



## AFFECTIVE ASPECT ANALYSIS OF BIODIVERSITY MATERIALS USING NATURAL EXPLORE APPROACH (JAS) ASSISTED WITH EDUCATION CARD

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### Abstract

Biology as one branch of science has its own characteristics compared to other natural sciences. Studying biology means attempting to know living organisms and life processes in environments that require the approach and methods to characterize and basic work in developing the concept. Learners will be more obtain the value of education when they find their own concepts about the surrounding nature through scientific process. The research objective was to determine the affective aspects of material analysis Biodiversity Approach assisted JAS Education Card. The study was conducted in June-October 2016. This study is quasy Experimental research design Nonequivalent Control Group Design. The study population throughout the class X SMA N 1 Limbangan 2016/2017 academic year was consisting of six classes. The research sample is determined by purposive sampling, ie classes and class X 5 X 6 as an experimental class and class X 2 as the control class. The data collection is done by observation. The results showed that the percentage of classical completeness the experimental class at 86.2%. Based on analysis of the experimental class, it shows affective criteria very well.

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## INTRODUCTION

Biology as one branch of science has its own characteristics compared to other natural sciences. Studying biology means attempting to know living organisms and their life processes in environments that require the approaches and methods to characterize and basic work in developing the concept. Learners will obtain more the values of education when they find their own concept about the surrounding nature through scientific process. This case gives consequences for the learning methods (Mulyani et al., 2008).

The results of interviews with biology teachers in SMA N 1 Limbangan show that the approaches used in learning materials using biological diversity in the classroom by giving lecture method and utilizing various learning media resources such as textbooks and worksheets. The teaching method used is Teacher Centered Learning and did not focus on student (Student Centered Learning). According to the teachers, the students tend to be passive in the class. The class X students in the first semester on Biological Diversity materials in the academic year 2015/2016 in the cognitive domain shows that the scores of 35 students, 34.3% of students scores are below the minimum requirement (<75). Therefore, it is necessary to provide interesting media and learning model so that the students can be more active during the class and study results (scores) become more leverage

Based on SBC biology syllabus of class X, the basic competence of Biological Diversity materials have to be passed. Based on interviews with Biology teachers, the students' study results tend to be low in biodiversity is due to the materials for biodiversity have four principal sub-materials to be discussed, while the students' have difficulties in understanding associate in biological diversity. Therefore, it is necessary to provide various learning approaches that can make students more active in learning biodiversity materials.

SMA Negeri 1 Limbangan has native students form Limbangan district, Ungaran. Limbangan is located near to the Ungaran mountain feet which still has a high biodiversity. School location can be optimized by teachers, especially to introduce the concept of biodiversity. Environment consisting of a school garden, school grounds, and the surrounding environment such as fields and gardens have the potential as a biodiversity learning resource. Students can study natural phenomema in the

school's surrounding area related to biodiversity materials. Students and their learning area make researchers believe that the application of nature explore approach can be applied and well received by the students so that the students' character during the class become more active in learning biodiversity.

Thus, it is necessary to apply a learning approach to explore the natural environment. Nature explore (JAS) learning approach is an innovation and learning approach for the biological study and other sciences by taking benefits of the surrounding environment and its simulation is a learning resource through scientific work, and followed by the implementation of students centered learning (Mulyani *et al.*, 2008).

Various learning media can be used to support the learning goals. One of which is Mount Ungaran based Education Card. Mount Ungaran based Education Card is a kind of card with a 9x6 size which contains the taxon and conservation status of biodiversity covering various flora and fauna in Mount Ungaran. Education Card is expected to be applied in biodiversity materials due to the materials requires the ability to observe, classify and discuss biodiversity.

Based on the problems that exist in the schools, the potentials, and the efforts to be made, in this study integrating learning approach with the nature explore (JAS) with Nature Education Card is expected to support the learning goals of Biodiversity in SMA Negeri 1 Limbangan. The application of natural explore approach (JAS) is supported by Education Card and expected to help and complement the learning strategy which initially only utilizing biology textbooks and Student Worksheet (LKS). Learning with this strategy requires teacher's role in guiding students as a facilitator and a motivator in class. Natural explore approach (JAS) combined with Education Card is an appropriate learning strategy for biodiversity materials that are expected to optimize students' score and affective aspects, as well as to facilitate students in understanding the materials.

There are several studies conducted support the researcher in developing approach nature explore (JAS) assisted by Education Card. The results of the study of nature explore approach

(JAS) shows that this strategy can be applied in teaching in order to make learning more meaningful. A research conducted by Sari (2013) asserts that Quantum Teaching in nature explore (JAS) character-based conservation is effectively applied to optimize the students' activity and scores. Savitri and Sudarmin (2016) application of Jelajah Alam Sekitar approach (JAS) in conservation local levels and local advance to installing conservation softskill in unnes natural science students. The learning method of Team Games Tournament (TGT) using the nature explore approach (JAS) with Portfolio assessment on the topic of colloidal systems can improve the score of XI 2nd semester MA Al-Asror Semarang students with learning completeness percentage of 97.37% (Sugiyono, 2008). According Pratama (2015), the implementation of physical science teaching module of class IX SMP-based nature explore approach on the material Earth motion and moon integrated with Javanese culture can improve students' scores. According Winarni (2013), score aspects of environmental care, process skills, and concept understanding of the group of students who take natural science learning using JAS approach is better than the group of students who take expository.

Learning with the help of the media such as card is effective in use. This statement is supported by the research conducted by Istifarini et al., (2012) states that the learning process of students in class X SMA Negeri 2 Wonosobo about virus using picture cards as media can make students more active and completeness of student learning reached 83.87%. Umar et al., (2016) discloses the smart card media of plants with the topic of Plant Motion proven to help students develop conceptual mastery and foster student interest in learning. Meanwhile, the research conducted by Suparmi et al. (2013) mentions that learning media using Education Card is effective to be applied to study energy matter, it was demonstrated by the achievement of the effectiveness of existing indicators. They are: 1) On the cognitive level, the students' materials mastery has increased from 48.43% to 76.09% with 93.75% of pass in effective criteria. 2) On the affective aspects, affective assessment of learners has increased from 55.78% to 78.44% and predicated as good. 3) Questionnaire of media expedience test get the value of 3.29 and categorized as high. Three-dimensional picture cards were developed to be used as learning media of integrated natural science with

an average score of 89.84%, and categorized as feasible for indicator achievement above 81%, and the developed three-dimensional picture cards were said to be effectively used in integrated natural science teaching with the evidence from the increase of N-gain value 0.52 (Umayah, 2013). Meanwhile, according to Fauzi (2011), the implementation of picture and picture cooperative learning can increase the students' motivation to learn biology in grade VIII D of SMP N 14 Surakarta in the academic year of 2011/2012. As a support Estiani et al., (2015) said if UNO as card game media is an educational game media that is implemented as a learning support so it can take place effectively and efficiently. Teachers are required to creatively use appropriate methods and media so that the classroom atmosphere is fun. Tanel&Erol (2008) stated the experiments that the students carry out by designing the related tools and devices themselves can improve their skills.

Based on the explanations above, it is necessary to research on the analysis of the affective aspects of biodiversity materials with the nature explore approach (JAS) with Education Card.

## METHODS

Research was conducted in the second semester of the academic year of 2016/2017. The design used in this research was quasi-experimental design with nonequivalent control group design. The samples were three classes, two experimental class and one control class (with a scientific approach in learning method). The sampling was determined by purposive sampling technique. (Sudjana, 2009). The data collection was done by observation. The observation method was used to assess the affective student in the learning process. The teaching was done in experimental class using nature explore (JAS) assisted with Education Card. The learning process in the control class was done by giving lecture method as was done by the teacher. The cards used in this study are mount ungaran education card that contain various images of biodiversity of mount ungaran. The pictures on the cards are the explanations of flora and fauna of mount Ungaran considering the fact that not might be

brought into the classroom because of their distance or great shape. The education card is also equipped with taxon and conservation status of the flora and fauna of mount Ungaran. Affective aspects assessment was done in every meeting using character observation sheet instruments in mutual accord to basic competence 3.1 and 3.2 according SBC 2006. The experimental data analysis is in the form of the affective aspects observation in descriptive quantitative design. Analysis indicator of learning outcomes in the affective aspect of this study is the result of affective competence learning of the experimental class achieving the expected percentage of  $\geq 61\%$ .

**RESULTS AND DISCUSSION**

Affective learning of students outcomes the learning materials using the biodiversity approach of nature explore (JAS) assisted Education Card is obtained from the observation.

Affective learning outcome in this study is the students' characters during the class. Students' attitudes assessment is derived from the students' attitudes observation using attitudes observation sheet.

On learning through discussion, students were divided into five groups in a class. Attitude assessment was done by three observers. One observer assessed one to two groups. The results of attitude assessment of the experimental class and the control class are presented in Table 1.

**Table 1.** The Results of Student's Attitude Assessment

Criteria	Experimental	Control
Excellent	86.20%	77.20%
Good	0.00%	0.00%
Fair	0.00%	0.00%
Poor	0.00%	0.00%

Table 1 shows that the attitude score indicates the experimental class students' attitude is better than the control class that is 86.2% with an excellent percentage criteria, while the control class obtained an excellent score of attitude to the criteria of 77.20%. It proves that the nature explore approach (JAS) assisted by Education Card can make a positive contribution in building students' attitudes in the students' criticism and cooperation in a discussion, JAS, and presentations.

Unlike the experimental group, in the control class, students have a lack of discipline, not critical, and irresponsible. It is because their learning is not

supported by the nature explore approach (JAS) assisted with Education Card that can stimulate students to discuss with contextual issues. The absence of nature explore approach (JAS) assisted Education Card cause no impulse that triggers the critical thinking character, honesty, responsibility, discipline, cooperation becomes less because of the minimum of practice.

Based on the observation analysis, the students' scores recapitulation of their attitudes can be inferred that learning in the experimental class using the natural explore approach (JAS) assisted with Education Card can obtain a higher percentage stance. Thus, it can be concluded that the analysis of learning using the natural explore approach (JAS) assisted with Education Card towards the students' learning outcomes shows an excellent affective criteria with a percentage of 86.20%.

In the experimental class, each group is given a card. The cards in this study are based Mount Ungaran that contain various images of biodiversity Mount Ungaran. These Education Cards consist of 62 cards consisting of: 10 pictures of amphibians, 10 butterfly images, 10 images of dragonflies, 10 images of birds, 10 images of orchids and a four cards of croton plants, four images of roses, and four pictures of chickens. The pictures on this card contain explanations of the flora and fauna of Mount Ungaran and facts that not might be brought into the classroom because of their distance or great shape. These Education Cards are also equipped with taxon and conservation status of the flora and fauna of Mount Ungaran. The making of this learning media is using the Corel Draw X7 application. The Education Card can explain the biodiversity materials teaching. In addition, the teaching of content using Education Card about biodiversity will facilitate students in materials mastery so that the result of learning increased. If all the materials can be well understood, then the learning outcomes can also be optimal.

Students who apply natural explore approach (JAS) will gain direct experience with learning and take advantages of the natural their school's surroundings. With the provision of adequate information and direct observation, the students will have a high enthusiasm to work together, be able to have talks, be more certain, and confident in delivering their ideas. It was

proven by the students' activeness during the presentation in experimental class, coherence and clear description in explaining the results of discussion, enthusiasm in answering their teacher's and friends' question, and excellent ability in concluding either in answering or arguing. Linear with research of Sari et al., (2012) utilization of Unnes education garden as a source studying the material classification of living creatures with the approach of the surrounding nature that is applied can optimize the activity and learning outcomes. Beside that Umayah (2013) said pop up card as the media of group discussion on the learning media integrated science effective for teaching and learning activity.

These results are in line with the opinion of Suparmi et al., (2013) stating that the Education Cards show on the affective aspects, affective assessment of learners has increased from 55.78% to 78.44% and predicated good.

Same as the experimental class, the control class also learn with the same topic. However, students are not provided with the natural explore approach (JAS) assisted with Education Card equipped with images of flora and fauna of Mount Ungaran biodiversity and also equipped by taxon, name of the region, and conservation status. With the provision of students' books and the internet without any learning media that can stimulate the students, students' ability to cooperate in solving the problems is different one another depending on the motivation of each student, so that the students' way in communicating the results is also different.

This study shows that the affective aspects analysis of biodiversity materials with the natural explores approach (JAS) assisted Education Card shows very good criteria.

## CONCLUSION

Based on the research results and discussion analysis, it can be concluded that the analysis of the affective aspects of biodiversity materials with the approach of natural explore approach (JAS) assisted Education Card shows excellent criteria of 86.20%.

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