



CONTENT ANALYSIS OF SCIENCE INSTRUCTIONAL MEDIA PRODUCED BY PROSPECTIVE SCIENCE TEACHER

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ABSTRACT

One of strategies to identify the quality of science teaching in English of prospective science teacher is by analyzing the product of instructional media used during the teaching process. The analysis focuses on content analysis that covers science concept accuracy, appropriate language structure and involving conservation principles. Therefore this research aims to identify instructional media produced by prospective science teacher of Semarang State University (Unnes) whether they meet the criteria of content accuracy. The result revealed that 100% of instructional media met the criteria of concept accuracy or there were only few parts of material misconception found on them. Furthermore, it was found out that 77% of instructional media are well written in English, the errors found are misspelling word, tenses using and parallel structure. Finally, the percentage of instructional media that involved conservation principle was 81% , it consisted of preserving natural diversity, respecting God's creation, being honest and responsible. Based on the analysis it can be assumed that most of prospective science teacher of Unnes were able to create instructional media that were accurate in material and language aspect but they need to do further exploration of conservation principles to be put in their instructional media product.

Key Word: Content Analysis, Instructional Media, Science, Prospective Teacher

INTRODUCTION

Integrated Science Department of Mathematics and Natural Sciences Faculty Unnes is expected to produce qualified prospective science teacher for junior high. One of the requirements is able to master the science material comprehensively to be transferred to their students. Before they teach in real class, in 7th semester they should take Field Experience Practice (PPL) course or teaching practice in school. For supporting development of information, science and technology exchange Unnes also offers a program of international teaching practice, the main requirement is having good English skills. Department of Integrated Science facilitates students to develop the English skills in Science teaching in English by providing Science Instruction in English (SIE) course.

SIE course aims to train students in teaching science material in junior high school (SMP) level in accordance with correct concept and good English. Besides being able to deliver the material correctly, students are also expected to produce instructional media

in English. Instructional media is media that function to convey messages or information or material (Arsyad, 2011: 4). According to Munandir (2001: 181), instructional media is the way to provide stimulus in the form of physical means. Thus, instructional media can be interpreted as a messenger device in the learning activity.

Science prospective teachers need to use effective instructional media as a medium to convey the material. Instructional media can be use as a tool to build interaction between students and teacher. According to Handika (2012) instructional media has special benefits that we can make judgment as research subjects for example: (1) Submission of material can be made uniformly, (2) The learning process becomes more attractive, (3) The process of learning can be more interactive, (4) The duration of teaching and learning process can be used effectively, (5) The quality of learning process can be improved, (5) The process of learning can take place anywhere and anytime, (6) The

role of the teacher or lecturer can turn towards in a more positive and productive

Teachers must be able to choose appropriate media that match the characteristics of learning materials, according to Ali (2009) criteria for the selection of media sourced from the concept that the media is an instructional system as a whole. In this course, prospective teachers can select instructional media that they used to match the teaching materials in teaching practice. The instructional media should be appropriate as to convey the material. The media also should contain elements of conservation as well as supporting the vision of Unnes as Conservation University, conservation education is one of efforts to maintain and protect the noble values, biodiversity, and preservation of historical buildings (Rachman, 2012).

Thus, prospective science teachers expected to prepare the learning and science instructional media in English based on conservation. The media were analyzed based on the accuracy concept of science language structure and education of conservation characters.

METHODS

This research used descriptive method, according to Sugiyono (2012: 35) descriptive research method is a method of research conducted to determine the value of independent variables or more without

making a comparison between variables. Descriptive methods can be summarized as a method that aims to describe the real situation systematically with proper interpretation and related data, and not just to find the absolute truth but in fact looking for an understanding of observation. This study aimed to analyze the instructional media produced by prospective teachers whether they meet the criteria of concept accuracy of science, the accuracy of language structure in English and conservation values contained in the instructional media.

The population in this study is the instructional media used by 6th semester students who took SIE course. While the sample in this study was determined by simple random sampling method because members of the population were considered to be homogeneous (Sugiyono, 2010: 120), the sample in this study was 26 instructional media taken randomly. Methods of data collection using the methods of documentation, data in the form of learning media created by science student teachers used in the practice of teaching science in English. The data are then analyzed based on the theory of science, structure of the English language and the value of conservation. Analysis of the data using the rubric presented in Table 1.

Table 1 Aspects of Analysis

No	Indicators	Yes	No
Concept Material			
1	Based on core competence and basic competence of lesson plan		
2	No material misconception		
Language Structure			
1	Correct grammatical structure		
2	Using correct vocabulary		
3	Using appropriate tenses		
Conservation Character			
1	Conservation character education		

RESULT AND EXPLANATION

Instructional media created by prospective science teacher used in peer teaching activities in SIE

course were analyzed based on indicators consisting of science concept and structure of English accuracy and conservation character education. Based on the analysis the result is presented in Table 2.

Table 2 Analysis of Instructional Media

Aspects	Percentage
Concept Material Accuracy	100%
Correct Language Structure	77%
Conservation Character	81%

Table 1 shows all of the media used by prospective science teachers have met the criteria of concept accuracy or not it was not found misconception in the material presented in the media. Meanwhile, in the aspect of structure of English language accuracy, 77% of the media was found to use appropriate grammatical structure. Media are presented in English because they should use English as medium of instruction in peer teaching activities. Final aspect of giving conservation character education, 81% of media found to give education of conservation character. Teacher should educate not only focusing on the material but also giving the education of characters.

The media used by prospective science teachers in peer teaching activities in SIE course have been known to meet the overall concept accuracy aspect. They are able to provide the material based on CC and BC and it was not found misconceptions in the media. So it can be said that the instructional media have met the criteria as described by Onasanya (2004) which states that the use of instructional media should be based on instructional objectives which include age, environmental objectives (cognitive, affective, or psychomotor), costs, patterns of interaction students, etc.

Table 3 Language Analysis

Aspects	Percentage
Incorrect Grammatical Structure	18%
Misspelling of Words	18%

Table 3 shows the analysis result of media in the aspect of language. Based on the table it can be seen that 18% of media were found to have incorrect grammatical structure consisting of inappropriate tenses and parallel structure for example ‘we can using...’ that should be ‘we can use...’ and ‘can to get...’ that should be ‘can get...’ While, 18% of them were found to have misspelling of words for example esopaghus, attention, bronkus, and trakea.

Instructional media is a tool that can be used to deliver teaching material and provide education about the character. Learning media can be used as a medium of education about the character, such as connecting the material being taught to the values of characters. Teachers are responsible for the formation of students’ character, so character education should be integrated into daily habit of students.

Table 4 Conservation Character

Aspects	Percentage
Religiosity	50%
Preserving nature	32%
Responsibility	18%
Honesty	4%

Media of learning made by students have been known to give education of characters that was adapted with teaching materials. Education of characters was most about the religious character, 50% of media were found to give education of religiosity. In accordance with curriculum 2013 on CC 1, it contains about admiring creation of God, therefore science material is closely related with various natural phenomena which can be associated with being grateful to the creator of nature. Another characters that arises is preserving nature or environment of 32%, on the material related to the environment, prospective teachers should give education

to love the environment through appeal to keep the surrounding environment in order to prevent the damage.

Character education can be given through the assignment. Students are given guidelines to do their work responsibly and honestly. Teachers can give such instructions through the medium of learning and involving the students in learning and improving the effective communication between teachers and students (Naz and Akbar, 2008).

Based on the vision and mission of Unnes, character education is associated with conservation education. Conservation education is expected to produce

students who have the character of conservation of religious, honest, caring, tolerant, democratic, decent, smart, tough, nationalistic, patriotic and responsible. Then, if they can grow those conservation characters it is expected that it can be transmitted to their students in the future because it can generate a character to preserve and protect the noble values, biodiversity, and existing historic buildings. Knowledge or practice in the conservation characters can also be built through the media that they create in the classroom.

CONCLUSION

Based on the analysis of instructional media, it can be concluded that the instructional media produced by prospective science teachers used in peer teaching activity in SIE course has known to have correct concept (100%), use correct structure of English language (77%) and provide education about conservation character (81%).

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