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Kusnadi - Yanti Herlanti - Wiji

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CONTENT

| | Page |
|---|-------------|
| Preface | i |
| Content | ii |
| Peter Aubusson A National curriculum: Competition, Advances And Retreats | 1.1 |
| Anna Permanasari Improving student science literacy between policy and implementation | 2.1 |
| Liliasari, Agus Setiawan and Ari Widodo The Development of Generic Science Skill of Prospective Science Teachers Using Interactive Multimedia | 3.1 |
| Nuryani Y. Rustaman Study on Assessment For Basic Scientific Inquiry: "Future Trend" of Assessment in Science Instruction | 4.1 |
| Adi Rahmat Connected Teaching Through Concept Tracing and Questioning Helps Student Toward Better Understanding on Plant Development Concepts | 5.1 |
| Hayat Sholihin Development of The Chemistry Education International Class to Produce Chemistry Teachers Toward Global Competition | 6.1 |
| Jamil Suprihatiningrum, Liana Aisyah, Matkli Dimas Astrianto Saputro, & Istiyarto Damarhati Local Content-Based Science Curriculum: Potentials and Barriers (Case Study Of Embedding <i>Salak Pondoh</i> in Middle School Science Curriculum in Sleman, Yogyakarta) | 7.1 |
| Madlazim Tsunami Education: What's Physical Parameter That Can Be Used For Tsunami Early Warning System Accurately? | 8.1 |
| A.A. Istri Agung Rai Sudiatmika The Development of Local Science Items to Measure Students Ability in Higher Order Cognitive | 9.1 |

| | |
|--|------|
| Nancy Susianna and Milana Fitriani Walujo | 10.1 |
| Using A Concept Map to Increase The Ability of The Students to Mastery The Concept And Retention in The Properties of Electrolytes and Non Electrolytes Solution with Redox Reaction Grade X | |
| I Gede Rasagama | 11.1 |
| Analysis of Test Instruments as Measurer The Ability to Analyze and Create of Student's | |
| Sondang R Manurung, Nuryani Y. Rustaman, Aloysius Rusli, Nelson P Siregar | 12.1 |
| Analysis of Teks Representation about Kinematic Topics Based on Toulmin Argumentation Approach | |
| I Ketut Mahardika | 13.1 |
| Analysis of Teaching Material to Enhance Multiple Presentation Capabilities of Pre-Service Physics Teacher | |
| Oka Mariska, Muslim, & Irma Rahma | 14.1 |
| Application of Modified Inquiry Learning Model to Improve Student Learning Outcomes in Physics Learning in Senior High School | |
| Yanti Herlanti, Rita Zahara, & Muarif Sam | 15.1 |
| The Effect of Thematic Teaching and Learning Approach on The First Grade Students of MI 'S Natural Science Achievement | |
| Leni Marlina | 16.1 |
| Development of Teaching Materials Thermodynamics Using Educational Reconstruction Model | |
| Indrawati | 17.1 |
| Implementation of OBSIM Model for Improving Learning Objective Formulating Skill to Physics Teacher Candidate Students | |
| Judyanto Sirait, Syukran Mursyid | 18.1 |
| Multiple Representation Skills of Senior High School about Kinematics In Kalimantan Barat | |
| Ida Sriyanti | 19.1 |
| The Development of e-Learning Based Media for Solid State Physics Subject | |
| Erwina Oktaviany | 20.1 |
| Student's Conception about Earth and Space on Physics Education of UNTAN | |

| | |
|--|------|
| Adun Rusyana Critical And Creative Thinking to Improve The Inovative Teaching of Precervice Teacher | 21.1 |
| Sutopo The Need of Representation Approach to Provide Prospective Physics Teacher with Better Reasoning Ability and Conceptual Understanding | 22.1 |
| Supardiono P Wave Velocity Model for The Earthquake Education Program in High School | 23.1 |
| Demitra, Sarjoko, & Saritha Kittie Uda Development of <i>Handep</i> Cooperative Learning Model Through Small Group Test In Biology Learning | 24.1 |
| Sukardiyono, Nuryani Y. Rustaman, Agus Setiawan, and Achmad A. Hinduan Development and Validation Physics Concept Understanding Assessments of Biology Education and Chemistry Education Students' | 25.1 |
| Herlina Fitrihidajati, Endang Susantini and Novita Kartika Indah Implementation of Biology Material Resources Based nn Cooperative Learning <i>Student Teams Achievement Division (STAD)</i> Type to Improve Critical Thinking Skills in Sejahtera High School of Surabaya | 26.1 |
| Amprasto & Tina Safaria Implementation of Peer Assessment in Plant Ecology Practice | 27.1 |
| Irfani Fitriani, Soesy Asiah Soesilawaty, and Rita Shintawati Communication Skills and Students Learning Outcomes on The Concept of Reproductive System Using Learning of Tournament | 28.1 |
| Mariana, Ari Widodo & Topik Hidayat Comparison of Three Variations of Multimedia: An Effort to Enhance Critical Thinking Skills of Pre-Service Biology Teachers | 29.1 |
| Suratno Implementing <i>Reciprocal Teaching (RT)</i> on Biology Learning Toward Metacognition Skill The Upper and Lower Ability Senior High School Student in Jember | 30.1 |
| Meilinda & Mgs.M.Tibrani Identification of Science Teacher's Misconceptions in Biology Subject of Junior High School of Palembang | 31.1 |

| | |
|--|------|
| Agus Muji Santoso, Elly Setyowati, Mumun Nurmilawati, and Sulistiono Enhancing Students' Science Literacy at Protista Topic by Inquiry Approach Through Lesson Study | 32.1 |
| Kusnadi and Yanti Kartika L Implementation of Project Based Learning (PJBL) Model to Improve Student's Learning Outcomes and Motivation of Junior High School on The Diversity of Life Concept | 33.1 |
| Wiwit Artika Science Teachers' Perception About The Use of ICT at In-Service Training Program to Improve Teacher's Professional Development | 34.1 |
| Budhi Utami & Agus Muji Santoso Team Teaching Can Enhance Student Literacy at Evolution Topic by Observation in The Site Sangiran Ancient Human | 35.1 |
| Sigit Saptono & Nuryani Y. Rustaman Undergraduate Students' Reasoning and Analytical Thinking Skills in Cell Biology | 36.1 |
| Suciati Sudarisman Using Variation of Learners on Microteaching to Improve Teaching Skills of Biology Student Teachers Toward Teaching Professional Development | 37.1 |
| Baiq Fatmawati & Nuryani Y. Rustaman The Ability Design Project for Improvement Creative Thinking Skills Through Project Based Learning | 38.1 |
| Ermayanti The Effectiveness Teams Games Tournaments to Improving The Quality of Learning Process and Result In Biology at SMA Srijaya Negara Palembang | 39.1 |
| Reza Taufik Maulana, Arif Hidayat Optimizing Advance Students Through ICT Based Project: Video Analysis on Water Rocket Project | 40.1 |
| Hafnati Rahmatan & Liliyasi Biochemistry Concept Level of Difficulty Profile on Prospective Biology Teachers Perception | 41.1 |
| Rudy Hidana, Nuryani Y. Rustaman, I. Nyoman P. Aryantha, & Anny Fitriani Effectiveness of Competency-Based Assessment Tools for Health Analyst on Field Work | 42.1 |

| | |
|--|------|
| Ramlawati, Liliyasi, and Ana Ratna Wulan Improving Generic Science Skills of Chemistry Prospective Teachers Through Implementation of Electronic Portfolio Assessment (APFE) | 43.1 |
| Retno Dwi Suyanti and Dessi Rismayanti Influence of The Implementation of Inquiry Learning Strategy with Mind Mapping Toward Students' Achievements in Thermochemistry | 44.1 |
| Erman and Liliyasi Model of Sport Cases Analysis in Biochemical Class to Improve Students' Literacy on Sport Biochemistry | 45.1 |
| Wiji and Liliyasi The Development of A Mental Model Diagnostic Test in Chemistry | 46.1 |
| Solfarina, Liliyasi, Agus Setiabudi The Development of Subject Matter Chemical Bond For Prospective Chemistry Teachers | 47.1 |
| Rafiuddin and Liliyasi The Development of Test to Reveal Biochemistry Generic Skills (BGS) For Chemistry Pre-Service Teachers | 48.1 |
| Muhammad Rifqi Rofiuddin, Arif Hidayat Concept–Mapping of Pre-Service Science Teacher on Video Modeling Demonstration Learning Through C-Map Tools | 49.1 |
| Annisa Silmi Nurjannah Levels of Inquiry on Pre Service Science Teacher Learning: Whiteboarding on Water Rocket Lesson Plan | 50.1 |
| Yanti Fitria, Anna Permanasari, & Wahyu Sopandi Tracking Study of Knowledge on Chemistry For PGSD Students in Deal with Quality Improvement of Science Learning | 51.1 |
| Chandra Ertikanto, Ari Widodo, Andi Suhandi, & Bayong Tjasyono HK The Portrait of Teachers' Competency in Teaching Science Through Inquiry Approach at Elementary School | 52.1 |
| Sariwulan Diana, Nuryani Rustaman, Sri Redjeki, & Iriawati <i>Peer Assisted Learning</i> (Pal) Program on Plant Morphology and Physiology in Empowering Future Biology Teacher-Students-Assistant | 53.1 |



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IMPLEMENTATION OF OBSIM MODEL FOR IMPROVING LEARNING OBJECTIVE FORMULATING SKILL TO PHYSICS TEACHER CANDIDATE STUDENTS

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Abstract

This paper presents the results of research on the implementation Obsim model in enhancing the skill of physics teacher candidate students in formulating learning objectives. The aim of research was to assess the influence of the model in improving high school physics teacher prospective students in formulating learning objectives. The study was conducted on students who took a course in subject of Physics Instructional Planning, Odd Semester academic year 2009/2010. This type of study was an experiment research, by one group pretest post-test design. The techniques used to collect data were observation, tests, and interviews. Data Analytical technique used to determine the increase in the skill of students to formulate learning objectives was wilcoxon-test. Results showed that the model can significant influence to the improvement of students' skill in formulating learning objectives. The results can be seen that students can skilled determine operational verb, condition, and degree in physics learning objective formulations.

Keywords: *Obsim model, learning objective formulation, and skill*

INTRODUCTION

Faculty of Teacher Training and Education Jember University is one of the Institute of Education that produces Teachers and Educators. The faculty as an institution producing teacher graduates should develop the competence of its graduates. Based on *Badan Nasional Standar Pendidikan* (BNSP) (2006), there are four main teacher competency standards are developed, namely competence: (1) pedagogical, (2) personality, (3) social, and (4) professional. Of the four core competencies, pedagogical competency is one of competencies that called as characteristic of teacher profession. Therefore, need to be addressed seriously by the faculty to the quality of its graduates, at least achieves the standard.

One of pedagogical competencies which need to be planted on students is the ability to plan and implement in classroom. In Faculty of Teacher Training and Education, Jember University Physics Educational Program, the competencies are developed through the course of Physics Teaching and Learning Group (MKPBM) (Depdiknas, 2001). Physics Learning Plan is one of the group of the subjects with three credit semester unit. Planning Physics learning is a subjects which develop students pedagogical content knowledge. This knowledge is given students to develop their professional ability as a physics teacher. According to National Science Education Standard (NRC, 1996), for standard two, which is standard on how to learn to teach science (including physics), explained that in learning to teach it is essentially learning about the theory

of pedagogical content knowledge and in implementing it in practice in classroom, although by microteaching or peer teaching.

The course of Physics Learning Plan, there are three main target student competencies to be mastered, in order to students have the ability to teach well, namely the ability and skills to plan learning objectives, to plan a learning strategy, to plan for evaluation of learning (Farmer & Farrell, 1980; Cole & Chan, 1994 ; Indrawati, 2008). According to the syllabus of Physics Learning Planning course, the ability to formulate objectives is an ability which is first given in the lecture (Indrawati, 2008). Even this material is also given on the previous course, as in the course of Physics Assessment (Indrawati, 2007). Although the material has been given, it in reality does not guarantee a student has understood very well.

Based on a review of documentation of research reports on Physics Education Program students in the last five years, study of Learning Implementation of lesson plan (RPP) on students who took the Field Experience Program (PPL) the last three years, and interviews on several students who had to take a course Physics Learning Planning and Field Experience Practice is being followed (Indrawati & Sutarto, 2008) it can be concluded that most of them are less skilled in formulating learning goals or objectives. It can be seen on: how to choose the verb operation, how to determine the conditions (condition), and how to specify the criteria (degree).

There are several factors that cause less skilled students formulate learning objectives, namely: (1) there are less examples of course, (2) Students lack practice, (3) if the student practice, the results of student work is not discussed; (4) there is no teaching materials as enrichment, and (5) feedback is rarely done. Examples should be given to students so that students can learn and imitate how the process of formulating goals or objectives. This is similar to the National Science Education Standards (NRC, 1996) which states that the teaching methods will be successful when presented with real examples. According to Hudgins (Indrawati, 2005), giving examples of teaching (modeling) will be successful if its effectiveness is discussed. Through discussion, students can reveal or reflect on what they have received and linked with teaching and learning experiences they have had before. In addition, the modeler (by course builder) can also observe how much the level of understanding student learning in receiving messages that were modeled (demonstrated).

Formulating objectives or goals is a form of skill and skill can be trained (Carr, 2003; Hinduan, 2001) and this exercise should be well planned so that students skilled (Romiszowski, 1984). By plenty of frequently practice, students will be skilled or proficient in formulating learning objectives or goals. Furthermore, Tillema and Veenman (Indrawati, 2005) stated that this exercise will be an experience for students when there is immediate feedback. This feedback provided by the instructor and/or friends to determine whether student learning goals are formulated is correct or still wrong (Farmer & Farrell, 1980). Thus, it can be said that the students often do exercises to formulate learning objectives or goals and get feedback, then they will have

a lot of experience about the right to formulate learning objectives and expected after completion of their preservice proficient or skilled in formulating learning objectives/goals.

Based on these underlying factors, it is necessary to formulate a learning model that can accommodate learning objectives/goals: there are real examples from the lecturer, there is an opportunity to discuss an example, teaching materials are provided for reference in formulating student learning objectives/goals, enhanced the frequency of student exercises, examples and results of the exercise students discussed and ada feedback. One model that can accommodate the above requirements are Obsim model.

Obsim model is a model that has been developed to teach teaching skills to physics teacher candidate students. This model includes five stages (syntax), namely: (1) modeling (giving examples), (2) discussion (discussing examples), (3) enrichment (provision of teaching materials), (4) exercises (simulation), and (5) feedback and stabilization. The advantages of this model is the student can learn by example through observation, discussion, and literature studies. In addition, students can also develop skills through training and exercise as often as possible given the feedback, so students' understanding of the material learned to settle. Of the five stages and the excess, it can be said that the model can be used for learning Obsim formulate learning goals. To that end, the research questions to be answered is: Does the model Obsim significant influence on increasing the ability of students to formulate learning objectives? To answer this question, it is necessary experimental study design, by using one group pre-test and post-test design.

RESEARCH METHOD

Research design used in this study is a one group pre test-post test. This research was conducted on students who took a course of Physics Learning Planning on physics education students odd semester of the academic year 2009-2010. The technique used to collect data is an essay test, observation, and interviews. The instrument essay tests used for testing the ability to formulate learning objectives, assessment rubric to formulate learning objectives, observation sheet to assess students' ability during the process of discussion, and interview sheet (a list of interview questions).

Before instruments were used, it was validated. The design of instruction was tested through microteaching in the presence of experts. There were a few suggestions from the experts about obsim model, namely the examples given should be contextual with the syllabus for high school physics lessons and need to be completed a list of operational and not operational verbs to facilitate students to formulate learning objectives when learning process.

For validation of the content (content) and a rubric to assess the skills of learning objectives' formulation, observation sheets, interview questions and conducted by two experts to see the match between the indicator determined by the instruments that have been made. Next, the validation process was done by test-piloted the instrument in a small group of

students of semester V Physics Education Program Jember University academic year 2009/2010. Trial results were analyzed using Pearson Bivariate correlation and reliability of test used to test is Crombach Alpha.

To determine the influence of obsim model of students' skills in formulating learning goals/objectives used Wilcoxon statistical tests. This test is used to see the differences between pre-test and post-test scores or the influence of obsim model in improving student skills to formulate learning objectives/goals.

RESULTS AND DISCUSSION

Base on the aim of this research and the method that used in this study, so data that must be collected were: test score of skills to formulate learning objectives, description data that observed during process discussion, and a description of the interview data on student responses to implementation Obsim learning model. All three kinds of data can be described as follows.

To determine the skills of learning objectives formulation, the target that used to formulate learning objectives are complete, meaning that the objectives contain elements of audience, behavior, condition, and degree (ABCD). The rubric used to assess students' ability to formulate goals include six indicators, namely: the determination of the audience, the determination of behavior, the determination of said operational work, determination of material, determination of conditions, and determination of criteria.

Based on the analysis of skill scores to formulate learning objectives for the six indicators above is obtained by using a test Wilcoxon. Result of computing $Z_{hitung} = 2.4$. Because of $Z_{hitung} > 1.96$ it can be concluded that no significant differences between pre-test scores with the post-test score students' skills in formulating learning objectives/goals. These results illustrate that the Obsim model significant influence on increasing students' skills in formulating learning objectives/goals.

The number of students who took a course in planning as many as 66 people. Of the 66 people were grouped into 10 groups, so that each group of six people. This group used to determine the ability of students in formulating objectives and at the same time arguing can get information about student difficulties during the process of discussion. Of the six groups of students when presenting the results of the task of formulating learning goals, based on analysis of observation sheet data obtained results as shown in Figure 1.

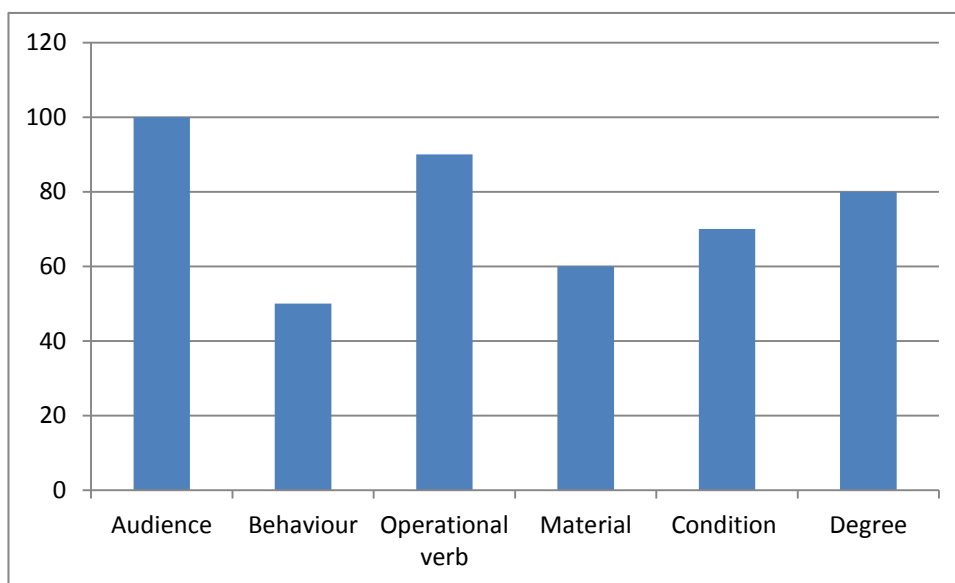


Figure 1. Graph of indicators of skills to formulate learning objectives

Figure 1 shows that of 10 groups of students they had no difficulty in determining the audience. To determine the operational verb is good or 90% correct. This is happened since students are guided by a list of operational verbs that has been distributed to students. To determine the degree or the criteria and also condition are 80% and 70% respectively. However, for material and component behavior are still relatively poor, 60% and 50%. On average they still confusion in distinguishing between behavior and verbs.

Based on analysis of each indicator, almost all students can not distinguish between behavior with a verb. They said that the behavior in the formulation of learning objectives is same as a verb. Each behavior consists of verb and object (material). In addition, most of them also do not understand that in every subject matter includes learning objectives. For example: **Through demonstration, students can give examples of vector quantities of at least three correctly. In this example the intended behavior is to give examples of a vector quantity, not give or provide examples.** On the **behavior**, there are two components: a **verb** (give) and **material** (eg a vector). **At least three examples correctly** called degree or criterion. **Through demonstration** called conditions.

Examples of the formulation of other objectives that formulated by the student is: **Student should be able to formulate electrical current correctly.** In this example, the student does not list the condition, that is what conditions can make the students able to formulate an electric current. After being interviewed, they still confusion in determining condition. Some students say that the condition is referred to the condition when students take tests. This statement is incorrect. The conditions referred to the formulation of learning objectives is a

situation that was created in order students can formulate electric current. In addition, some of the students are still incorrect too in determining the behavior and material. Some student responses to the interview after learning formulate learning objectives with Obsim model are: students were happy because many of the examples given by the lecturer. In addition, students were also given the opportunity to practice the exercises in groups and discussed in class, and given feedback. With practice and present the task for all groups and given feedback, students can learn from false and true examples of groups or other friends. According to Indrawati (2008), learning by example and non-examples can reinforce the concept of a person's level of understanding. If students given examples, he would imitate the example correctly and he will practice. Thus, generally, students felt happy and they said that the model suit for learning to formulate learning objectives.

CONCLUSION

Based on the analysis and discussion of the data above, it can be concluded that Obsim model can have a significant effect on improving students' skills in formulating learning goals at the course of Physics Learning Planning in Physics Education Study Program, Faculty of Teacher Training and Education Jember University.

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