**EFFECTIVENESS OF QUESTION STUDENT HAVE STRATEGIES AND MACROMEDIA FLASH ECOSYSTEM ON STUDENT LEARNING OUTCOME**

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**ABSTRACT**

This research aims to examine the effect of using QSH strategy, flash, and a combination of both and which is more optimal treatment used in the ekosistem. This research was *quasy-experimentally*, using pretest-posttest group design. The population in this research was all students X SMA PGRI 2 Kayen, while samples in this study was class X-1 as first class experimental, class 2 X5 as second class experimental, and X7 as third class experimental. Samples was taken using purposiv sampling. The results showed 60% of students experimental class 1, 82% students experiment 2, 100% of students pass KKM (72). N-gain result of third class experiment reached medium criteria, and affective learning outcomes reach high category. Hypothesis results obtained value of F 7.67> 3.11 continued with LSD test showed that treatment of experimental class 3 was the most optimal in the learning ecosystem than the other two classes.

**Keywords**: *Question Student Have, Macromedia Flash, Students Learning Achievement, Ecosystem*

INTRODUCTION

The process of education in schools is a reciprocal relationship between teachers and students with a supportive learning component. According to Slameto, (2010) Learning is a process of business undertaken by a person to obtain a whole new behavioral change, as a result of his own experience in interaction with the environment. Learning will be more meaningful for students when students are included in each learning activity directly, with teachers as mentors and facilitators, so the learning system goes both ways and is not monotonous. Teachers have a very important role in learning one of them to help students participate in learning activities one of them is by asking questions about things that have not been understood. One of the characteristics that indicates that students participate actively in a learning is to ask. When students are actively inquiring, it is an indication of a student's desire or motivation to understand the material.

In a learning each student must try to be active, active learning is meant here by way of experiencing own and practice, so that the power of thought, emotional, and the activity of learning is increasing (Riswani & Widayati, 2012). Based on data obtained from one of the State Senior High School in Pati Regency stated that the theoretical learning was conducted by using PPT and lecture by the teacher. Learning takes place in one direction because in one class of 40 students there are 10 students who actively ask and others just silent without responding. The questionnaire data states that other students' disagreements to ask are due to: (1) fear of being wrong; (2) shy to ask; (3) not interested; (4) do not understand. Based on the value archive, states that as many as 12% of students have not complete the KKM standards established by the school.

Ecosystem material is one of the materials in biology that requires a deep understanding of concepts especially in the biogeochemical cycle. However, it is not possible for students to understand the cycle that occurs over a long period of time. Therefore it takes a supporting material in doing the learning process. The application of flash is used to complement the lack of space and time of ecosystem learning by way of analogizing processes that occur in ecosystems where the process can not be directly observed by students. From some of the problems that have been described, teachers play a role in providing learning activities with appropriate strategies and teaching materials to help students understand the concept of ecosystem material.

*Question Student Have (QSH)* is an active learning strategy that uses a technique to use student participation through writing. In troubleshooting of less students activity in asking, *QSH* is expected to be used as an alternative to maximize the activity of inquiring in the classroom.

Research conducted by Yusuf *et al*. (2012) states that student learning outcomes have increased in 3 times testing with the completeness rate reached 83.78%. This learning enhancement outcomes is caused by *QSH* student’s questions bring up the understanding or eliciting reactions or answers that can be understood and accepted by reason.

With a strategy that directly involves students in this learning process makes students feel motivated to learn and feel meaningful learning. Supported by the use of flash media that also serves to stimulate students to create questions because in the flash in addition to containing the *motion picture* also contains a *question part* to stimulate the student’s ability to ask. This is supported by Nursofi & Budiyono Research (2011) which states that the student’s learning outcomes have increased by 28.75% when students are given treatment using *flash*. The flash function here is to visualize material in an abstract ecosystem. This study aims to determine how the influence of the use of *QSH* learning strategies and flash ecosystem, to the student’s cognitive learning outcomes.

# METHOD

This research was conducted *quasy-experimentally* with *pretest-posttest group design* in three classes. Independent variable (x) in this research is giving treatment that is learning with *Question Student Have & Macromedia Flash*. The dependent variable (y) is the student’s cognitive learning outcome. The population in this research is all students of class X of second semester in one of SMAN in Pati Regency. Sampling in this study was conducted using *purposive sampling* technique. Class X-1 with treatments of *QSH* and PPT media, X-2 class with Flash treatments and conventional strategies, and X-3 classes with a combination of *QSH* and *Flash.*

This research is carried out in preparation, implementation, analysis and final data. The techniques that used to collect the data are test methods and questionnaires. The test method is used to get the student’s cognitive learning outcomes after learning. Questionnaire method for obtaining student and teacher response data. The data were analyzed by quantitative method in the form of score. While the influence of independent variable to the dependent variable is analyzed using *t-test.*

# RESULTS AND DISCUSSION

**1. Student’s Learning Results**

The student’s cognitive learning outcomes are indicated by the final values and *n-gain*. Based on the analysis, the final grade data shows that the 3rd class (combination) has the highest average end value compared to the three experimental classes. This can be seen in Table 1.

Table 1. Results of Student’s Final Score

|  |  |  |  |
| --- | --- | --- | --- |
| Classes | Average Grade of Mean Discussion Value | Average Posttest Value | Final Score |
| 1 | 78,1 | 70,3 | 74,2 |
| 2 | 74,6 | 75,7 | 75,1 |
| 3 | 85,6 | 75,9 | 80,1 |

The average score of combined learning outcomes was higher compared to the other two experimental classes (Table 1). Furthermore, to know the difference of the average of student learning outcomes of three experimental classes used anova and BNT test which showed that the result of decision test f arithmetic> f table (7.67> 3.11) and t arithmetic.t table so that Ha accepted and Ho rejected , meaning that there is a significant difference between the learning outcomes in the three experimental classes and the third experimental classes have the highest average of the others. This hypothesis test is supported with *n-gain.*

The QSH class uses PPT which contains materials such as texts and pictures as the media to assist students to gain a better understanding of the given materials. In the learning processes, the displayed slides provide graphs and pictures. Based on LKS, Students should independently discuss the definition of ecosystem components shown in the pictures. This activity leads the students to observe and analyze the image and ultimately define the ecosystem components. In the second class, the use of flash which contains motion pictures and animations would draw students’ attention which in turn increase the number of students who concentrate on the lesson. Having been enthusiastic in the *flash*, students, however, occasionally forget to take a note of the materials. As a consequence, some pupils could not get maximum mark due to the inability to absorb the material in long-term memory. Different from PPT, *Flash* provides motion pictures which display material step by step. Such motion is set to flow systematically. Thus, students will get a real view of the cycle of biochemical processes (Smaldino *et al.* 2004).

The combination class gains the highest mark among two other experimental classes. All students in such class pass the KKM which has been set. This is due to the use of interactive media which successfully draws student’s enthusiast in the learning processes. Students, by this method, do not necessarily need to ask questions orally. Instead, they could write their question on a piece of paper. The result of this classical completeness is supported by the resulting *n-gain* for the three experimental classes.

The questions which display in the *Flash* could stimulate students to think logically because they could not get the answer directly from the book. Instead, students need to read the book comprehensively, understand the materials and actively discuss with their pairs to get the answer. The answer then is written in the discussion sheet. When the activity is continued with asking *QSH*, the student should make one question which requires them to re-read the materials. The previous issues in the *flash* guide the students to ask the similar question related to the context of the lesson. One of the examples of questions posed by student is “how if one of the bacteria that play a significant role in nitrogen conversion does not exist?’’ to answer such question; students should discuss, read, and remember the previous materials given.

The function of flash is stimulation development of quality question and thinking of student through motion picture and question, while with QSH student pour their question, then solve the problem question by reading again and remember the material many times. Comparison data N-gain grade in combination class has highest N-gain average. Giving appropriate and appealing strategies and media in third experiment class increased of learning outcome higher than two another class experiment. Supported by research conducted by Nurhayati et al. (2009), in his research stated that the QSH strategy is effectively used in learning process but accompanied by appropriate and interesting learning media for student.

Table 2. The result of N-gain of three class

|  |  |  |  |
| --- | --- | --- | --- |
| Class | N-gain  Average | Category | Percentage |
| *QSH* | 0,53 | Medium | 66% |
| *Flash* | 0,52 | Medium | 64% |
| Combination | 0,56 | Medium | 76% |

N-gain score of combination class is 76%. One example of material presented using motion picture in interactive media is nitrogen cycle, this cycle process has difficult cyclical sequence to interpret because it can’t be seen in real nature. The flash class has a N-gain score is 64% not much different from the QSH class that has an N-gain score amount 66%. The acquisition of N-gain is supported by Suwarsono's research (2014), QSH strategy can increase the average of pretest-posttest score of student compared with conventional learning, N-gain achieved in this study is medium category amount 0.63. The percentage of acquired N-gain has reached from indicator or standard although the QSH class has not finished from classical completeness but seen from the value of N-gain reaching medium category QSH strategy with PPT media have positive effect for learning process. Hypothesis testing was performed using variance analysis (ANOVA) to support previous data. The hypothesis test showed there are differences significant of learning outcome from three experiment class based on the treatment given in each class followed by further testing using BNT, the mean comparison of three class stated the combination class most optimal used in learning process with the highest average from two other class. Treatment in QSH class is not more optimal than treatment in flash class and vice versa seen from average acquisition that is not much different. Based on hypothesis test, the comparison of final value, and acquisition of N-gain of three experiment class have positive effect on student learning outcome and most effective in combination class.

CONCLUSION

Based on the result of data analysis and discussion of research result, it can be concluded that the use of QSH strategies & interactive media ecosystems provide positive influence on student learning outcome.

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