

BACTERIA MATERIAL IN THE SHORT STORY BASED ON THE CHARACTERS OF PUNOKAWAN FOR BIOLOGY LEARNING

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Abstract

Character building education can be internalized through education components as learning tools the form of teaching material. Bacteria material are abstract thing which may appears more attractive as a teaching material if it delivered through short stories which based from the Punokawan characters and figures. This kind of teaching strategies are expected to be something that can explore the local culture or local wisdom. The purpose of this study is to deliver the teaching material of Bacteria in Biology class in the form of short stories which based on Punokawan character, as well as the understanding concept of the students. It showed by providing teaching material in the form of short stories which contain of materials and character values will affected the excavation of character values and students' understanding concept.

Keyword : Biology Learning, Characters Of Punokawan, Bacteria Material

1. INTRODUCTION

Biology teaching material for senior high students sometimes still to be found as an abstract which make the material is difficult to understand and to be understood just like the bacteria material which given to the tenth grade students. Bacteria is a microorganism which has the characterization of small size and invisible , so it make the material not interesting for the students.

The character learning which implemented by the teacher give opportunities for students to know, feel, and do the character behavior in the learning process. Character building education are taught by three stages which are *Moral Knowing* or the stage of knowing the definition of the character behavior, *Moral Feeling* or the stage of feeling the character behavior, and *Moral Action* or the stage of implementing the character behavior^[4].

The local wisdom is more visualization a specific phenomenon which usually will be the special characterization of a certain society. Punokawan are fiction Javanese puppet figures which always be presented by *Dhalang* in the *wayang* or Javanese puppet show. The main characters of Punokawan are *Semar*, *Nala Gareng*, *Petruk*, and *Bagong* that each of their characters could be taken as a role model. The punokawan characters are made based on the closest characteristics of Javanese people's variety characterizations which indicating as multifarious roles such as knights, advisors, clowns or even the source of the propriety and benevolence^{[5],[1]}.

From the result of the survey showed that a number of students like some reading materials in the form of short stories^[6], so the teaching material which developed in this research was formed in a short stories of Punokawan Javanese puppet characterization plot. Punokawan is a local wisdom from Central Java and the story is about four main characters that have so much meaningful character values^[2]. Through the form of short story, the teaching material which based on standard competence and basic competence is expected to be a teaching material which can encourage the students to be more interested in Biology material especially bacteria material and also the students are expected to adapt the good characters and make it as their daily behavior.

2. MATERIALS AND METHODOLOGY

2.1. Subject and the research location

The subject of the research were tenth grade students, and the research is conducted in Semarang.

2.2. Research design

The research is conducted in a year with two stages using the *Research and Development* design (Borg and Gall (1989)^[7].

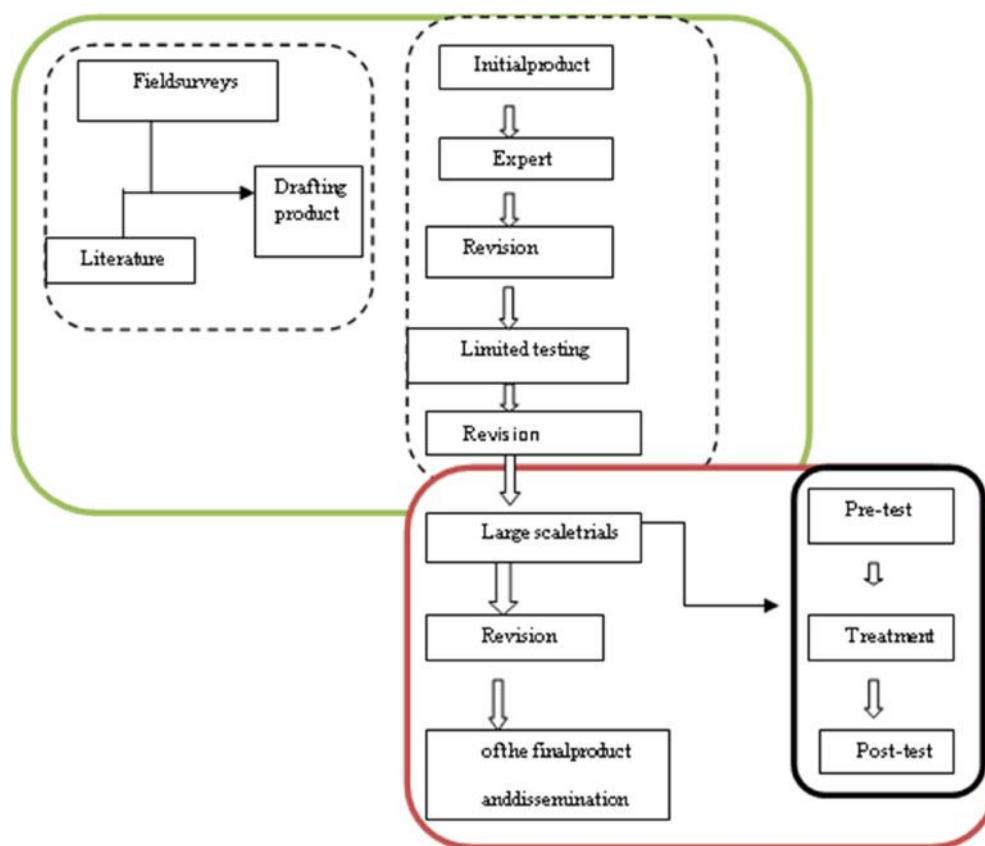


Figure 1. Research Diagram

2.3. The Data Source

The Data Source of this study were students, teachers, documents, and the process of teaching and learning. The type of the data was using qualitative approach. The data of this research was qualitative data: a) Observation result b) Interview result c) Questionnaire result d) Documentation

2.4. Technique Data Analysis

1. Validity Analysis and Instrument Reliability

a. Validity

To obtain a valid learning tool and observation instrument by conducting the validity of volume and construction. The validity conducted by involving the expert of the field.

b. Reliability

The reliable observation instrument will be calculated by using inter observer agreement technique. Two observers in the experiment using the same instrument to observe the same variables . Both observers were asked to judge in accordance with the observation instruments tested . The formula used to calculate the reliability is:

$$\text{Percent agreement (R)} = 100 \left[1 - \frac{A-B}{A+B} \right]$$

Description

A = Frequency aspects of behavior observed by observers by giving high frequency

B = Frequency aspects of behavior observed by other observers by giving low frequency .

2.5. Character Analysis

To determine the extent of the using of teaching material on character and student learning outcomes , then the calculation is conducted by using the g - factor (Ngains) .

$$g = \frac{S_{post} - S_{pre}}{S_{max} - S_{Pre}}$$

Description :

S_{post} = Post-test scores

S_{pre} = Pre-test scores

S_{max} = Maximum score

Criteria gain stage :

g 0.30 : Low

0.30 < g 0.70 : Average

0.70 < g : High^[8].

3. RESULT AND DISCUSSION

According to the flow of the research which been described on the figure 1, this research has taken its stage of the teaching material in short story form obtained and conducted the validity on the teaching material in short story form upon the content of the short story, materials, and teacher's assessment for the learning process and the test. The structure of the short story material which been formulated has the order of 1) Short story teaching material tells about a story or a tale where the stories visualized an incident or even a condition which the students experienced and the story is packaged in the form of the story of Punokawan, the function of the story is to stimulate student's learning motivation about the material. 2) material content were taken in accordance of the standard competency and basic competency of KTSP senior High curriculum. 3) the wise words which taken from the various references.

The validity result of material content for feasibility of presented material has not visualization the material in row yet, the used references for developing the teaching material in the form of short story was not emerged in a product, it required a description of the story to stimulate student's psychomotor as an example of scientific activities, also required an material expansion in case of giving a good role model for the students.

Teacher assessment results indicate that teaching materials in on both criteria, it is supported by the presence of students placed as the subject, easy to use, teaching materials have a fascination with the existence of a story in it, the story is adapted from the material to be discussed as well as the material does not come out of the should. For the aspects of the character of the three charges raised characters need some corrections in unyielding character, two other characters who belonged to the good character.

Character values which instilled through the study of teaching materials include three things 1) carefully, 2) caring and 3) unyielding, as for the limited test results can be presented in Figure 2 below

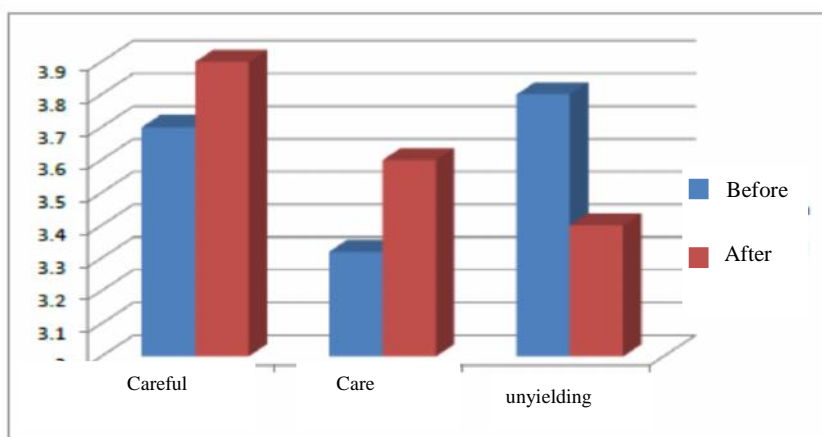


Figure2. Graph results of trials of teaching materials to the implementation of the short story form character values

The results of these tests indicated that the understanding of concepts which contained in the learning outcomes of students was increased, given the appearance of bacterial material in the form of short stories

with story plot was more interesting to read by the students than in the form of text books. Furthermore, there is a positive impact on the implementation of the values of the characters has increased in the character of careful and caring, but for the unyielding character has not shown an increase. If there was a conducted analysis using n-gain then it was known that n-gain for the careful was one of the characters which had the most meaningful and highest changes, while for the caring character had an average impact of changes which shown by using 0.4 n-gain analysis. And for the unyielding character the n-gain scored the lowest.

Based on the results of the validation which performed by an expert or experts in charge of both the short story and the material contained inside it had obtained average score which is 4 in other words that the teaching material can be used. Based on that condition, a test was conducted. The obtained result from limited testing indicate that careful and caring character had increased while the unyielding character had not..

The increase of the character was becoming the focus in this study which can not be separated from the short story teaching material which used in the students' learning process. The implementation of values in school has strategic role. To implement those character values the teacher must have some strategies to act such as the teacher must able to be a caretaker, role model or advisor also the teacher should be able to excavate the learning material with rich moral values ^[3].

Noting explanation of things that should be done by the teacher, can be accepted that by providing teaching materials which in a form of short stories that containing content material and character values will affected on the excavation of character values in students. Given the guidance of teachers to provide not only by physically meet with students, but with one particular instrument is the short story form of teaching materials.

Explanation on why the character of careful and caring on students were increased better than the character of unyielding was about the short stories which been used as a media to deliver the material, the character of careful and caring were touching and relating with daily lives and the routinity of 31 students. While short stories was used as the media to deliver the material and the characters were based on the student real daily lives.

4. CONCLUSION

1. This research has obtained teaching material in the form of short stories with the average score of 4 or the other words that the teaching material is value stated as good.
2. Teaching material in the form of short stories which been tested had good impact by the evidence of the increase on the character of careful and caring
3. Teaching material in the form of short stories can attract the student in learning the bacteria material and increasing the students' understanding concept.

5. ADVICE

Further research can be conducted by showing that other biological material can be made in the form of character-based stories.

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