J. Pijar MIPA, Vol. 18 No. 3, May 2023: 357-361 ISSN 1907-1744 (Print)
DOI: 10.29303/jpm.v18i3.4917 ISSN 2460-1500 (Online)

ECOTOURISM: A PRACTICAL GUIDE OF *Megapodius reinwardt* FOR PROSPECTIVE TEACHER

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Received: April 12, 2023. Accepted: May 11, 2023, 2023. Published: May 21, 2023

Abstract: Learning activities can be carried out in or outside the classroom. Learning outside the classroom, such as field observations, is an excellent learning activity. This paper discusses the development of a field observation practicum guide (PPOL) for bird bioecology *Megapodius reinwardt*. The goal is to develop and assess the feasibility of the developed PPOL, the process of scientific literacy, and the critical thinking skills of prospective biology teacher students through three stages: define, design, and develop. Data collection through observation, interviews, questionnaires, tests, and documentation. The data obtained were analyzed by descriptive quantitative. An average of 77% obtained the results of the PPOL validation, which means worthy. The process of scientific literacy of prospective biology teacher students, on average, obtains a good predicate. User response is positive, so it is suitable for use as a bioecological Field Observation Guide *Megapodius reinwardt* for the literacy process scientific and thinks student critical biology teacher candidate.

Keywords: *Field, Practicum Guide, 4D, Observation, Development.*

INTRODUCTION

Field Observation is a direct observation of an object, the real thing on the ground. This activity is integral to learning and important in natural science learning, especially concerning ecological aspects. There are at least three important roles for field observations, namely education: about the environment, through the environment, and for the environment [1]. Field observation as a bioecology practicum activity can develop many physical and social skills. It can be a means for students to practice applying skills in science processes such as observation, identification, classification, interpretation, communication, planning, conducting investigations, submitting hypotheses, and asking questions which are then processed according to their cognitive abilities[2-3].

Practicum is a learning method that clarifies concepts through direct contact with tools, materials, or natural events, improving students' intellectual skills through observation or complete and selective information search that supports problem-solving. Practicum can develop students' creative thinking and critical thinking skills. Practicum laboratory sessions in small groups allow students to isolate and characterize compounds and understand their uniqueness within three to four hours [4]. Something similar can apply to other science fields, such as physics and biology. This ability can only develop in science learning with practicum[5]. Practicum in biology learning is an effective method for achieving learning objectives [6]. The strength of science lies in the ability to formulate hypotheses that spur the development of various students' thinking abilities, for example, practice analytical thinking by finding and grouping the tendencies of the above phenomena into groups of causes and effects. Next, make a hypothesis to reveal a cause-and-effect relationship. The process of preparing this hypothesis develops students' combinatorial thinking skills. This ability shows the ability to think synthetically. The steps taken by students formulating hypotheses and making conclusions will form empirical-inductive thinking skills. Empirical-inductive thinking skills are developed by synthetic analytical and combinatorial thinking [5].

Practicum activities allow students to practice observing, estimating, manipulating equipment, measuring, proving concepts, discovering concepts, or connecting new concepts with the knowledge they already have through observations to rationalize various natural phenomena. In addition, to plan an experiment by using various procedures to solve a problem, generating motivation, developing generic science skills, critical thinking skills, and creativity, and increasing understanding of the concepts being studied by students in lectures by making the concept more meaningful. There are five essential reasons that practicum is needed in science learning, namely: (1) practicum can generate learning motivation [7], (2) practicum can develop generic science skills [8], (3) practicum makes a vehicle for learning a scientific approach, (4) practicum can improve understanding of concepts, (5) practicum can develop critical thinking skills [7].

Students' ability to master and learn science is closely related to the rapid development of science and technology, so students must have good scientific literacy skills [9]. Students with good scientific literacy can actualize their problem-solving knowledge through critical thinking and a positive attitude [10]. Someone with good science and technology skills can solve problems using scientific concepts and create creative product

technologies [11]. Ability This scientific literacy is very basic, especially for all stakeholders involved in education, to make ends meet in various situations [12]. Thus the educator's knowledge of scientific learning and literacy integrated into concepts is an important asset for improving the quality of teaching and learning in the classroom.

Learning biology, in general, only requires students to learn biology concepts by rote. Conceptually such learning aims to improve students' mastery of biology concepts. However, it causes students only to know a lot of biological terminology without meaning. The biology concepts that students need to learn are numerous and continue to grow; this causes student boredom to emerge. In this regard, it was reported that a real practicum could improve students' creative thinking skills in all aspects of creative thinking skills, but the score was still low, with a maximum score of 51 [13]. The low scores of student practicums can be caused by the fact that the guidelines verified and rigidly guide the practicum, so students become bored, bored, and lazy. Educators must be able to develop appropriate practicum models to meet students' learning needs. One practicum model that effectively achieves learning objectives in the science field, especially in biology, is the E-Based Practicum Ecotourism.

RESEARCH METHODS

This research is development research that produces certain products and tests the effectiveness of these products [14]. There are two products targeted by this research, namely 1) Ecotourism-Based Practicum Model and 2) Supplements for course modules or learning media in the form of leaflets. This research consists of three stages, namely stage definition, design, and development, concerning the 3-D procedural model by Thiagarajan. The subject is a student taking a Zoology, Vertebrates, Biodiversity, Environmental Knowledge, and Animal Ecology course in the Biology Education Study Program at the Faculty of Teacher Training and Education University of Mataram—determination of the sample of as many as 40 people purposive sampling.

PPOL aspects that are measured include validity, user response and practicality of critical thinking skills, scientific literacy of prospective students teacher biology. The research instruments consisted of syllabi, learning implementation plans, PPOL validation sheets, questionnaires, observation sheets, ability scientific literacy, and critical thinking skills. To assess feasibility, effectiveness, practicality, user feedback, ability, scientific literacy, and critical thinking student, student worksheet was validated by six experts, each with two experts on biology, Learning Technology, and 40 users.

The formula analyzes the results: Score = validator score / Maximum score x 100% [15]. The scores from the validators are then averaged and then interpreted in qualitative categories according to Table 1 and in-depth descriptive.

Table 1. Score Interpretation CriteriaPercentage Criteria

Mark	Criteria
0 % - 20 %	Not good
21 % - 40 %	Invalid/Not Good
41 % - 60 %	Valid Enough/Good Enough
61 % - 80 %	Valid/Good
81 % - 100 %	Very Valid/Very Good

Field observation is declared feasible if the average score of the eligibility validation results is more than 56, effective if a minimum proportion of 30 out of 40 or 75% of students achieves minimum completeness scores (more than 75), and scientific literacy process skills get a good rating. A student worksheet is declared practical and gets a positive response if the average score of student responses is more than 28 and the average score of user responses is more than 56.

RESULTS AND DISCUSSION

Development of Student Worksheets in the form of nested area-oriented Field Observation Guide *Megapodius reinwardt*. This was carried out on the material for the Biodiversity course in the Biology Education Study Program at the University of Mataram. The activities carried out at each stage of Field Observation Guide development are presented as follows.

Define

At this stage, the team conducted a preliminary analysis based on the Biology Education Study Program Curriculum, in the Biodiversity course, with student competency able to explain biodiversity conservation values. Based on this, the authors then made observations of student learning behavior when studying subjects that contained values, functions, and benefits of diversity biologically. As a result, student learning behavior remains dominant in listening activities and recording the results of discussions and lecturer explanations. The learning process looks passive and less interesting.

Students' ability to apply the concept of biodiversity is at the C3 level according to Bloom's Taxonomy. This ability needs to be upgraded to the next level. Therefore, building students' deductive reasoning through constructivist learning is necessary. One of them is through learning media that can be used, such as student worksheet, in the form of a Field Observation Guide.

Material on the value and benefits of biodiversity includes material on concepts and procedures. Therefore, the selection of the PPOL format must later be able to bring out these two aspects of ability so that the form of achieving student learning outcomes is the ability to explain facts, concepts, and principles, present hypotheses and models, and answer questions. They have related field observation results. Students will be trained to solve problems related to the characteristics of the Megapodius reinwardt. The material presented in the developed practical guide is the concept of genetic diversity, the concept of diverse species, the concept of diversity of ecosystems and tilapia, and the benefits of diversity biologically. With the student worksheet in the form of a Field Observation Guide, students are expected to be able to analyze the relationship between materials based on prerequisite materials and core materials.

Design Planning

Various factor one of them influences the achievement of learning outcomes is how to learn. The authors designed an ecotourism-based learning model for biodiversity in the Biology Education Study Program at the Faculty of Teacher Training and Education University of Mataram. In this connection, a student worksheet was prepared as a Field Observation Guide to ensure its effectiveness.

The student Worksheet was designed as a Field Observation Guide. The content consists of 1) Activity title, 2) theoretical basis in brief, 3) objectives of operational activity learning, 4) data collection methods, 5) tools and materials used, 6) practicum procedures, 7) observation results, and 8) analysis and discussion of results. The POL product design that has been made is presented in Figure 1.

Figure 1. Display of the practical guide design

Develop (Validation)

Draft student worksheet from the field practicum guide that has been designed will soon be validated internally. PPL aspects that were validated were content, appearance, and language, with 11 indicators. The results of the expert assessment are expected to represent the field practicum guide products that meet valid, practical, and effective criteria and can meet student learning needs. The the field practicum guide validation results by six experts are presented in the following table 2.

Table 3 shows the results of the field observation guide test from the material expert validator considered valid with the criteria percentage by an average of 74%, the learning expert validator assesses valid with criteria as big 73%, and users rate it better, with criteria very valid, namely 84%. Overall based on the validity test by the three validators, the field practicum guide the includes valid criteria with an average percentage of 77%. According to the results of the third questionnaire, the validator assessed that the PPL was good from the aspects of material feasibility, presentation of material, language, appearance, and graphic design. It proves that student worksheets, which has been rationally designed, is more effective following the objective of the validity test [16-20].

Table 2. Results of Expert Assessment Instrument Validation Guide to Student Field Observation Practicum

No.	Indicator	Validator		
		M	LT	U
1	Compatibility of activities with inquiry	70	70	90
2	Systematics material presentation	75	70	86
3	Contextual practical material	80	81	85
4	Clarity and ease of understanding the practicum guide	75	70	85
5	Appropriate inquiry syntax	70	75	80
6	Text Layout	75	70	80
7	Image Matching	70	70	80
8	Guide letter type and size	80	80	85
9	Guide Color	73	75	80
10	Communicative	75	70	87
11	Good and right	72	70	86
Amount		815	801	924
Average		74	73	84

Information: M = Material Expert; LT = Learning Technology Expert; U = User.

CONCLUSION

The Field Observation Guide for bird bioecology *Megapodius reinwardt* meets valid criteria with a criteria percentage of an average of 77%, is practical and effective, and can meet the learning needs of prospective teachers and students.

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