The Development Test of Practical Work Module of Animal Structure Using Modified Free Inquiry

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Abstract. This was the continuation research of validity test at a development stage in the form of practicability test for practical work module of animal structure by using modified free inquiry approach. This research used Four-D model that consisted of four stages (Define, Design, Develop and Disseminate). In this development test stage, the product practicality test was carried out to the students who were taking the animal structure course, to the lecturers of the animal structure course (expert lecturers) and to other lecturers of other courses (as non-expert lecturers). The evaluation of practicality used the instrument of practicality in the form of questionnaires. The instruments used Likert Scale consisting of four options of answers and the results of the instrument were processed using the percentage formula. From the instrument result, it was found that the practicality of animal structure module that used modified free inquiry approach for the students and the lecturer were very practical.

1. Introduction
Practical work module of animal structure that uses modified free inquiry is the development of animal structure textbooks for practical work activity in laboratories. The use of modified free inquiry in the module is intended for students to realize their learning outcomes by finding their own knowledge. It is also intended that the learning of animal structure will be more meaningful and able to improve their scientific skills such as recognizing the problems given by the practical work module, formulating hypotheses and collecting data on the practical work activities of animal structure in the laboratory. Inquiry is an investigation of ideas, questions, or problems, in which the investigation may be a laboratory activity or other activity that can be used to gather information [1]. Furthermore, the type of technology integration from the application of inquiry learning is printed media such as books, journals, modules and the like [2].

The practical work module of animal structure that uses modified free inquiry has been assessed by experts. After the expert assessed, the learning materials on this module are tested to the lecturers and students during animal structure course. The test is conducted on practical work groups. The development test involves testing of the instructional materials on the target group members of the trainee [3]. In this case the group members of trainee refer to the lecturers and students. The purpose of this development test is to collect feedback to make the instructional and motivational material to be more effective. Frequently, the large gap is found between the judgments of validator and predictions.
of students practicing in using the developed products. Thus, the data from students’ testing remains the most valid predictor of potential problems.

A development test at the initial testing stage is the practicality stage by conducting a suitability test (the practicality of the practical work module of animal structure using modified free inquiry) to the user, tested individually to the lectures or students on face-to-face practical work activity with instructional developer (researchers) in the laboratory. Practically, it means the ease of utilisation [4]. Thus, this development test aims to assess the degree of fondness and ease in the utilisation of practical work module about animal structure by using modified free inquiry. Practicality assessment evaluates whether target users can work with intervention (practicality) and are willing to apply it in their teaching (relevance & sustainability) [5].

Tested textbooks are used by their authors or lecturers (users) during learning practice. The level of usability can be known and felt by the users. It can be recognized by finding the strength and weakness of the textbook in terms its relevance, accuracy, readability, and compatibility with student-centered learning. Based on these criterions, users can give feedbacks about the developed textbook [6]. This research founding is practical work module of animal structure using modified free inquiry which is very practical based on whether users (students, lecturers or other experts) consider the intervention can be used and preferable under normal conditions. In development research, developed products can be considered as a practical product if the experts and practitioners state that the developed theory can be implemented and the indicators of practicality were satisfied.

2. Method
This research was a Four-D development (Define, Design, Develop and Disseminate). This research was in the develop stage of testing material development involving actual trainees to find sections for revisions on the basis of responses, reactions, comments from trainees, and modified material.

The testing was a practical test toward practical work module of animal structure using modified free inquiry. In the practical test stage, the usability of the practical work module was tested to the students of Biology Education Program STKIP PGRI West Sumatera taking the course of animal structure. The testing was carried out on practical work activities of: 1) digestion system, 2) respiratory system and circulation system, 3) excretion and reproduction system, and 4) central nervous system.

The instrument that used to assess the practicality of practical work module of animal structure using modified free inquiry was a questionnaire of practicality given at the end of practical work activity. The questionnaire was used as a data-gathering tool because the collected could be more objective than using interviews. Moreover, the correspondents could answer more freely without being influenced by the mental attitude of the researcher’s relationship with the research subject, or the time available in thinking of the answer [7]. Questionnaires were arranged in several aspects and in one aspect arranged in several indicators (Table 1).

| No | Practicality Aspects | Indicators | Statement No. | Total |
|----|----------------------|------------|---------------|-------|
| 1  | Ease of use          | a. The practical work module of animal structure using modified free inquiry has guidance in using it. | 1     | 12    |
|    |                      | b. The practical work module of animal structure using modified free inquiry which has a goal adjusted toward student learning achievement. | 2     |       |
|    |                      | c. The practical work module of animal structure using modified free inquiry has clear and systematic scientific steps. | 3     |       |
|    |                      | d. The practical work module of animal structure using modified free inquiry leads the students in doing scientific steps. | 4     |       |
|    |                      | e. The practical work module of animal structure using modified free inquiry has a theoretical review with the drawing which | 5,6   |       |
Table 1. Practicality aspects assessed

| No | Practicality Aspects | Indicators                                                                 | Statement No. | Total |
|----|----------------------|----------------------------------------------------------------------------|----------------|-------|
| 1  | Practicality        | makes it easier for students to understand practical work activities.     |                |       |
| 2  | Time required for   | f. The practical work module of animal structure using modified free inquiry has an easy to follow steps. | 7              |       |
|     | implementation       | g. The practical work module of animal structure using modified free inquiry has helpful tips and tricks for the practical work. | 8              |       |
|     |                      | h. The practical work module of animal structure using modified free inquiry has an easy to follow steps. | 9,10,11        |       |
|     |                      | i. The practical work module of animal structure using modified free inquiry has evaluation questions appropriate to practical work activity. | 12             |       |
| 3  | Ease to interpret   | a. In practical work activity in the laboratory, the time allocated to carry out the experiment/practical work activities is sufficient. | 13             | 6     |
|     | equivalency         | b. In practical work activity in the laboratory, time to draw the observation result is sufficient. | 14             |       |
|     |                      | c. In practical work activity in the laboratory, time to draw the observation result is sufficient. | 15             |       |
|     |                      | d. In practical work activity in the laboratory, time to answer the hypothesis is sufficient. | 16             |       |
|     |                      | e. Using the practical work module of animal structure using modified free inquiry is not boring, practical and easy. | 17,18          |       |
| 4  | Motivation          | Easily interpreted by expert lecturers as well as by other lecturers.     | 19,20          | 2     |
| 5  |                      | It has the same equivalence.                                             | 21             | 1     |
|     |                      | Provide motivation to have, do practical work activities and process the result of practical work. | 22,23,24       | 3     |
|     |                      | Total                                                                     | 24             |       |

The practicality was assessed by using the percentage formula [8]

\[ V = \frac{\text{item score obtained}}{\text{maximum score}} \times 100\% \]

Based on the "V" score obtained, criteria for appraisal of practicality [8] of the practical work module of animal structure using modified free inquiry were as set out in Table 2.

Table 2. Categories of practicality of the practical work module of animal structure using modified free inquiry

| Practicability score (%) | Categories          |
|--------------------------|---------------------|
| 0 – 20                   | Not practical       |
| 21 – 40                  | Less practical      |
| 41 – 60                  | Quite practical     |
| 61 – 80                  | Practical           |
| 81 – 100                 | Very practical      |
3. Result and Discussion

From the questionnaire recapitulation result, the practicality of practical work module of animal structure using modified free inquiry was shown in Table 3 and 4.

Table 3. The practicality result of practical work module of animal structure using modified free inquiry by the students

| No. | Aspect of Assessment         | Total Score | Score maximum | Result | Criteria   |
|-----|-------------------------------|-------------|---------------|--------|------------|
| 1   | Ease of use                   | 1799        | 2112          | 85,18  | Very Practical |
| 2   | Time required for implementation| 868         | 1056          | 82,20  | Very Practical |
| 3   | Equivalency                   | 146         | 176           | 82,95  | Very Practical |
| 4   | Motivation                    | 441         | 528           | 83,52  | Very Practical |
|     | **Mean**                      |             |               | **83.46** | Very Practical |

Table 4. The practicality result of practical work module of animal structure using modified free inquiry by the lecturers

| No. | Aspect of Assessment          | Total Score | Score maximum | Result | Criteria   |
|-----|------------------------------|-------------|---------------|--------|------------|
| 1   | Ease of use                  | 84          | 96            | 87,50  | Very Practical |
| 2   | Time required for implementation| 42          | 48            | 87,50  | Very Practical |
| 3   | Easy to interpret (only for lecturer) | 15       | 16            | 93,75  | Very Practical |
| 4   | Equivalency                  | 7           | 8             | 87,50  | Very Practical |
| 5   | Motivation                   | 20          | 24            | 83,33  | Very Practical |
|     | **Mean**                     |             |               | **87.92** | Very Practical |

Based on Table 3 and Table 4, it could be shown that the practical work module of animal structure using modified free inquiry was very practical to be used by students and lecturers during the process of practical work in laboratory.

Practicality in terms of ease of use assessed the ease of using and understanding of the contents in the module. [9] Learning media was said to be practical related to whether or not the media was easy to be used. [10] Practicality referred to the condition of developed learning modules that could be easily used by learners so that learning was meaningful, interesting, fun, and useful for the learner's life. It was also able to improve their creativity in learning and having a degree of effectiveness to the participants' learning outcomes. The practical work module of animal structure using modified free inquiry was completed with guidance on the use of modules, practical purposes tailored to student learning achievements, clear and systematic scientific steps, guidance for students in doing scientific steps, theoretical review with picture shows that make it easier for students to understand practical activities, easy-to-follow steps, tips and tricks that help in the practical work, place/column/table for the data/results obtained that can be used easily and in accordance with the needs, and the questions of evaluation in accordance with practical work activities. A guidance to use the module was provided at the beginning to guide students and lecturers in filling out the module assigned tasks, introducing practical work activities using modified free inquiry and listing criteria of practical work report. Thus, in terms of ease of use, the practical work module of animal structure using modified free inquiry as practical work learning media was considered as very practical by both students (85,18%) and lecturer (87,50%).

The practicality in terms of time required for implementation assesses the use of time in practical work activity using the module, such as the time allocated to carry out experimental / practical work activities, drawing observations result, filling out the observation table, answering the hypothesis, and using the practical work module of animal structure using modified free inquiry was not boring, practical and easy. Although students within their group had different abilities in understanding learning, the time used to collect data, such as dissecting and decomposing the observed organs and arranging them in an integral set of organ systems, was still sufficient. Then, to draw the observations,
the students individually could finish drawing the organ systems of each species according to the time they agreed with. To conduct the discussion, fill out the table of observations and conclusions, students could complete the practical work activities according to the time needed. The developed module should provide an opportunity for individual differences, meaning that learners should be the focus of attention in designing objectives, selecting materials, and using methods and media as learning resources [2].

In addition, [11] learning with modified free inquiry was very effective to train students' critical thinking skills. Students' interest in this part was very positive because students were motivated to learn even outside of the learning time. For example, after the practical work time was over, some students were still stay in the practice room to ask questions with their or other group members as well as with the lectures, to reinforce the results of the lab work they get. Thus, it could be seen from the statement points in the questionnaire "practical work by using module of animal structure using modified free inquiry was not boring even for a long time" received positive responses from the students. Therefore, as a result of the assessment for practicality in terms of time required for implementing was considered very practical both by students (82.20%) and lecturers (87.50%).

Practicality in terms of ease to interpret, the practical work module of animal structure using modified free inquiry was considered very practical (93.75%) by the expert lecturers as well as by other lecturers. Thus, this module was very easy to be interpreted, either by the lecturer of animal structure or lecturer who is not teaching animal structure course. Interpretation of the same object could be different for different people. However, judging from the assessment, this module had a message that can give the same interpretation, explanation, meaning, impression, opinion or view to every lecturer who read it. The instruction sentences, commands, learning materials, practical work procedures, and modified free inquiry steps could give the readers the same message. In other words, it was communicative. [6] Communicative meant that the content of the book was easy to be understood by the reader, systematic, clear, and contained no language errors.

The practicality in terms of equivalency of the practical work module of animal structure using modified free inquiry was rated very practical by the students (82.95%) and by the lecturers (87.50%). This module has a language quality that contains learning messages, in which [12] language is a tool for thinking. The messages have been arranged in such a way that the responses of all readers are the same. This means that the practical work module of animal structure using modified free inquiry has its own features in order to be easily understood by students and lecturers who read it. [6] Textbooks with high legibility contain sentences length and structure according to the reader's comprehension, and the length of the paragraph corresponds to the reader's understanding.

The practicality in terms of giving motivation to do practical work activity and to process the result data of practical work were rated very practical by student (83.52%) and lecturer (83.33%). Learning by using the practical work module of animal structure using modified free inquiry could awaken students' curiosity and interest so that students were motivated to do practical work and process the data obtained. [13] Students' learning motivation of student groups taught through inquiry learning was better than that of students taught through direct learning methods in both high-score student groups and low-score student groups.

In practical work activities, students were arranged to work in groups in order to make a cooperative learning. Using this inquiry learning, students could share and discuss with their group mates. [14] When students work together to achieve common goals, as they do when the structure of cooperative awards was applied, they learned about the work that could help the success of one's group. Therefore, the learners could encourage each other's learning, academic efforts, and express norms that were appropriate to academic achievement. Furthermore, [15] the impetus of a person to do something is called motivation. In which, motivated behaviour was selective, goal-oriented, and persistent behaviour.
4. Conclusion
From the result of the research, it could be concluded that the practical work module of animal structure using modified free inquiry that had been developed was practical in terms of ease of use, time required for implementation, easy to interpret, equivalency, and motivation to be used in the learning process of practical work of animal structure in college.

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