

EDUCATIONAL MANAGEMENT IN NATURE-BASED LEARNING

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Abstract

The quality of education in higher education is a fundamental problem in efforts to improve the quality of the national education system. Various efforts have been made to improve the quality of education, covering all educational components including elements of learning management. Learning success can be realized through appropriate management work processes. This research aims to describe management which includes planning, organizing, implementing and evaluating nature-based learning at Lake Linow for students of the Physics Department, Faculty of Mathematics and Natural Sciences (FMIPA) Manado State University (Unima). The method used in this research is a mixed method, a concurrent embedded strategy model with a qualitative data frame, while quantitative data supports qualitative data. The field activity plan is tiered from semester I to semester VIII. The research results obtained in this research started from the planning stages of analyzing the vision, mission, student needs, observing natural objects, namely Lake Linow, formulating field activity objectives, designing field activities according to level 1 to level 4 activities, preparing observation formats and rubrics. evaluation. The next stage is organizing which produces an organizational model as well as the functions and roles of management components. The implementation phase is in accordance with the design created and carried out in stages in 4 levels of activities adopting the 5-E learning cycle (Engagement, Explanorion, Explanation, Elaboration, Evaluation). Evaluation of nature-based learning according to the observation format and assessment techniques examines attractiveness, students' ability to identify facts, physical phenomena, explain special characteristics, variable concepts, spatial and temporal variations, relationships between variables, and related concepts. The results of this research also obtained references to field conditions (physical variables) and environmental conditions for each zone as well as references to forms of learning activities (observation, measurement, more detailed research) which were integrated into several related courses as field assignments. The evaluation results show that the application of management functions in nature-based learning for students of the Physics Department, FMIPA Unima can form students' knowledge competencies, attitudes and skills, and nature-based learning through tiered activities can support students in completing their studies.

Keywords: Management, Nature-based learning, Lake Linow

INTRODUCTION

Management excellence of an institution/institution contributes to the progress of the institution itself. This can be seen in large industries with quality products, educational institutions that are influential in giving birth to science and technology through achievements in many ways, all of which are achieved because they are supported by a management system that seeks to achieve

organizational goals and objectives through the use and optimization of existing resources in the organization. Efforts to consolidate and mobilize resources are considered by many parties to be the right strategy to make organizational change effective in a positive and superior direction.

Quality higher education always applies flexible and dynamic management principles so that it can develop in accordance with its potential and external demands in order to achieve goals as expected. Every organization needs a management process because without a good management process, no business will be successful for long. The world of education is tied to the control of management systems, in the world of education there are several weaknesses (Weaknesses) which are the main basis for the implementation of education in Indonesia, and weaknesses affect the field of management which includes process and substance dimensions. In the part of the process that contains elements of management

planning, organizing, implementing and monitoring still cannot be carried out in accordance with strict work procedures. In the substance section, especially facilities and infrastructure, learning instruments, and library services, it is a criterion where the level of success in each of these sections has not been determined strictly (Danim, 2003).

Observation and measurement activities in nature-based learning can build knowledge and skills and generate imaginative and critical thinking patterns in students to observe physical phenomena which are greatly influenced by environmental conditions and their changes. Despite the fact that nature and its existing conditions can present a wealth of phenomena related to physics, students still experience difficulties in carrying out activities such as identifying variables, measuring variations in variables according to space and time, analyzing data, formulating mathematical/physical models that describe variables and relationships between physical variables. The American Association of Physics Teachers in the article: Goals of the Introductory Physics Laboratory states that most students studying basic physics do not have sufficient real experience of everyday phenomena to understand what is observed and construct physical theories. The process of observing phenomena, analyzing data, developing qualitative verbal models and mathematical models to explain observation results which enable students to connect concrete experiences with scientific theories.

The results of observations of the lecture process also show that the implementation of nature-based learning in the Physics Department is still in the nature of field trips, has not been designed coherently and in stages and has not been integrated with lectures so that it does not systemically build student competency or it can be said that field activities in the Physics Department, FMIPA Unima are not yet optimal in produce graduates who have competence in the field of Physics. One of the root causes is that the Physics Department's field activity management system is not running well, so researchers who are lecturers in the Physics Department are interested in conducting research entitled: "Nature-Based Learning Management at Linow Lake for Students of the Physics Department, FMIPA, Manado State University."

METHOD

The research method follows a mix method (combination method) with a concurrent model (mixed combination), namely a mixture of qualitative and quantitative methods. This combined research method is a method that complements each other and is useful for obtaining the best understanding when compared with one method (Sugiyono, 2014). Combined research methods will be useful if qualitative methods or quantitative methods alone are not accurate enough to understand the research problem. (Creswell, 2012). This research frame uses qualitative methods while quantitative methods are used to support qualitative data.

DISCUSSION

Learning planning is a systematic process that analyzes students' needs and develops possibilities related to those needs (Yuspen, 2010). According to Harjanto (2006) that planning is a projection of what is needed in order to achieve valuable goals. Majid (2011) suggests that planning can be studied in several aspects; Planning as Technology, Planning as a System, Planning as Science, Planning as Process, Planning as reality.

Vision and Mission are guidelines for making a plan. The plans to be realized must be in line with the Vision and Mission that have been created. The results of the researcher's analysis as a research instrument regarding the vision and mission at FMIPA Unima are connected to the implementation of lectures in the Department of Physics, namely the vision of FMIPA which states that it will become a faculty that is competitively superior in Mathematics and Natural Sciences education and learning by developing innovative and powerful Mathematics, Science and Technology. national and international competition with a mission that includes developing and strengthening quality education and learning in the fields of Mathematics and Science in order to produce educational staff graduates who have professional, quality and competitive personality, social and pedagogical competencies as well as developing departments and study programs as a research, development and application base of mathematics and science that is capable of producing innovative products and services that contribute directly to the economic development of Indonesian society. With this Vision and Mission, the implementation of learning in the Physics Department must be able to develop personal, social and pedagogical competencies that are professional, high quality and competitively superior and able to make the Physics Department a research base in the sense that students and lecturers must be able to carry out research to increase productivity

Nature-based learning management in this research is in order to optimize field activities for students of the Physics Department, FMIPA Unima, both Education Study Programs and Physics Study Programs, because from the monitoring of researchers as Physics lecturers, field activities for Physics Department students are rarely carried out, even if they are carried out only as a kind of field trip activity without preparation or without implement management functions.

Optimization of field activities in this research includes field activities that implement management functions from planning, organizing, implementation to evaluation.

Planning which includes; 1). Analysis of FMIPA's vision and mission shows that nature-based learning management supports the implementation of FMIPA's vision and mission, especially strengthening each study program in the Department of Physics, FMIPA Unima; 2). Curriculum analysis shows the need for integrated field activities in lectures in the Physics Department in order to form comprehensive student competencies in knowledge, attitudes and skills; 3). Analysis of student needs which shows that students need nature-based learning organized within a management framework; 4). Analysis of study objects at Lake Linow which is a good and interesting learning area with the results of 6 zones which are used as student study locations; 5). Formulating the objectives of field activities through discussions by the research team with department heads which are then formulated to see whether they are achieved; 6). Preparation of field activity plans related to the form of activity for each zone which refers to the 5-E learning cycle with tiered activities according to the development of students' thinking maturity; 7). Design of observation formats and assessment rubrics per activity level from level 1 activities to level 4 activities. Research results for the planning part in nature-based learning management can all be carried out well and receive good support from all management components related to this planning activity . This planning also serves as material for thought which becomes the basis for carrying out field activities with different study objects and learning models.

The discussion regarding organization in this research which describes the role of management components in nature-based learning with a stage model of management components which shows their roles and functions with indicators according to the division of assigned roles has been implemented well. The stage model of management components and the description of the role of learning management are the rationale for organizing nature-based learning that adopts the 5-E learning cycle.

The implementation and evaluation of nature-based learning for students of the Physics Department, both the Physics Education Study Program and the Physics Study Program, has gone well. Students who took part in this field activity gave a positive response. This can be seen from their enthusiasm while participating in the activity and their curiosity by taking the initiative to explore/examine their learning experiences through other sources such as books and the internet.

This tiered activity in nature-based learning is a way of learning that develops abilities and maturity in thinking or is in accordance with the development of thinking power and learning experience obtained as seen from the observation format for students in field activities. The observation format follows the learning level activities which adopt a 5-cycle. E, even though the researchers are limited, there are several things that have not been implemented synergistically because there are several obstacles such as; transportation problems and time for field activities

with students' busy theoretical lecture schedules. Overall, the results of this research on nature-based learning management, from the evaluation results of each level of activity, show that:

- a. Students may have competent knowledge, attitudes and skills
- b. Increased research/research productivity and scientific work
- c. Geothermal variable measurement data

The use of the Lake Linow area for field activities for students of the Physics Department, FMIPA Unima, from research results can provide reinforcement for the materials obtained in theoretical and practical lectures in the laboratory. Field activities present real phenomena that are sometimes difficult to control, such as in a laboratory. Through field activities, students can discover causal relationships between factors that influence or control physical phenomena. The knowledge that students have to analyze the influence of relationships between phenomena that occur and the abilities that students have, to be able to describe the relationship between context directly and the concepts they have, students will be able to master physics concepts completely.

Faculty leaders and department/prodi leaders gave a positive response to the implementation of this field activity and recommended the use of a nature-based learning management model with tiered and coherent field activities in learning/field activities in the Physics Department.

CONCLUSION

Based on the results of research and data analysis, it can be concluded as follows

1. Planning for nature-based learning at Lake Linow for students of the Physics Department, FMIPA Unima, including analysis of vision, mission, curriculum, student needs, formulation of activity objectives, analysis of study objects, design of field activities that adopt the 5-E learning cycle, design of observation formats and rubrics Assessment is structured as an integral part of the professional work process in management which functions as a guide in implementing nature-based learning. The results of identifying the geothermal manifestations of the Lake Linow geothermal area in the study object analysis activities at Lake Linow produced six zones that could be used as locations for field activities for Physics Department students.
2. Organizing nature-based learning for students of the Physics Department, FMIPA Unima, namely the activity of gathering and uniting management components (department/prodi heads, lecturers, students) according to their roles and functions which synergize various existing resources in order to achieve learning objectives.
3. Implementation of nature-based learning that adopts the 5-E learning cycle for FMIPA Physics Department students with tiered activities according to the development of student thinking maturity and learning experiences that have been implemented to achieve student competency in knowledge, attitudes and skills.

4. Evaluation results of nature-based learning at Lake Linow for Physics Department students according to the evaluation stages of the 5-E learning cycle with level 1 to level 4 activities have succeeded in forming the competency of prospective graduates comprehensively in terms of knowledge, attitudes and skills

SUGGESTION

The recommendations presented are as follows:

1. The Physics Department of FMIPA Unima should pay more attention to/implement learning management in the lecture process and implement field activities that lead to nature-based learning research.
2. Students should develop more collaborative work to increase the productivity of assignments and research implementation in field activities.
3. Other natural laboratories in the North Sulawesi area, especially the Minahasa area, can be studied by following the appropriate management model.

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