/berita/id-4504116/kkp-tangkap-6-kapal-asing-terkait-illegal-fishing-di-laut-indonesia

[5] Hendriyana A 2017 Potensi Dasar Laut Sekitar Indonesia Belum Diperhatikan diunduh tanggal 20 Mei 2019 dari http://www.unpad.ac.id/2017/12/potensi-dasar-laut-sekitar-indonesia-belum-diperhatikan/

[6] Rudyanto A Kerangka Kerjasama dalam Pengelolaan Sumberdaya Pesisir dan Laut [Collaborative Framework in the Management of Coastal and Marine Resources] Disampaikan pada Sosialisasi Nasional Program MFCDP 2004 diunduh tanggal 18 Mei 2019 dari https://www.bappenas.go.id/files/8713/5228/3295/kjspengelolaansumberdayapesisirdanlaun_tikom.pdf

[7] Haryanto N A 2010 Kesadaran Masyarakat dan Siswa Sekolah Dasar Terhadap Sejarah Maritim Kabupaten Rembang [Public Awareness and Elementary School Students Against the Maritime History of Rembang Regency] PhD Thesis Unnes

[8] Kusumawati I & Huang H W 2015 Key Factors For Successful Management Of Marine ProtectedAreas: A Comparison Of Stakeholders’ Perception Of Two Mpas In Weh Island, Sabang, Aceh, Indonesia Marine Policy 51 465 –475

[9] Sulistiani W & Mustani’ah D 2016 Efektivitas Modul Pembelajaran Tematik Kelautan dan Ke-maritiman untuk Menumbuhkan Minat Kebaharian pada Anak Usia Dini di Taman Kanak-Kanak [Effectiveness of Marine and Maritime Thematic Learning Module to Grow Interest in Livelihoods in Early Childhood in Kindergarten] dalam Seminar ASEAN 2nd Psychology & Humanity Forum UMM 19-20

[10] Darinta I K et al 2014 “Pengaruh penggunaan bahan ajar online terhadap prestasi belajar Tikom dengan kovariabel aktivitas belajar siswa kelas VIII SMP Dwijendra Gianyar ["The influence of the use of online teaching materials on learning achievement Tim with covariable learning activities of class VIII students of Dwijendra Middle School Gianyar] Jurnal Pendidikan Dasar Indonesia 1(2)

[11] Prastowo A 2013 Pengembangan Bahan Ajar Tematik [Development of Thematic Teaching Materials] Yogyakarta: Diva Press

[12] Prastowo A 2013 Panduan Kreatif Membuat Bahan Ajar Inovatif [Creative Guide to Making Innovative Teaching Materials] Yogyakarta:Divas Press

[13] Saputra H J & Fadziaw N I 2017 Pengembangan Bahan Ajar Untuk Menumbuhkan Nilai Karakter Peduli Lingkungan Pada Siswa Kelas Iv Sekolah Dasar [Development of Teaching Materials to Grow the Value of Environmental Care Characters in Grade IV Elementary School Students ] Profesi Pendidik Dasar 1(1) 62 - 74

[14] Anwar I 2010 Pengembangan Bahan Ajar Bahan Kuliah Online [Development of Online Lecture Materials]. Dr. UPI Bandung
[15] Sari R M et al 2019 Geography Teachers Perception on the Implementation of Mind Map on Scientific Approach Advances in Social Science, Education, and Humanities Research 320 125 - 131

[16] Fuady M J 2016 Pengembangan Aplikasi Evaluasi Pembelajaran Online untuk Pendidikan Jarak Jauh [Online Learning Evaluation Application Development for Distance Education] Tekno 26 148 - 154

[17] Febradi B & Nasution N 2017 Sosialisasi dan Pelatihan Aplikasi Google Form Sebagai Kuesioner untuk Meningkatkan Kualitas Pelayanan [Socialization and Training of Google Form Applications as Questionnaires to Improve Service Quality] Jurnal Inovtek PolBeng – Seri Informatika 2(1) 68-72

[18] Rahardja U et al 2018 Pemanfaatan Google Formulir Sebagai Sistem Pendaftaran Anggota pada Website Apsisi.or.id [Use of Google Form as Member Registration System on Apsisi.or.id Website] Jurnal Ilmiah SISFOTENIKA 8(2) 128-139

[19] Sugiono 2015 Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R & D [Educational Research Methods Quantitative, Qualitative and R & D Approaches] Bandung:Alfabeta

[20] Bachtiar E T 2015 Penulisan Bahan Ajar [writing of teaching materials] at conference: Pelatihan Penyusunan Bahan Ajar Untuk Mendukung Pelaksanaan Tri Dharma Perguruan Tinggi Fakultas Pertanian Universitas Sumatera Utara

[21] Abdullah I H 2012 Pengembangan Bahan Ajar untuk Meningkatkan Kemampuan Pemahaman dan Representasi Matematik Siswa Melalui Pembelajaran Kontekstual yang Terintegrasikan dengan Soft Skill [Development of Teaching Materials to Improve Students' Understanding and Mathematical Representation Skills Through Contextual Learning Integrated with Soft Skills] Jurnal Matematika dan Pendidikan Matematika 1(2) 65-74

[22] Kusuman A et al 2016 Pengembangan Bahan Ajar Mata Pelajaran Dasar dan Pengukuran Listrik untuk Sekolah Kejuruan [Development of Basic Subject Learning Materials and Electrical Measurements for Vocational Schools] Jurnal Pendidikan Teknologi dan Kejuruan 23(1) 28-39

[23] Manfaat B & Nurhairiyah S 2013 Pengembangan Instrumen Tes Untuk Mengukur Kemampuan Penalaran Statistik Mahasiswa Tadris Matematika [Development of Test Instruments to Measure the Reasoning Ability of Statistics on Mathematical Tadris Student] Eduma: mathematics Education Learning and Teaching 2(2) 1-19

[24] Amah N & Nugroho A D 2015 Pengaruh Fasilitas Sekolah Terhadap Hasil Belajar Akuntansi dengan Lingkungan Sosial Sebagai Pemoderasi [Effect of School Facilities on Learning Outcomes Accounting with Social Environment as Moderating Variable] Jurnal Pendidikan Akuntansi (JPA) 2(4)