

Need Analysis of Disseminate Phase: Handout of Evaluation and Learning Biology Based on Guided Discovery Method

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Abstract: Some problem in evaluation and learning biology subject are students have difficulty to understand concepts of material, and the unavailability of teaching materials that can guide students to find their own knowledge. The solution to this problem is to result a handout based on guided discovery method. The development carried out has produced handout that valid, practical, and effective, and disseminate stages will be carried out. The disseminate stage is carried out in the Program Studi Pendidikan Biologi, STKIP Ahlussunnah, Bukittinggi, West Sumatera. This study aims to determine the needs of students related to products that have been resulted. This research is a descriptive research which is in the disseminate phase of 4-D Models. The instrument used questionnaire form. The questionnaire was filled out by students of Program Studi Pendidikan Biologi STKIP Ahlussunnah who have taken the course process evaluation process and learning outcomes of biology as many as 20 students, and the data processed with a percentage formula. The results showed that the average value of student needs for handouts was 84.86% with criteria very need. It can be concluded that handout based on guided discovery method 84.86% is needed by student of other universities. Its mean too that using the handout based on guided discovery at learning can improve the motivation, and understanding student to the lesson topics.

Keywords: Analysis of Disseminate Needs, Handout, Guided Discovery Method

1. Introduction

Process evaluation and learning outcomes of biology subject is one of the subjects that must be studied and understood by teacher students. This is because students as a prospective teacher must be able to assess and evaluate the learning outcomes of their students, so that they can describe the abilities of each student correctly. Educational evaluation is applied to find out learner's achievements and diagnose educational outcomes, and plays a vital role in improving the education quality. Classroom assesment and evaluation are highly concerned with qualitative judgments that are used to improve student's knowledge and learning. Assesment and

evaluation also give teachers useful information also give teachers useful information about how to improve their teaching methods [1].

The problem found in this lecture is that students cannot find information by themselves independently, because the method has not been able to guide students in finding their knowledge. Thus, the availability of teaching materials that can facilitate the guided discovery is not yet available. The solution to this problem is to develop handout based on guided discovery method. Developing teaching materials by educators can be a solution to the lack of teaching materials [2].

The method of discovery is a way of teaching that

regulates teaching in such a way that students acquire knowledge that they do not yet know through notification, partially or entirely found alone [3]. Guided discovery method is a learning method that provides opportunities for students to compile, process, organizing data provided by the teacher [4].

The guided discovery method is consistent with a constructivist approach where students learn more effectively by building their own knowledge. In science education, guided discovery method of teaching is believed to increase retention of materials learnt because the learner organizes the new information and integrates it with the information or knowledge that has already been accumulated and stored [5].

The guided discovery method is then converted into handout based on guided discovery method. Handouts are print media that include materials provided on paper for teaching and learning information. Usually taken from several literatures that have relevance to the material being taught or basic competencies and subject matter that must be mastered by students [6]. Using this handout, students are directed to independent learning in new knowledge using pre-existing knowledge. Students learn independently without expecting all material to be transferred by lecturers and find the concepts themselves with handout based on guided discovery method that will be designed. Previous research has produced handout that valid [7], practical [8], and effective [9]. Therefore, the next step is to disseminate products to other universities, namely STKIP Ahlussunnah Bukittinggi. The purpose of this study is to analyze product requirements, whether the product is needed by other universities or not.

2. Experimental Method

This research is a design research study using a 4D model

Table 2. Data Questionnaire for Product Distribution Needs.

NO	INDICATORS	VALUE (%)
1	Students have never used handout based on guided discovery method	75,00
2	Conformity with learning outcomes and lecture material	85,00
3	Ease in understanding the material	80,00
4	Increase knowledge	90,00
5	Increase motivation	81,67
6	Product disseminate	97,50
Average		84,86

Based on Table 2, the average value of students in the indicator has never used handout based on guided discovery method of 75%. For indicators of conformity with learning outcomes and lecture material by 85%. The indicators of easy in understanding material is 80%. Indicators increase knowledge by 90%. For indicators to improve motivation as 81,67%, and indicators of product distribution as 97,50%.

4. Discussion

In the indicator students have never used handout based on guided discovery method, the average value is 75% with high

consisting of 4 stages, namely define, design, develop, and disseminate [10]. Previous research has reached the stage of define, design, and develop which results handout that valid, practical and effective. In this study, the final stage of 4D will be continued, namely the disseminate stage, to see the needs of other universities regarding the products developed. The research instrument using the questionnaire needs to disseminate the product. Questionnaire consists of 6 indicators totaling 14 questions with indicators: 1) students have never used handout based on guided discovery method, 2) conformity with learning outcomes and lecture material, 3) ease in understanding the material, 4) increase knowledge, 5) increase motivation, and 6) product disseminate. The questionnaire was filled by 20 students of the Program Studi Pendidikan Biologi STKIP Ahlussunnah Bukittinggi who have taken courses in evaluating processes and biology learning outcomes. The data analysis technique used the percentage formula.

$$\text{Product distribution needs} = \frac{\text{average score}}{\text{maximum score}} \times 100\%$$

Criteria for product distribution needs refer to Table 1.

Table 1. Criteria for Product Distribution Needs.

INTERVAL	CATEGORIES
0 – 20	very unnecessary
21 – 40	not needed
41 – 60	less needed
61 – 80	needed
81 – 100	very needed

3. Result

Based on the results of filling out questionnaires on product distribution needs by students, the following data are obtained.

criteria. Only a fewpercentage of students have used handout based on guided discovery method, which means they need a New Handout. Handout based on guided discovery method are very suitable to be used in process evaluation and learning outcomes on Biology subject. At the Learning with guided discovery method is one way to convey ideas with the process of new finding. In this process students tried to find concepts and formulas, and the like facilitated by the teacher. As the process of finding and investigating, the results obtained will be faithful, and it have filled long-term memory as durable in memory, and it will not be easily forgotten by students. Understanding that is found on its own is an

understanding that it's truly mastered and easy to use or transfer in other situations [11].

For compliance with learning outcomes and lecture material, the average value is 85%. This means that the handouts that have been developed have the achievements and lecture material that are mostly the same as those learned by students. This is because in designing products, curriculum analysis needs to be carried out so that the material presented is appropriate. In addition, the product has passed the validation stage and was declared valid by experts both in terms of material, language, and media. Validation carried out by material experts aims to examine the content / material contained in the module in terms of depth and breadth and suitability of the material presented [12].

The average value of the indicator of ease of understanding material is 80%. This is because in terms of presentation, handouts have characteristics using sentences that are not too long, and language that is easy to understand. The presentation of guided discovery methods can also guide students to discover their own knowledge so that learning becomes more meaningful. A meaningful learning process will make retention of the student concept stronger. Students learn better when they are led through activities that allow them to find concepts for themselves rather than presenting concepts by instructors [13].

The average value of the indicator to increase knowledge is 90%. This means that students who learn using handout based on guided discovery method state that knowledge is increased through the use of this product and will certainly have an impact on their learning outcomes. The application of guided discovery methods can improve student learning outcomes [14].

The average value increases motivation by 81.67%. The main purpose of motivation is to move someone to arise the desire and willingness to do something so they can get results or achieve certain goals [15]. The use of handout based on guided discovery method can increase student motivation and this will relate to behavior and learning outcomes. Students who are motivated will show good behavior during lectures. Achievement motivation influences the behavior of students and has relationships that greatly determine the educational process and their learning achievement. Students who experience problems in school generally show a low level of motivation for achievement. Teachers need to strive for increased achievement motivation of students by providing support in the form of appreciation for their achievements in any field, giving attention, caring, feedback and making students feel that they have the ability to have a positive outlook on themselves and produce positive behavior [16].

For product distribution indicators, the average value is 97.5%. This indicates that the product needs to be developed to other universities and can be used by these universities. The practice of the dissemination stage is done by disseminating teaching books through distribution to students. This distribution is intended to obtain a response, feedback on products that have been developed. If there is a response that is not good, then the revision process will be carried out.

If the response of the target users of the product is good, then it will be carried out in large quantities and marketing so that the teaching materials are used by broader targets [17].

5. Conclusion

The results showed that the average value of student needs for handouts was 84.86% with criteria very need in learning process. It can be concluded that students have need a handout based on guided discovery method in learning. It's mean too that using the handout based on guided discovery at learning can improve the motivation, and understanding student to the lesson topics.

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