

Analysis of the needs for integrated mathematics and natural sciences modules of the independent curriculum as a learning resource for pgsd unp kediri students

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Abstract: The purpose of this study was to analyze the need for learning resources in the form of MIPA modules integrated with the independent curriculum. The method used in this research is qualitative by using a research instrument in the form of a questionnaire on the needs of MIPA learning resources on the platform google *form*. Data collection technique by distributing questionnaires to respond to the needs of MIPA learning resources for 3rd semester students of PGSD Study Program, Nusantara University PGRI Kediri. Data analysis technique by analyzing the results of the needs response questionnaire. Based on the questionnaire analysis of the results of the response to the need for MIPA learning resources, it was found that students needed learning resources in the form of MIPA modules. The MIPA module is integrated with the independent curriculum so that later the material presented in the module is also in line with current needs in the field

Keywords: Needs Analysis, MIPA Module, Merdeka Curriculum

PRELIMINARY

Mathematics and Natural Sciences is a combination of Mathematics and Natural Sciences where one subject can be presented as one or separately (Hamid, 2011). In the Elementary School Teacher Education (PGSD) study program at Nusantara University PGRI Kediri there are courses that fall under the auspices of MIPA. Courses that contain elements of MIPA include Basic Concepts of Mathematics, Basic Concepts of Science, Learning and Solving Mathematical Problems, Learning and Solving Science Problems, and Mathematics and Natural Sciences Laboratory Education.

Each of these courses has its own goals that must be achieved by students at the end of the semester, where to achieve these goals a supporting element is needed in lectures. Among the supporting elements are the lecture methods used by lecturers, lecture media, structured assignments and adequate learning resources. One very

important supporting element is a learning resource for students (Supriadi, 2015). Learning resources are used to explore lecture material delivered by lecturers as well as a source in carrying out various structured assignments given by lecturers (Hafid, 2011). However, learning resources are often found only in the form of power points from lecturers or even looking for various sources from the internet, but students often search from blog pages, not from journals or scientific articles.

Based on these problems, there are alternative solutions to help students get adequate learning resources, namely by developing MIPA modules. The module is a unified form of learning material that can be used by students for independent study or learning with teachers (Al Azka, Setyawati, & Albab, 2019). The content in the module is designed systematically according to the learning needs of the students, so it is better if the module can be developed by the teacher himself (Setiyawan, 2013). The development of the MIPA module is integrated with the independent curriculum, because some of the material in MIPA-related courses has been adapted to the material studied in elementary schools. The independent curriculum is a curriculum with various intracurricular learning where the content will be more optimal so that students have enough time to explore concepts and strengthen competence (Malikah et al., 2022). Before developing the MIPA module, it is necessary to do a needs analysis of the learning resources needed by students. Based on the needs analysis, the content in the MIPA module has been adjusted to the existing needs.

As research conducted by Parmin, (2012) with the title "Module Development of Science Teaching and Learning Strategy Courses Based on Learning Research Results" states that the existence of module development as a source of student learning can increase motivation and student learning outcomes. This is evidenced by the results of 68% or 17 students from the number of students in one class, namely 25 people, getting AB to A grades. As well as all of the research respondents who stated they were interested in using the module. This means that with the existence of adequate learning resources it is hoped that it can support the student lecture process and can assist supporting lecturers in achieving lecture goals in the courses they are teaching. The purpose of this research is to analyze the needs of PGSD Study Program students at Nusantara University PGRI Kediri in the MIPA module which is integrated with the independent curriculum in the selection of the material content.

METHOD

This study uses a qualitative method. The sample respondents in this study were PGSD students at Nusantara University PGRI Kediri in semester 3 and had taken several courses related to MIPA. Students were randomly selected from as many as 30 people. Data collection techniques through filling out questionnaires respond to the needs of learning resources in MIPA-related courses. The research instrument is a response questionnaire which is presented through the Google Form application so that respondents can easily access it at any time and at any time. The response questionnaire contains questions that lead to an analysis of student needs for learning resources in the form of modules to support courses related to MIPA. Data analysis technique by analyzing the contents of the student response questionnaire results. Analysis of the results of each question which will lead to conclusions about the needs of student learning resources.

RESULTS

Based on the student response questionnaire, the following data were obtained:

Table 1. Student Need Response Questionnaire Results

No	Question	Response Results
1	Does your lecturer use learning resources in Mathematics Science/MIPA lectures?	All respondents answered yes
2	Are the lectures delivered by the lecturer sufficient for you to understand the Mathematics of Science / Mathematics?	27 respondents answered yes
3	Has your lecturer ever used teaching modules during Mathematics Science / MIPA lectures?	25 respondents answered yes
4	What are the learning resources used in Mathematics Science / MIPA lecture activities?	<ul style="list-style-type: none">● 9 respondents answered MFI● 18 respondents answered textbooks● And the rest answered other sources
5	Where do you get learning resources for Mathematics for Science / MIPA?	27 respondents answered from the internet and 3 respondents answered from the library

6	Can the available learning resources be used to understand the concepts of Mathematics in Science / Mathematics and Natural Sciences?	28 respondents answered yes
7	In your opinion, is Mathematics for Science / MIPA easy to understand?	25 respondents answered yes easy to understand
8	In your opinion, what kind of learning resources are needed for Science / MIPA Mathematics material?	29 respondents answered the module or handout
9	Is it necessary to develop modules as learning resources for Mathematics for Science/MIPA integrated with the independent curriculum?	All respondents answered that there is a need for the development of the MIPA module
10	Do you agree if there is an integrated Mathematics Science / MIPA lecture module with an independent curriculum?	All respondents agreed

If depicted in a chart, the percentage of scores for each question is obtained as follows

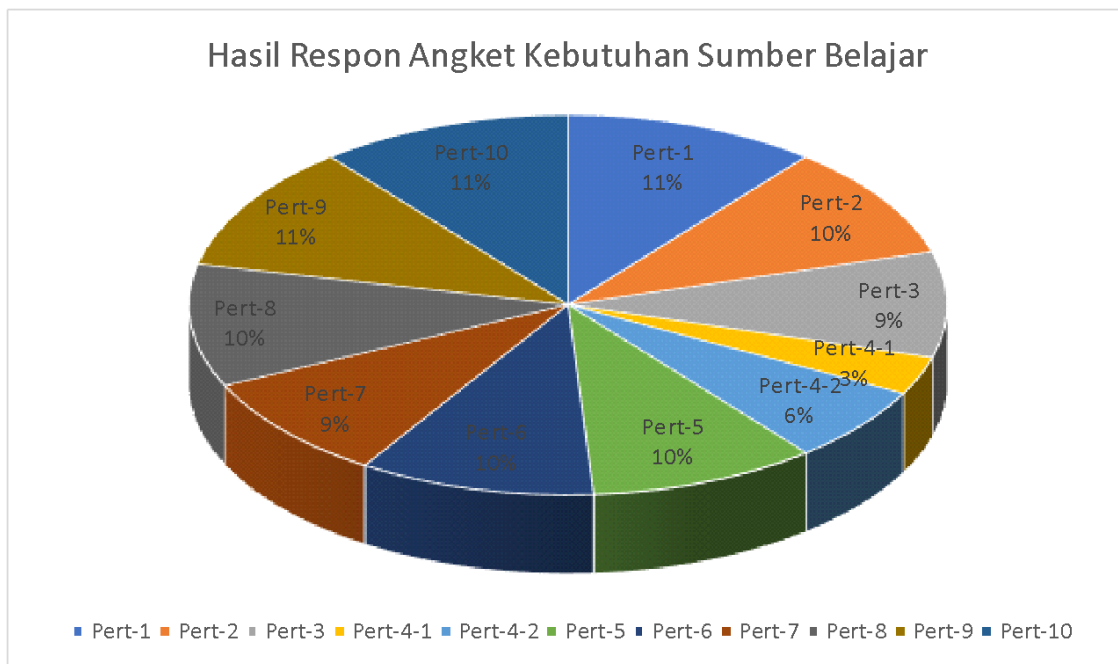


Figure 1.1 Response Results to Student Learning Resource Needs Questionnaire

DISCUSSION

Based on data from the results of student responses to the questionnaire for the need for learning resources in the form of modules leading to the need for the development of a MIPA module integrated with the independent curriculum. This is supported by the

description of data analysis based on the questionnaire on the needs of student learning resources and the following results of field observations,

1. Does your lecturer use learning resources in Mathematics Science/MIPA lectures?

To this question all respondents answered yes. The purpose of the answer is that the supporting lecturer uses learning resources to support the lecture process. Learning resources are an important component in a learning process (Sasmita, 2020). The existence of learning resources is able to help students in this study, namely students, can better understand and explore the contents of the material explained by the supporting lecturer (Lilawati, 2017). In addition, learning resources can also help students to easily do structured assignments given by their lecturer (Ramlawati, L, Saenab, & Yunus, 2017).

2. Are the lectures delivered by the lecturer sufficient for you to understand the Mathematics of Science / Mathematics?

In this question as many as 27 respondents answered yes. According to respondents, the MIPA material delivered by the supporting lecturers was sufficient to be understood at that time or during the lecture. However, when an in-depth test was held, many students scored below the $KKM \geq 75$. This can be proven from the results of the Mid Semester and Final Semester Examinations, as many as 70% of students scored below the KKM. This problem is found in almost all subjects related to MIPA. This reinforces the allegation that students only understand when it is explained, but the understanding that students get is only around 30% so that they can continue to remember the material concepts provided by the power lecturers.

3. Has your lecturer ever used teaching modules during Mathematics Science / MIPA lectures?

About 25 respondents answered yes to this question. Respondents' statements stated that most of the lecturers had used the module in the lecture process, but there were also supporting lecturers who had not used the teaching module. However, it turned out that many of the students' understanding of the module was wrong, they considered the module to be the same as a textbook and in the end the students answered that the supporting lecturer had indeed used the module even though it was a textbook. In this case, understanding is needed so that students can distinguish learning resources from textbooks or modules because the two are different (Irawati & Saifuddin, 2018). Many of the textbooks used are in the form of e-books and there are still a few supporting lecturers who develop learning resources in the form of modules, especially for lecturers in MIPA courses. This means that the answer to question

number 3 is not valid because there is a conceptual error in understanding and distinguishing between textbooks and modules for students.

4. What are the learning resources used in Mathematics Science / MIPA lecture activities?

In the question, most of the respondents, namely 18 students, answered textbooks, while other respondents answered student worksheets and other learning resources. Based on the reality on the ground, most of the lecturers in the Mathematics and Natural Sciences course use textbooks to support the lecture process. Recommended textbooks are usually the works of certain authors whose contents are considered easily understood by students. Referenced textbooks can usually be borrowed from the library. Textbooks are indeed very important to be used as learning resources by students (Suwartini, 2018). However, sometimes the textbooks by other authors are not in accordance with what was explained by the supporting lecturers (Suja, 2011). In addition, sometimes students also think that they are not suitable for their needs in helping with structured assignments. Therefore it is necessary to have learning resources developed by teachers so that they can suit the needs of students (Wulandari & Purwanto, 2017).

5. Where do you get learning resources for Mathematics for Science / MIPA?

As many as 27 respondents answered that they came from the internet. Learning resources can be obtained from anywhere, including access via the internet. However, the limitations of supporting lecturers to take sources from the internet in the form of journals or scientific articles are often ignored by students. Often students take from irrelevant sources, so the truth is doubtful (Sasmita, 2020). From these problems it is necessary to develop learning resources that are tailored to the needs of students. So that learning resources can always help during the lecture process (Reza Ardiansyah1, A.D. Corebima2, 2017).

6. Can the available learning resources be used to understand the concepts of Mathematics in Science / Mathematics and Natural Sciences?

As many as 28 respondents answered that the existing learning resources had helped to understand the MIPA concept. The learning source referred to by most of the respondents came from the internet. Many of the sources referred to come from non-scientific websites which are easily accessible by students. In response to this, it is necessary to have learning resources that are in accordance with the needs of students and indeed come from relevant sources so that the information obtained does not contain conceptual errors (Zunaidah, Farida N. & Amin, 2016).

7. In your opinion, is Mathematics for Science / MIPA easy to understand?

As many as 25 respondents answered that MIPA material was still easy to understand, but there were some respondents who had difficulty understanding the material. Regardless of how easy or difficult it is in MIPA material, in understanding MIPA concepts there must still be relevant learning resources so that the concepts understood are not wrong and out of the MIPA context (Zubaidah, 2016).

8. In your opinion, what kind of learning resources are needed for Science / MIPA Mathematics material?

As many as 29 respondents answered that they needed learning resources in the form of modules or handouts that were adapted to the material and assignments given by the course supervisor. Even though there are many learning resources that can be accessed, it turns out that students are more enthusiastic and motivated to learn if there are learning resources made by the supervisor (Santoso & Hasibuan, 2007). Students feel they will be more related to what the lecturer has explained.

9. Is it necessary to develop modules as learning resources for Mathematics for Science/MIPA integrated with the independent curriculum?

In this question, all respondents answered that it was necessary to do it. This is supported by some material in the basic concepts of mathematics or natural sciences and the Mathematics and Natural Sciences Laboratory presents material that is often studied in elementary schools and for now adapted to the presentation of the concept of an independent curriculum. With the MIPA module integrated with the independent curriculum, it is hoped that later when students have started teaching internships or have graduated and worked as elementary school teachers, they can implement the knowledge they have learned while in college (Mardati, 2016).

10. Do you agree if there is an integrated Mathematics Science / MIPA lecture module with an independent curriculum?

All respondents answered that they agreed, meaning that all respondents responded positively to the development of an independent curriculum integrated MIPA module, of course, the contents of the module were also adjusted to the needs of students. With the module according to student needs, it is hoped that it will be able to increase student motivation and learning outcomes in MIPA courses (Safrida, 2018).

CONCLUSION

Based on the description above, it can be concluded that the analysis conducted on semester 3 students of PGSD Study Program, Nusantara University PGRI Kediri, requires an adequate learning resource. Regarding the Mathematics and Natural Sciences subject, based on the analysis of the needs questionnaire it was concluded that students need learning resources in the form of modules that can be used to study anywhere and anytime. The needs analysis was used as a reference for developing an independent curriculum integrated MIPA module, because it was felt by all respondents according to the learning needs of students.

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