

# Analysis of Content and Learning of Food and Feed Bionutrition Supplement Book Students of Biology of University of Medan State

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**Abstract.** This study aims to determine the results of the feasibility of supplementary books from material experts and learning experts. This research was conducted at the Undergraduate Program (S1) of Medan State University from November 2021 to August 2022. The technique of collecting data is by means of a questionnaire. There are 2 types of questionnaires used to collect information and data needed in the development of supplement books, which are arranged based on the needs and suitability of information for students in General Biology lectures, namely: Material Expert Team, Questionnaire, and Learning Expert Team, to see the level of feasibility of the contents. The results of the material expert team's assessment showed that the feasibility of the content was in the very good category (95.3%), and the feasibility of the language was in the very good category (82.9%). While the learning expert team showed the feasibility of language in the very good category (93.3%), the feasibility of presentation in the very good category (95%), and PBL ( Project Based Learning ) in the very good category (100%) so it can be concluded that the product development The food and feed bionutrient supplement book that was developed is suitable to be used as student teaching material or as a learning reference in general biology courses.

**Keywords :** Feasibility of Content, Feasibility of Learning, Supplementary Books.

## 1 Introduction

Education is a form of human culture that is sweet. In the implementation of curriculum learning as a learning guide so that it is directed, and systematic. The curriculum in Indonesia that is currently used for universities is the Independent Learning Campus, the Independent Learning Campus Program (MBKM) is a program launched by the Minister of Education and Culture which aims to encourage students to master various sciences to prepare them to enter the world of work [1] . The curriculum targets students to be able to compete with overseas education and improve science process skills and scientific attitudes. Science process skills are the ability of students to apply scientific methods in understanding, developing and discovering knowledge. In addition, the existence of science process skills in students makes it easier for students to explore more useful information in the form of facts, development of attitudes, values and thinking skills [2]. Meanwhile, scientific attitude is the general mindset of a scientist,

namely being objective, curious, always asking questions, and concluding things according to facts. Planting a scientific attitude through the learning method will have an effect on fostering a positive attitude towards the concept or topic being studied [3].

Tools to apply curriculum with teaching materials. As the curriculum changes, the teaching materials also change. Teaching materials are all information in the form of text or tools that are prepared with competency standards used in learning. The types of teaching materials vary widely in the form of non-text and text. Supplementary books are teaching materials in the form of texts in the form of additional books as enrichment and add insight for students [4]. Companion books or supplement books serve to provide information on certain subjects in the curriculum broadly and/or more deeply. According to the Ministry of National Education, supplementary teaching materials are teaching materials whose purpose is to enrich, add to, or deepen the content of the curriculum. Therefore, companion books or supplementary books are printed teaching materials that are made according to the needs of students, so that they are easy to learn and the material is in the form of information that can complement the main book. There are several components of the evaluation of the supplement book, namely the content feasibility component which includes conformity with the indicators, the suitability of teaching materials, clarity of information, conformity with the Indonesian language, and the presentation feasibility component consisting of the order of presentation, presentation techniques, clarity of objectives to be achieved, and completeness. information [5].

Based on 24 student respondents, practicum activities that are usually carried out at the Biology Department, FMIPA State University, Medan are about General Biology books on feed and food bionutrient materials that have not been project-based so that there has not been a practicum of making good feed for animals, then 58.% of students who still find little project-based books on feed that affect the growth and development of livestock so that 54.3% of students really need a project-based reference book on general biology courses on feed that affect the growth and development of livestock, and 48.5% of students who have never read books or research on water hyacinth fermentation as feed for the growth and development of livestock. In accordance with the indicator that students are able to know good feed as bionutrients, students must be able to achieve these indicators. However, there are still few reference books related to good feed that affect the growth and development of livestock. Therefore, the researcher wants to develop a general biology supplement book, especially about bionutrients for feed and food so that it can help students in the General Biology course on feed and food bionutrients and can be a reference and guide in conducting research related to feed that has an effect on growth and development. animal development, and can make feed and determine good feed.

## **2 Research Methods**

The research will be carried out in March-August 2022. The research population is all undergraduate students of the Department of Biology who are taking General Biology courses at Medan State University in 2022. The research sample is Biology or Biology Education students in the third semester of Unimed with individual group subjects as many as 3 people, a small group of 9 people and a limited group of 27 people.

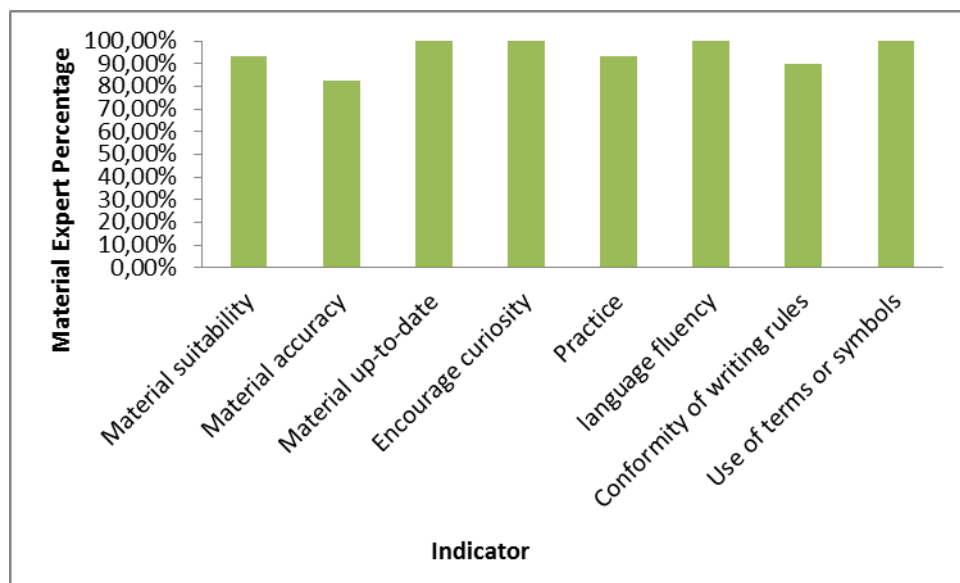
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General Biology lectures, namely: Material Expert Team, Questionnaire, and Learning Expert Team, to see the level of feasibility of the contents. using the following scoring technique:

$$\text{Eligibility Percentage} = (\text{Answer Score}/\text{Maximum Score}) \times 100\%. \quad (1)$$

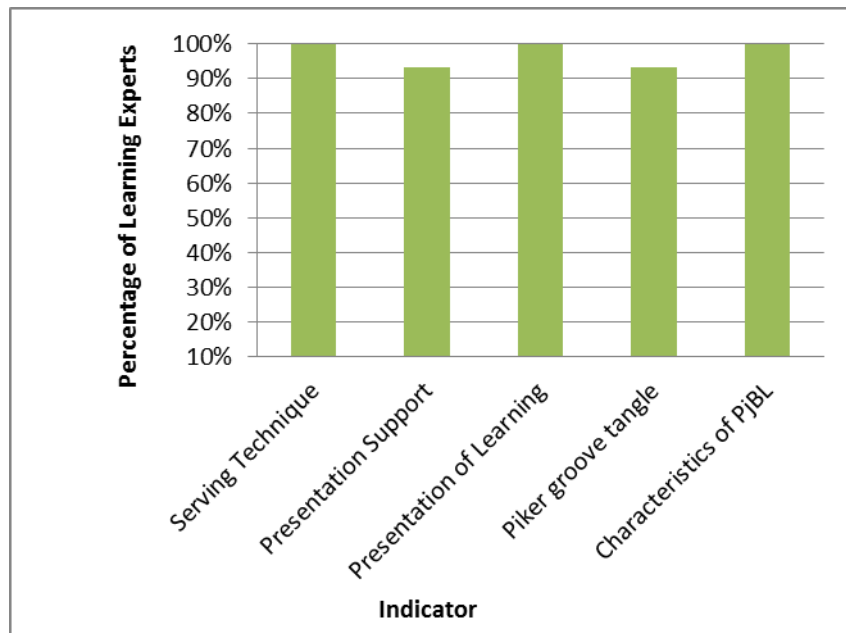
### 3 Results And Discussion

From the results of material expert calculations regarding the assessment of feed and food bionutrient supplement books which have material components, namely the suitability of the material with competence of 93.3%, material accuracy of 82.5%, 100% of material freshness, Encouraging 100% curiosity, 93 practicum, 3%, 100% straightforwardness of language, 90% conformity with Indonesian writing rules, and 100% use of symbolic terms. From the score obtained by the material expert, the feed and food bionutrient supplement book has a very decent category. The results obtained can be seen in Table 1.



**Figure 1.** Feasibility Results of Book Content Based on Material Experts

While the results of calculations from learning experts are that the feed and food bionutrient supplement book has components consisting of presentation techniques with a score of 100%, presentation support with a score of 93.3%, presentation of learning with a score of 100%, thinking flow with a score of 93.3 %, the characteristics of PjBL ( Project Based Learning ) with a score of 100%. From this assessment, the feed and food bionutrient supplement book according to learning experts is categorized as very feasible. The results obtained can be seen in Table 2 .



**Figure 2.** Learning Feasibility Results Based on Learning Experts]

### **1. Feasibility of Content and Feasibility of Language of Food and Feed Bionutrition Supplements Book**

The total amount in the assessment of the feasibility of the contents of the food and feed bionutrient supplement book is 93.82% with a very feasible category because the supplement book developed has met the requirements for good teaching material presentation, including systematic consistency of illustration presentation with material, identity and accuracy of table numbering, pictures and diagrams, as well as an introduction that is able to lead students to the material that must be understood. The details of the indicators for eligibility are as follows:

#### **1) Appropriateness of Competency Material**

In this indicator the suitability of the material with competence is divided into 3 descriptions, namely the breadth of the material that describes the substance of knowledge, the breadth of the material that describes the substance of knowledge, and the breadth of the material that describes the substance of the indicator. Of the three descriptions obtained a score of 93.3 % .

#### **2) Material Accuracy**

There are 8 material accuracy indicators consisting of concepts and definitions that do not cause much meaning and are in accordance with the material, images and illustrations presented are in accordance with reality and efficiently, terms are in accordance with the concepts and materials, the literature is presented accurately which is a reference in text, the accuracy of the illustration is in accordance with the basic principles of the material, the accuracy of the illustration is in accordance with the facts in a proportional form accompanied by information, and the procedures are described in a coherent and appropriate manner. From these descriptions, a score of 82.5% was obtained with a decent category.

3) Material Update

In this indicator, there are several descriptions which include the actual presented material, actual images and illustrations presented, and relevant, valid, and actual references used. From the three descriptions obtained a score of 100% with a very decent category.

4) Encourage Curiosity

The Encouraging Curiosity indicator has a description, namely the material presented makes students explore further information and this indicator gets a score of 100% with a very decent category.

5) Practice

In this indicator, it has 3 descriptions which include project tasks assigned to individuals or groups, project assignments according to the material, and project assignments according to the indicators presented. From the three descriptions, a score of 93.3% was obtained with a very decent category.

6) Simple Language

This indicator has 2 descriptions, namely the sentences used are easy to understand, and the terms used in the supplement book are in accordance with the developed book. From the assessment of the feasibility of the contents, a score of 100% was obtained with a very decent category.

7) Compatibility of Writing Rules

The indicators of conformity of writing rules have 2 descriptions, namely the sentence structure used in the supplement book refers to good and correct grammar rules, and the spelling used refers to the EYD guidelines. The two descriptions obtained a score of 90% with a very decent category.

8) Use of terms and symbols

This indicator has 2 descriptions, namely the terms used are the same between sections, and the depiction of symbols or icons must be consistent between sections in the supplement book. From the assessment of the feasibility of the contents, a score of 100% was obtained with a very decent category.

**2. Feasibility of Studying Food and Feed Bionutrient Supplements Book**

The total amount in the assessment of the feasibility of learning food and feed bionutrient supplement books is 97.32% with a very feasible category because the supplement book developed has met the requirements for presenting good teaching materials, including presentation techniques, presentation support, learning presentation, thinking flow, characteristics. PjBL. The details of the indicators for eligibility are as follows:

1) Presentation Technique

The presentation technique indicator has 2 descriptions consisting of a systematic presentation of project material consistently from one project to the next, and the presentation of concepts is presented in a sequence so as to help students understand more of the material. From the assessment of the feasibility of the contents, a score of 100% was obtained with a very decent category.

#### 2) Serving support

The indicators supporting the presentation have 3 descriptions, namely an introduction at the beginning of the book containing an introduction, instructions for using the book and a table of contents, the questions presented can train students' abilities, and the source material is not self-made but from current references. From the assessment of the feasibility of presenting this indicator, it obtained a score of 93.3 % with a very decent category.

#### 3) Presentation of learning

The indicators supporting the presentation have a description of the presentation method and approach directed to a project-based method. This indicator gets a score of 100% with a very decent category.

#### 4) Piker's Flow Sequence

This indicator has 2 descriptions, namely each project begins with a description of the indicators, a project description and project description, and the adequacy of the description of supporting materials. This indicator obtained a score of 93.3 % with a very decent category.

#### 5) Characteristics of PjBL

The PjBL Characteristics indicator has 3 descriptions consisting of data directing students to do planning (searching, solving, and designing) independently, being able to direct students to implementing (producing) independently, and being able to do evaluation (evaluating and sharing) independently. . This indicator gets a score of 100% with a very decent category.

### **4 Conclusion**

Based on the results of the study, that the food and feed bionutrient supplement book in terms of content feasibility was in the very feasible category by obtaining a score of 93.82% and in terms of learning feasibility it obtained a score of 97.32% in the very feasible category. Based on these results, the food and feed bionutrient supplement book is very feasible and is in accordance with the criteria determined by the BNSP.

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