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Needs analysis of biodiversity encyclopedia on Mount Ungaran

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Abstract. The objective of the study was to determine the needs analysis of biodiversity encyclopedia on Mount Ungaran Central Java. This research method was descriptive qualitative. This research method using questionnaires and interviews to obtain data with a Likert Scale. The sampling technique is purposive sampling by considering the biological abilities of students. The total population of all students of class X MIPA SMAN 2 Ungaran is 210. The sample is 58 people from each of the 6 classes and class X biology teachers. The results of the analysis showed that the students are currently using the learning resources in the form of textbooks, Student worksheets (LKS), and PowerPoint (PPT). The use of books is still less clearly describing biodiversity based on the potential of the school's environment. as much as 63,79% reveal that the material biodiversity yet has the uniqueness as well as utilizing local potential. As much as 70,68% of students said they need to learn the material biodiversity based on the local potential, especially in Mount Ungaran in Encyclopedia. Therefore, it is necessary to develop learning resources on biodiversity to utilize local schools' potential.

1. Introduction

Mount Ungaran is one of the rainforests in Central Java, which includes primary and secondary forests. Mount Ungaran has a height of 2,050 meters [1]. The Nature Reserve area around Mount Ungaran is only 1.8 ha, of the total area of around 5500 ha. The natural potential of Mount Ungaran can be used as a habitat for flora and fauna. Based on previous research, 177 species of birds, 45 species of dragonflies, 62 species of butterflies, 57 species of herpetofauna, 17 species of mammals, and 366 species of flora, including several species of orchids [2]. Therefore, Mount Ungaran has fairly high biodiversity, including flora and fauna, with various medicinal plants, protected wildlife, and typical flora [3].

One of the components in achieving learning objectives is learning resources. This is more concern, especially in choosing and using various kinds of learning resources [4]. Learning resources should be contextual so that they are easy to understand because they can apply learning materials to everyday life. In learning activities, it is necessary to provide teaching materials, including interesting learning resources, to affect the quality of learning [5]. States that learning resources related to everyday life can facilitate students in conceptualizing and motivating students in learning [6-7]. Learning resources are also interests and can influence interactions and character care for the environment [8].

Needs analysis attempts to investigate the elements of needs that include the principles, goals, and causes of the problem [9]. Needs analysis is used to identify the needs of students and teachers in



learning [10]. Needs analysis can help teachers and students understand the weaknesses and strengths of learning [11]. Learning resource problems in learning activities need to be studied using needs analysis. The result is being able to solve the problem by creating a specific product. Needs analysis also examines differences or gaps, especially in the learning process.

Biology learning should be student-centered (student-centered), emphasizing constructive learning or building knowledge from various learning resources that students use [11]. An ideal learning resource if it can facilitate more effective and efficient learning activities. Learning resources that can allow students to learn individually and in groups to make learning easier. The content in the 2013 curriculum is that learning is effective if it focuses on understanding problem solving to answer problems in the environment and its application in everyday life [12]. The use of learning resources developed from the utilization of local potential will provide meaningful learning because they contain information, materials, pictures, and practice questions in an encyclopedia. Therefore, the development of an encyclopedia of learning resources on biodiversity on Mount Ungaran as material to increase students' knowledge. It is necessary to research to see problems regarding learning activities.

2. Methods

This research uses the descriptive qualitative method. The sampling technique is purposive sampling by considering the biological abilities of students. The total population of all students of class X MIPA SMAN 2 Ungaran was 210. The sample is 58 people from each of the 6 classes and class X biology teachers. The data collection methods used were questionnaires and interviews. The questionnaire was used for students while the interviews were with the biology teacher in grade 10. The questions consisted of closed questions and open questions. The needs analysis questionnaire is in the form of an open questionnaire and checklist. The questions in the questionnaire were adapted from [13]. The data obtained from the questionnaire were then analyzed descriptively. The results of data analysis using a percentage.

3. Results and discussion

Based on the results of questionnaires and interviews given to students in the 2019/2020 academic school year, most students need encyclopedia biodiversity of Mount Ungaran to understand the concept of the material from the genetic, species, ecosystem, the biodiversity threatened and utilization. The questionnaire data contained students to reveal problems which can be seen in Table 1.

Based on the analysis conducted, as many as 70.68% of students said that learning biodiversity is important to learn. Students need knowledge of biodiversity in the surrounding environment [13]. This, of course, makes students know the benefits of studying biodiversity. Learning biodiversity can affect students' knowledge and attitudes every day at home or school [14]. Students using learning resources on biodiversity material are limited to worksheets and printed books. It is in line with the 10th-grade biology teacher interview results that students often use worksheets, printed books from erlangga publishers, and PowerPoint during the learning process. The use of learning resources in the learning process needs to be done to improve student learning outcomes [15]. Various learning resources have positive benefits for students' motivation, creativity, and understanding [16].

As many as 63.79% of students said the learning resources used did not focus on Mount Ungaran biodiversity's local potential. The local potentials around can be used as knowledge and learning [17]. Learning resources for biodiversity based on local potential are effective for the learning process [18]. The advantages of learning resources for biodiversity include providing examples in the surrounding environment [19-20]. Students want a conducive learning environment to be active in the learning process [21].

Some students said the learning resources used were ordinary and boring. This shows that there is a relationship between learning resources and student enthusiasm. Student motivation in the learning process can be influenced by the learning resources used [20].

Table 1. Need analysis questionnaire

| Question | Answers | <i>f</i> | Percentage (%) |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------|----------------|
| What do you think about learning biology, especially material on biodiversity? | Very important | 17 | 29.31 |
| | Urgent | 41 | 70.68 |
| | The usual | 0 | 0 |
| | Not important | 0 | 0 |
| So far, what learning resources have been used in biodiversity? | Student worksheet | 53 | 91.37 |
| | Book | 5 | 8,62 |
| | Internet | 0 | 0 |
| What do you think about the learning resources used in learning biodiversity? | The usual | 16 | 27.58 |
| | Boring | 5 | 8.62 |
| | Not Focusing on Local Potential Biodiversity of Mount. Ungaran | 37 | 63.79 |
| Do you agree if there is an encyclopedia of mountain biodiversity in Mount Ungaran? | Yes | 50 | 86.20 |
| | Not | 8 | 13.80 |
| What is the desired source of biodiversity learning? | Only Matter | 0 | 0 |
| | Material, pictures, encyclopedia practice questions | 58 | 100 |
| Have the learning resources currently used have raised local potential, especially the biodiversity of Mount Ungaran? | Already | 0 | 0 |
| | Not yet | 58 | 100 |
| Is it important if the learning resource in the form of an encyclopedia of biodiversity on Mount Ungaran? | Very important | 41 | 70.68 |
| | Urgent | 16 | 27.58 |
| | The usual | 1 | 1.72 |
| | Not important | 0 | 0 |

Students agree that the encyclopedia can be used in the learning process. This is due to the unavailability of an encyclopedia that raises Mount Ungaran biodiversity's local potential. All students want an encyclopedia that contains material, actual pictures, and exercises. An encyclopedia that uses actual images can attract students' interest [21]. As many as 70.68% of students said it is necessary to study material on biodiversity based on the utilization of local potential, especially in Mount Ungaran in the form of an Encyclopedia. The encyclopedia can aim to provide additional learning facilities for students [22]. The use of encyclopedias in learning can affect students' science process skills [23]. Based on this, an encyclopedia of biodiversity needs to be developed for learning with learning that is easy to understand, fun, and motivates students in learning.

4. Conclusion

The results of the analysis obtained that the students are currently using the learning resources in the form of textbooks and Student worksheets (LKS). The use of books is still less clearly describing biodiversity based on the potential of the school's environment. As many as 63.79% describe that the material biodiversity yet has the uniqueness as well as utilizing local potential. As many as 70.68% of students said they need to learn the material biodiversity based on local potential, especially in the Mount Ungaran in the form of an Encyclopedia.

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References

- [1] Sari J R 2018 *Jurnal OFFSHORE* **2** 1
- [2] Rahayuningsih M, Utami N R, and Abdullah M 2017 *Int. J. Environ. Eng* **4** 9
- [3] Rahayuningsih M, Nugroho E K, and Retnaningsih A 2017 *Biodiversitas* **18** 3
- [4] Wicaksono A, Irmade O, and Jumanto 2017 *J. Komun. Pendidik.* **1** 2
- [5] Priwantoro WS, Fahmi S, and Astuti D 2018 *AdMathEdu.* **8** 1
- [6] Zsoka A., Szerenyi Z M, Szechy A, and Kocsis T 2013 *J. Clean. Prod.* **48** 125
- [7] Schneiderhan J O and Bogner F X 2020 *Stud. Educ. Eval.* **66** 100892
- [8] Rohandi 2017 *IJIET* **1** 1
- [9] Pusat Bahasa Departemen Pendidikan Nasional 2005 *Kamus Besar Bahasa Indonesia Edisi Ketiga* (Jakarta: Balai Pustaka)
- [10] Sönmez H 2019 *IJELS* **7** 1
- [11] Bedoya P A, Valencia L M, and Montoya J C 2015 *HOW* **22** 2
- [12] Cahyo A 2013 *Panduan Aplikasi Teori-Teori Belajar Mengajar Teraktual dan Terpopuler* (Yogyakarta: DIVA Press)
- [13] Kemendikbud 2018 *Peraturan Kementrian Pendidikan Dan Kebudayaan Republik Indonesia No. 38 Tahun 2018* (Jakarta: Kemendikbud)
- [14] Bayyurt Y K N B 2015 *Boğaziçi Univ. J. Educ.* **28** 113
- [15] Lili-Ann W, Tuula H and Skarstein 2020 *Sustainability* **12** 3698
- [16] Alexander R and Gopalsamy PM 2011 *IEJEE* **1** 2
- [17] Ghavifekr S, Athirah W R 2015 *J. Res. Edu. Sci.* **1** 2
- [18] Bušljeta R 2013 *Czech-Pol. Hist. Pedagog. J.* **5** 2
- [19] Mungmachon R 2013 *IJHSS* **2** 13
- [20] Changwong, K, Sukkamart A, and Sisan B 2018 *J. Int. Stud.* **11** 2
- [21] Samira A, and Boroujeni F M F 2013 *IJHSSI* **2** 6
- [22] Sunarsih S, Rahayuningsih M, and Setiati N 2020 *JISE* **9** 1
- [23] Nusantari A and Lihawa A 2017 *IAJPR* **4** 11
- [24] Hufford L T 2011 *Atlas J. Sci. Educ.* **1** 2
- [25] Al-Shara I 2015 *ESJ* **11** 19
- [26] Haryanto B F H, Rudayatmi E, and Abdullah M 2019 *JBE* **8** 1
- [27] Fitriani R D and Sulistiyawati 2020 *Proc.Internat.Conf.Sci.Engin* **3** 629
- [28] Hernawati D, Amin M, Irawati M H, Indriwati SE, and Omar N 2018 *JPII* **7** 3