

The Disaster Mitigation Diffusion Through Need Analysis of Students and Lecturers on Disaster Material and Disaster Mitigation Through Innovation on Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi

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Abstract— Disaster mitigation diffusion is very necessary and comprehensively designed for people who live in disaster-prone areas. Mitigation is defined as actions taken before the occurrence of a disaster, to reduce the impact of disasters and minimize loss of property and casualties, both through structural and non-structural approaches. Disaster mitigation diffusion is very important for the community, especially for students in the Semarang State University. The implementation of conservation insights in Higher Education Tridharma activities, one of them is educational activities. The form of implementation is two credits of Conservation Education courses that must be taken by all Semarang State University students under the S1 and D3 levels. As a support for the course, the students are provided with two books namely Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi. The two conservation-minded books have not yet clearly and detailed about natural disasters and disaster mitigation. The academic community's concern for natural disasters and disaster mitigation is in line with UNNES's vision to become a conservation university. Disaster mitigation, in accordance with the Republic of Indonesia Law Number 24 of 2007 article 47, is carried out to reduce disaster risk for communities in disaster-prone areas, which can be in the form of education, counseling and training, conventional or modern. Disaster mitigation diffusion can be done by the development of teaching books, through the innovation on Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi. The problem statement revealed in this article is the need analysis of students and lecturers on disaster material and disaster mitigation through innovation on Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi. Interview and questionnaire techniques were conducted to collect data on the needs of students and lecturers on disaster material and disaster mitigation through innovation on Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi, carried out in several ways. Free interviews will be conducted with representatives of research subjects from students and experts, with the questions given the same as the questionnaire. The questionnaire was created using the open and closed combination question model, for Semarang State University student respondents who had and will take the Conservation

Education Course. The results of the needs analysis show that 96% of respondents need to add material about disasters and disaster mitigation in the handbook of Conservation Education courses.

Keywords— *diffusion, conservation education, disaster material, disaster mitigation*

I. INTRODUCTION

Based on UNNES Rector Regulation No. 22 of 2009 concerning Semarang State University as a Conservation University and UNNES Rector Regulation No. 6 of 2017 concerning the Conservation Spirit of UNNES, it clearly describes all activities of Semarang State University academics in the Higher Education Tridharma activities. The Semarang State University Development Master Plan for 2016-2040 aimed at realizing Semarang State University with Conservation and International Reputation, explained that conservation insights become a spirit and are implemented in the activities of Higher Education Tridharma.

Implementation of conservation insights in the activities of Higher Education Tridharma, one of the educational activities, namely through the holding of 2 Education Conservation courses that must be taken by all Semarang State University students under the S1 and D3 levels. The Conservation Education course is also equipped with RPS and ISBN textbooks. The Conservation Education course has the achievement of course learning (CPMK), which is that students able to implement conservation values and the pillars of conservation of natural and environmental resources, arts and culture, values and characters that develop in the community to realize conservation-minded behavior. The Textbook on Conservation Education courses entitled Buku Ajar Pendidikan Konservasi, published in 2016, is a revised edition of Buku Ajar Pendidikan Lingkungan Hidup published in 2014. Buku Ajar Pendidikan Konservasi is the work of Dr. Puji Hardati,

M.Sc., et al., Consists of six chapters presented in 198 pages. Each chapter begins with the presentation of basic competencies and ends with the planting of attitudes and assignments (Hardati, Setyowati, Wilonoyudho, Martuti, & Utomo, 2016, pp. ix-x).

Tiga Pilar Konservasi: Penopang Rumah Ilmu Pengembang Peradaban Unggul, published in 2017 by Prof. Dr. Mungin Eddy Wibowo, M.Pd., M.Kons., et al, were presented in 172 pages. Tiga Pilar Konservasi: Penopang Rumah Ilmu Pengembang Peradaban Unggul, consisting of 5 chapters. Rector of Semarang State University, Prof. Dr. Fathur Rokhman, M.Hum, in the introduction of the book explained that this book is part of UNNES's initiative to realize UNNES's vision of becoming a conservation and internationally reputed university. In this book, it is emphasized that UNNES makes crystallization of conservation consists of three pillars, namely (1) values and character, (2) art and culture, and (3) natural and environmental resources. The pillar of value and character boils down to the formation of superior civilized campuses. The pillars of art and culture boil down to the noble cultural campus. Furthermore, the pillars of natural resources and the environment boil down to forming an independent green campus (Wibowo, et al., 2017, p. vii).

The two books have not yet clearly and in detail about natural disasters and disaster mitigation. The academic community's concern for natural disasters and disaster mitigation is in line with UNNES's vision to become a conservation-minded university. Disaster mitigation, in accordance with the Republic of Indonesia Law Number 24 of 2007 article 47, is carried out to reduce disaster risk for communities in disaster-prone areas, which can be in the form of education, counseling and training, conventional and modern. Disaster mitigation diffusion is carried out with the aim of (1) providing information to students about correct knowledge about disasters, (2) giving an understanding of systematic protection, (3) equipping students through practical training on how to protect themselves and how they can respond to the disaster appropriately and fast. Diffusion of disaster mitigation can be through schools, universities, or directly to the general public. Disaster mitigation itself consists of several stages, namely the pre-disaster stage, the stage when disaster or emergency, and the post-disaster stage (Purwanto, 2011, pp. 9-10).

Diffusion of disaster mitigation can be done through the development of teaching books, one of which is through innovation on Buku Ajar Pendidikan Konservasi dan the book Tiga Pilar Konservasi. The first step in the process of developing textbooks is the needs analysis of textbook development. The problem statement revealed in this article is the need analysis of students and lecturers on disaster material and disaster mitigation through innovation on Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi. Needs analysis in the development of teaching books is needed to assess and identify the needs of lecturers and students in developing teaching materials, to find deficiencies in existing teaching materials, and to maintain

the superiority of existing teaching materials (Nurjannah, 2018, pp. 49-50).

II. METHODOLOGY

Interview and questionnaire techniques were conducted to collect data on the needs of students and lecturers on disaster material and disaster mitigation through innovation on Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi, carried out in several ways. Free interviews will be conducted with representatives of research subjects from students and experts, with the questions given the same as the questionnaire. The questionnaire was created using the open and closed combination question model, for Semarang State University student respondents who had and will take the Conservation Education Course.

III. RESULT AND DISCUSSION

A. Profile of the respondent

The subjects of this study were 187 UNNES students who had taken the Conservation Education Course. 187 students were divided into 115 students (or 61% of respondents) from Foreign Languages and Literature majors and 72 students (or 39% of respondents) came from other study programs outside of Foreign Language and Literature majors. When viewed from the class of lectures, 187 students were divided into 83 students (44% of respondents) came from the class of 2016; 60 students (32% of respondents) constitute 2017 class; 22 students (12% of respondents) came from the 2015 class; 14 students (7% of respondents) from class 2018; 5 students (3% of respondents) were in the class of 2014; and 3 students (2% of respondents) came from class of 2012. Then, based on the gender of the respondents, it would be seen that 140 students (75% of respondents) were female and 47 were students (25% of respondents) were male.

To find out the students' needs for disaster material and disaster mitigation through innovation on Buku Ajar Pendidikan Konservasi dan the book Tiga Pilar Konservasi book, students are asked to answer questions given through questionnaires. Student needs for disaster material and disaster mitigation through innovation on Buku Ajar Pendidikan Konservasi dan the book Tiga Pilar Konservasi book that will be discussed are (1) student opinions about the Conservation Education course that have been taken for one semester, (2) student opinions on lecture on Conservation Education, (3) student opinions about Conservation Education textbooks, (4) views of students if they are carried out innovations in Conservation Education textbooks, (5) students views if the Conservation Education innovation book focuses on adding material on disaster disaster mitigation, (6) students views about the presentation of material on disaster and disaster mitigation; and (7) necessary or not if there is a special discussion about disaster and disaster mitigation.

B. The students views about the Conservation Education course

As many as 164 students (88% of respondents) stated that they took the Conservation Education Course in

semester 1. 13 students (7% of respondents) had taken the Conservation Education Course in semester 2. Furthermore 5 students or 3% of respondents stated if they took Mata Conservation Education Lecture on the 3rd semester. Then 3 students or 2% of respondents took the Conservation Education Course in the 4th semester and the remaining 2 students or 1% of respondents stated if they took the Conservation Education Course in the 6th semester.

The first question about the opinions of students regarding the Conservation Education Course which has been taken for one semester. Students provide quite diverse answers, as shown in the following table (Table 1).

Table 1. Student responses to Conservation Education Courses

No.	Student responses	Total	Percentage
1.	Very well, the Conservation Education Course is in accordance with the RPS, with lecturers who master in their fields	50	27
2.	Very good, Conservation Education Courses provide important benefits and life skills	60	32
3.	Good, the Conservation Education Course is in line with the vision of UNNES	62	33
4.	Not good, the Conservation Education Course does not run optimally	7	4
5.	Not good, lecture hours during the day	7	4
6.	Others	1	1

Based on the student's opinion, it can be seen if as many as **172 students or 92% of respondents** consider if the Conservation Education course runs well and provides many benefits. The remaining **15 students or 8% of respondents** think that the Conservation Education course was not going well, with the reason that lecture hours were held during the day (so students felt tired or sleepy) and the Conservation Education Course does not run optimally.

The second question given to students aims to find out the opinions of students about the lecture material on Conservation Education, as can be seen in the following table (Table 2).

Table 2. The lecture material on Conservation Education

No.	Student responses	Total	Percentage
1.	Very good, lecture material is not just about biodiversity and environmental sustainability, but also about human resources, values, and character strengthening	85	45
2.	Very well, the lecture on Conservation Education is complete	16	9
3.	Good, the lecture material is aligned with the vision of UNNES to be a conservation-oriented and	79	42

No.	Student responses	Total	Percentage
	internationally reputed university		
4.	Not good, because the Education Conservation lecture material is truly new material and is not directly related to student study programs	6	3
5.	Not good, because the material needed by students (ex about disaster and disaster mitigation) is not yet available in the Conservation Education lecture material	1	1

Based on the student's answers, it can be seen that as many as 180 students or 96% of respondents think that the quality of the lecture material for Conservation Education is good. The remaining 7 students or 4% of respondents assess if the quality of the lecture material for Conservation Education is not good, for several reasons.

Furthermore, the third question is to find out the opinions of students about the quality of the Conservation Education textbook. The student opinions can be seen in Table 3.

Table 3. The quality of the Conservation Education textbook

No.	Student responses	Total	Percentage
1.	Very well, the material needed by students has been fully presented in the Conservation Education textbook, the lecturer teaches it in detail and is presented in advance in RPS	13	7
2.	Very well, the material in the Conservation Education textbook is presented in a coherent, systematic, complete manner, so that it is easy to read and understand	54	29
3.	Good, the Conservation Education textbook describes the seven pillars of conservation that represent each faculty at the UNNES	91	49
4.	Not good, the Conservation Education textbook does not yet contain material needed by students, for example disaster management and disaster mitigation	17	9
5.	not good, the material in the Conservation Education textbook is not applicable and is not in accordance with the current conditions of Indonesian society	12	7

Based on the answers of the students mentioned above, it can be seen that 158 students or 84% of respondents stated that the Conservation Education textbook had good quality and the remaining 29 students or 16% of respondents considered that the Conservation Education textbook had poor quality so that it still needs improvement and innovation.

C. Analysis of student needs regarding the innovation of Conservation Education textbooks

The researcher submitted five questions to the students to gather information about the needs of students related to disaster management and disaster mitigation material in the innovation of Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book. The answers given by students will be the basis for developing teaching books conducted by researchers.

The first question aims to find out the opinions of students about student approval and disagreement if innovations are made on the Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book. The results of student answers can be seen in the following table

Table 4. Student approval and disagreement on the Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book innovations

No.	Student responses	Total	Percentage
1.	Strongly agree, the material presented in the book is still very theoretical, not accompanied by examples, making it difficult to understand	88	47
2.	Agree, the innovation of the Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book is done by adding material that is not too theoretical, applicable, and easy to apply in everyday life	92	49
3.	Less agree, the Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book used is easy to learn so it does not require innovation anymore	2	1
4.	Disagree, the material presented in the Conservation Education teaching book is very complete and solid according to what students need	5	3

Based on student responses to the first question, it can be seen if as many as **180 students or 96% of respondents** stated their agreement if innovations were made on the Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book, while the remaining **7 students or 4% of respondents** expressed their disapproval if innovations were made to the Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book. Students who show their disapproval give a reason if the material about disaster mitigation and disaster mitigation is not needed in a safe situation like now, and students are able to find information independently related to disaster mitigation and disaster mitigation.

The second question relates to the views of students if the innovation of the Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book focuses on adding material about disaster and disaster mitigation. Various answers are given by students as can be seen in table 5 below.

Table 5. The innovation of the Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book focuses on adding material about disaster and disaster mitigation

No.	Student responses	Total	Percentage
1.	Strongly agree, because the Conservation Education textbook does not yet contain material on disaster and disaster mitigation	65	35
2.	Agree, because students need to understand the material about disaster and mitigation seriously and in detail	110	59
3.	Less agree, students feel they have not needed material about disaster and mitigation because the current situation is safe so that disaster and mitigation material is better presented in other subjects	9	5
4.	Disagree, students can find information about disaster and disaster mitigation independently because there are many information available on the internet.	3	2

Based on the answers of the students as mentioned in the table above, it can be seen if as many as **175 students or 94% of respondents** agree if disaster and mitigation material is included in the textbook innovation. The remaining **12 students or 6% of respondents** said they did not agree if there were additional material for disaster and mitigation. The reason they submit is that students feel the current state of society is safe and do not require information about disasters and mitigation.

The third question concerns the views of students about the presentation of disaster and disaster mitigation material in the textbook that will be developed. Various answers are given by the students as can be seen in the following table 6.

Table 6. The presentation of disaster and disaster mitigation material in the textbook that will be developed

No.	Student responses	Total	Percentage
1.	Material about disaster and mitigation are presented in a special chapter with a deep explanation	123	66
2.	Material about disaster and mitigation integrates in a preexisting chapter, with a deep explanation	37	20
3.	Material about disaster and mitigation is sufficiently presented in outline, only the main things are explained	16	9
4.	Material about disaster and disaster mitigation is presented in two chapters so that the explanation can be more detailed in each chapter	11	6

Based on the answers given by the students as presented in the table above, which can be seen that most of the

students as many as **123 students or 66% of respondents** want if material about disaster and mitigation is presented in a special chapter with a deep explanation. Students assess on the development of teaching books, an additional special chapter for disaster and mitigation is quite adequate, because the previous textbooks were very rich.

The fourth question submitted to students aims to find out the opinions of students about the need for or not needed a special discussion about disasters, as can be seen in table 7 below.

Table 7. The need for or not needed a special discussion about disasters

No.	Student responses	Total	Percentage
1.	It is very necessary, the material on disaster is explained in detail per category of disasters (natural disasters, non-natural disasters, social disasters) and their characteristics	106	57
2.	Necessary, in the Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book, there are no mention of disaster material at all, even though it is important to know	73	39
3.	Less necessary, disaster material is simply presented as needed, does not require a long explanation	5	3
4.	No need, disaster material is not relevant to the Education Conservation course and is not needed at this time	3	2

Based on the answers given by the students as presented in the table above, which can be seen that most students as many as **179 students or 96% of respondents** stated their agreement if there was a special discussion about disaster in the development of textbooks. Furthermore, as many as **8 students or 4% of respondents** stated their disapproval if there was a special discussion about disaster in the development of textbooks. Students assess if the disaster material is not relevant to the Conservation Education Course and does not need disaster material for now. The development of teaching books will be based on the majority answers of respondents, namely providing detailed discussions about disasters in detail.

The fifth question or the last question submitted to students aims to find out the opinions of students about the need for or not needed a special discussion about disaster mitigation, as can be seen in table 8 below.

Table 8. The need for or not needed a special discussion about disaster mitigation

No.	Student responses	Total	Percentage
1.	Very necessary, material on disaster mitigation is explained in detail per category of disaster and per category of disaster mitigation and implementation strategies	93	50

No.	Student responses	Total	Percentage
2.	Necessary, disaster mitigation is a foreign material among students, not yet understood at all, even though it is very important to master	86	46
3.	Less necessary, disaster mitigation material can be studied independently, no need to enter the course	6	3
4.	No need, disaster mitigation is not an area that must be mastered by students because of the realm of government, no need to enter courses	2	1

Based on the answers given by the students as presented in the table above, which can be seen that most students as many as **179 students or 96% of respondents** stated their agreement if there was a special discussion about disaster mitigation in the development of textbooks. Furthermore, as many as **8 students or 4% of respondents** stated their disapproval if there was a special discussion about disaster mitigation in the development of textbooks. Students assess if disaster mitigation material can be studied independently and disaster mitigation is not an area that must be mastered by students because it is related to government policy. The development of teaching books will be based on the majority answers of respondents, namely providing specific discussions about disaster mitigation in detail.

IV. CONCLUSION

The results of the needs analysis show that 96% of respondents need to add material about disasters and disaster mitigation in the handbook of Conservation Education courses. This can be seen from the following explanation. First, as many as **180 students or 96% of respondents** stated their agreement if innovations were made on the Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book, while the remaining **7 students or 4% of respondents** expressed their disapproval if innovations were made to the Buku Ajar Pendidikan Konservasi and Tiga Pilar Konservasi book.

Second, as many as **175 students or 94% of respondents** agree if disaster and mitigation material is included in the textbook innovation. The remaining **12 students or 6% of respondents** said they did not agree if there were additional material for disaster and mitigation.

Third, that most of the students as many as **123 students or 66% of respondents** want if material about disaster and mitigation is presented in a special chapter with a deep explanation. Students assess on the development of teaching books, an additional special chapter for disaster and mitigation is quite adequate, because the previous textbooks were very rich.

Fourth, as many as **179 students or 96% of respondents** stated their agreement if there was a special discussion about disaster in the development of textbooks. Furthermore, as many as **8 students or 4% of respondents** stated their disapproval if there was a special discussion about disaster in the development of textbooks. Students

assess if the disaster material is not relevant to the Conservation Education Course and does not need disaster material for now. The development of teaching books will be based on the majority answers of respondents, namely providing detailed discussions about disasters in detail.

Fifth, as many as **179 students or 96% of respondents** stated their agreement if there was a special discussion about disaster mitigation in the development of textbooks. Furthermore, as many as **8 students or 4% of respondents** stated their disapproval if there was a special discussion about disaster mitigation in the development of textbooks. Students assess if disaster mitigation material can be studied independently and disaster mitigation is not an area that must be mastered by students because it is related to government policy. The development of teaching books will be based on the majority answers of respondents, namely providing specific discussions about disaster mitigation in detail.

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