The Development Of Best Practice Handbook Learning Strategy Based On Flip Book To Support Blended Learning Processes

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Abstract. This research aims to: 1) Produce teaching material best practice handbook by implementing the use of Flipbook application as a teaching and learning strategy, validated in the viewpoints of material and learning design; 2) To investigate the effectiveness of using best practice handbook as a teaching material with the implementation of Flipbook application as a teaching and learning strategy. The sample of this study includes Universitas Negeri Medan biology students 2019/2020 in their odd semester currently taking teaching and learning strategy course. The type of Research and Development research is a developed model using ADDIE (Analysis, Design, Development, Implementation, and Evaluation). The results of this study indicate that the value of eligibility by material acquisition experts is 86.21% that very decent criteria and the feasibility value by learning experts is 82.5% that feasible criteria. The effectiveness of teaching materials test was obtained 62.4% that adequately effective category. It can be concluded that the development of teaching materials for handbook best practice using Flipbook strategy course applications is suitable to use in teaching and learning strategies.

Key words: Handbook, Best Practice, Learning and Teaching Strategy

1. Introduction

Technology develops rapidly and changes continuously as well in Medan State University (UNIMED) which in the 2018/2019 school year is gradually leaving the learning process that uses papers, students and lecturers are given lecture facilities in the network (Blended Learning) that can be accessed by students at https://elearningfmipa.unimed.ac.id/. Lecturers are required to make teaching materials to support blended learning lectures with the existing facilities. Teaching material as a support for blended learning is a teaching material in a digital version, in which the teaching material can be accessed through electronic devices such as computers, cellphones or gadgets [1] [2]. Describes blended learning as "It represents an opportunity to integrate the innovative and technological advances offered by online learning. The main purpose of blended learning is to facilitate learning by providing various learning resources by paying attention to the characteristics of students in learning [3].

Teaching and learning strategy is one of the courses, Biology Education study program in Universitas Negeri Medan, while the analysis of needs in these courses is (1) Unimed Curriculum based on KKNI; (2) Best practice handbook teaching materials unavailability for high school level biology subjects that contain presentation techniques and learning model implementation in biology subject material; 3) Standardization needed on teaching materials used by students, because Biology education department and Unimed have obtained accreditation A from national accreditation institutions, The results of the first study conducted on students taking teaching and learning strategy subjects in 2017/2018 said: 1) 80% of students answered that the books provided were still in general; 2) as many as 76% of students answer the need for teaching materials where best practice in learning biology is as a reference; and 3) 80% of students need examples of biology learning videos.

Based on the problems mentioned above, it is very important and very urgent for students to have an teaching and learning strategy course teaching material innovation, one of the innovations
that can done is making handbook teaching materials. Teaching materials compiled will provide substance and presentation techniques, in this case the discussion and implementation of high school subject matter presented. Thus the prospective teachers taking learning strategy courses can learn how learning innovations in the form of best practice handbooks as guidelines for interesting learning design, besides that there will be a learning video that will become one of the references on how to teach well. According to [4], Interesting, effective and efficient learning requires innovative teaching materials. Based on these assumptions, researchers in producing products in the form of best practice handbook teaching materials using the Flipbook application teaching and learning strategies must be valid material, learning design. It expected to be effective in improving student learning outcomes in teaching and learning strategy courses.

2. Research Methods
This type of research is a research development or Research and Development with the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation) [5]. The aim is to produce teaching materials that are valid, and effective. This research was conducted at the Biology Education Study Program FMIPA, Unimed Academic year 2019/2020. The object of this research is flipbook-based teaching materials on teaching and learning strategies, and the effectiveness test on 136 students who is taking teaching and learning strategies courses.

The data analysis technique used in this study is a qualitative descriptive analysis technique that describes the results of product development in the form of teaching materials using teaching flipbook applications. Data obtained in the form of a check list that summarized in the form of a rating scale that is 1-4, with the information (1) Strongly Disagree, (2) Disagree, (3) Agree and (4) Strongly agree.

| Criteria            | Interval               | Score    |
|---------------------|------------------------|----------|
| Strongly Disagree   | 1                      | < 65%    |
| Disagree            | 2                      | 65%-74%  |
| Agree               | 3                      | 75%-84%  |
| Strongly agree      | 4                      | 85%-100% |

Analysis of the effectiveness of the resulting product done by testing the N-gain to find out the increase in learning outcomes between before and after learning with the formula:

\[ g = \frac{S_{\text{postest}} - S_{\text{pretex}}}{S_{\text{max}} - S_{\text{pretex}}} \]

| Presentase (%) | Tafsir       |
|---------------|-------------|
| < 40          | Ineffective |
| 40 – 55       | Less effective |
| 56-75         | Enough effective |
| >76           | effective    |

3. Result and Discussion

3.1. Development of teaching materials based on Flip Book
This development research aims to get the best practice handbook teaching materials by using the Flip book application of teaching and learning strategies that are valid material, learning design. Thus, it expected to be effective in improving student learning outcomes, the percentage of results of expert validation of the material presented below:

| Scoring Criteria | Average | Criteria |
|------------------|---------|----------|
| Content          | 85%     | Agree    |
Based on table 3, the percentage of results of material expert validation obtained by an average of 86.7% with Strongly agree criteria, the average obtained from 3 aspects, namely: 1) Aspect of contents with indicators learning, Material accuracy, Supporting subject, Material Expertise, 2) Aspects of presentation with indicators of Presentation Techniques, Presentation Supports, and 3) Language aspects with straightforward, communicative, dialogical and interactive indicators, well-ordered and cohesiveness. It can said that the teaching material developed is by the suitable material with the expected achievements of the course [6] that in teaching materials must meet the principle of consistency, the principle of adequacy, and the relationship between the expected approval indicators.

Table 4. Percentage of Learning Expert Validation Results

| Scoring Criteria | Average | Criteria       |
|------------------|---------|----------------|
| Introduction     | 91.6%   | Strongly agree |
| Pedagogic        | 79.1%   | Agree          |
| Content          | 79.1%   | Agree          |
| Best practice    | 85%     | Strongly agree |
| Average          | 83.7%   | Agree          |

From table 4 the validation results presentation of learning experts obtained an average of 83.7% with Agree criteria. This obtained from 4 aspects, namely: 1) the introduction aspect, 2) the teaching aspect, 3) the content aspect and 4) the best practice aspect, from the results of the learning validation it can stated that the teaching material developed is Agree in terms of learning.

3.2. The Effectiveness Test of Teaching Materials best practice handbook based on flip book

Field tests conducted with biology education students taking 136 teaching and learning strategies courses for the 2019/2020 academic year. At this stage students given 30 pre-test questions, which in this test, students are immediately given a question sheet then the researcher lets them answer the questions. After the pre-test, the lecture conducted using flipbook-based best practice teaching materials, then post-test conducted. Then the N-gain testing using SPSS 23 version with 62.4% results was quite effective, A trend that is gathering attention inside the Blended Learning models is the Flipped Classroom. Generally, in the traditional classroom, the teacher uses the time in the classroom to explain the theoretical and conceptual content and leaves the practices and exercises as extracurricular activities. According to the principles of the Flipped Classroom [7][8].

Teaching material as a support for banded learning is a teaching material in the digital version, where the teaching materials can be opened through electronic devices such as computers, mobile phones or gadgets. The advantages of Flip-Book-based teaching materials are (1) In terms of prices that are cheaper than ordinary book teaching materials, (2) Flip-Book is also environmentally friendly, using Flip-Book we have saved paper produced from trees and also save ink because the FlipBook does not use ink, (3) the Flip-Book is not damaged as long as it is not exposed to a virus. (4) Flip-books are easy to carry and have a relatively small size. With the gadget facilities that we already have we can bring hundreds or even thousands of Flip-Book teaching materials needed during the lecture process. (5) We can save time and place. (6) The Flip-Book delivery system is very fast. We can make Flip-Book deliveries in minutes [9]

4. Conclusion

Teaching materials for best practice handbooks using the Flip book application teaching and learning strategies courses developed with the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). The results of material experts validation obtained an average of
86.7% with Strongly agree criteria, the validation results of the learning experts obtained an average of 83.7% with the agree criteria and the results of the effectiveness test obtained a result of 62.4% with the category effective enough so that it can concluded that the *handbook* development teaching materials *best practice* by using the *Flip Book* application of strategy courses is appropriate for use in teaching and learning strategies.

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