

# THE EFFECTIVENESS OF PRESSURE MATERIAL MODULE PROCESS PICTURE BASED FOR INTEGRATED SCIENCE LEARNING AT JUNIOR HIGH SCHOOL

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## ABSTRACT

*Providing teaching material in the form of learning module becomes an alternative of fulfilling the needs of teaching material which accommodate students' need in the integrated science learning. Pressure Material Module Process Picture Based is the combination between teaching material in the form of learning module and media in the form of process pictures. The pressure material module process picture based displays the material explanation in the form of pictures of events which are arranged systematically, in order, and there is difference in each picture from other pictures. In the learning by using pressure material module process picture based, the students are required to achieve learning achievement which has been arranged until creation stage. This research aims to examine the effectiveness of pressure material module process picture based in the integrated science learning process. This research was a descriptive research which its test implementation used one group pre-test post-test design. The research try out was conducted at three different junior high schools (A, B, and C). The research data were in the form of pre-test and post-test scores to determine the normalized gain as indicator of learning effectiveness. The research results show that Class A is included into medium criteria with score 0,64; Class B is at medium criteria with score 0,67 and Class C is the highest criteria with score 0,71. In general, it can be said that integrated science learning with the assistance of module process picture based for pressure materials is included into quite effective.*

**Keyword:** - *Learning module, Process pictures, Pressure, Effectiveness*

## 1. INTRODUCTION

Integrated science learning is a meaningful learning which enables the students to implement the science concept and high level of thinking skill or HOTS (High Order Thinking Skills). According to Wiyatno and Widiyatmoko (2017), integrated science learning enables the students to obtain direct experience of accepting, saving, and applying the scientific concept. Beside that, the students are trained to find their own concept holistically, meaningfully, authentically, and actively. In the learning of integrated science, the students are encouraged to connect the learning materials with the real world context. The students are actively involved in exploring the relevant real world context with the learning materials, conducting collaborative investigation, and communicating the results of investigation (Asrizal, et.al., 2018). The success in the learning is seen from the achievement of learning purpose. Selecting the teaching materials and the right media will ease the achievement of learning purposes (Parmin, 2017).

Learning module is one of independent teaching material in the form of independent textbook which covers a sequence of learning experience which is arranged systematically aimed to help the students study independently in certain unit of time until they acquire the competence being taught (Wahyu, et. al., 2017). The module can improve the efficiency and effectiveness of learning at schools either time, fund, facility, or the energy in order to achieve the purpose optimally (Mulyasa, 2003).

Interesting media which can centralize students' attention is picture media. Picture media that can improve students' conceptual understanding is process pictures (Zainuri, 2017). Process picture is one of picture media which

can be integrated into learning module. Process pictures are a series of pictures from the initial condition until the last part because of the object condition, events, or phenomenon, in which one picture and others are different, but the different in the picture is viewed as the sequences or sequences of condition (Sutarto, et. al., 2018). Process picture can become one of alternatives for helping material delivery of abstract integrated science learning.

The results of researcher's preliminary study shows that 6 out of 10 teachers in Jember Regency state that students' achievement on science integrated learning is not completed and all teachers experience difficulty in delivering abstract materials. Meanwhile 18 out of 20 students in Jember Regency state that integrated science learning is difficult and not interesting. This also prevails for pressure materials, according to the students pressure material is difficult to be learned because it is difficult to understand and not interesting. The purpose of integrated science learning is to achieve knowledge competence, scientific work, and scientific attitude in the field of science as daily life behavior in the interaction with the society, environment, and the usage of technology which is reflected in the learning achievement (Kemdikbud, 2017). If students' learning results are incomplete, then it can be said that the learning in the class is not delivered to the students because the abstract material contents are difficult to be translated and the learning activities are not completed with interesting learning media.

Basically the characteristics of abstract materials can be displayed in the form of pictures which can be understood by the students and described in details the concept of that material. Process picture is a picture media which is expected to help the students understand the materials. According to Rosadi et. al., (2018), process media picture can develop students' thinking power and dig and find the information by themselves. If the process media picture is combined with teaching materials in line with the students' need, then it is expected that the learning purpose can be achieved. According to Yusmar (2017), the module with process media picture improves students' learning motivation. This background underlies the researcher to combine teaching materials in the form of interesting media such as process picture.

Pressure material module process picture based is the alternative of teaching materials and an extremely effective media used in integrated science learning. Sudjana (2009) states that the teaching and learning process can be said effective if fulfilling the criteria of successful teaching. Learning effectiveness also can be defined as the success of a teaching and learning process which is measured through the level of students' learning achievement. The usage of module can improve students' learning achievement because according to the research by Khasanah et. al., (2017) that learning by using module can improve students' critical thinking skill compared to the learning without the module. Furthermore, according to Zainuri (2017); Sutarto (2018); Susbandya (2018); Rosadi (2018) process picture can improve the learning effectiveness, students' conceptual understanding, students' retention, and students' critical thinking skill.

## 2. METHODOLOGY

This research is a sequence of research and development stage for producing the module of integrated science learning process picture based. As explained beforehand that the purpose of this research was to determine the effectiveness of learning. The research subjects were grade 8 students. The type of this research was descriptive and to implement the test of module effectiveness, quasi experimental research design was employed one group pre-test and post-test. The try out implementation of module was conducted at three Junior High Schools, they are grade VIII of SMP PGRI 2 Tempurejo (Class A), SMP Plus Al Amien Ambulu (Class B), and SMP KH Agus Salim Summersari (Class C), Jember, Indonesia academic year 2019/2020. The data of pre-test and post-test results score for those three classes of three schools were analyzed by using N-Gain formula for determining the learning effectiveness as follows:

$$N_g = \frac{\text{Skor Post Test} - \text{Skor Pre Test}}{\text{Skor Maksimum} - \text{Skor Pre test}} \dots \dots \dots (1)$$

Maximum score is the highest score of pre-test and post-test data scores. For determining the improvement criteria (N-Gain Table) can be used in Table 1.

**Table 1: N-Gain Criteria**

G Score	Category
$\geq 0,70$	High
$0,3 \leq g < 0,70$	Medium
$< 0,3$	Low

### 3. DISCUSSION

As explained beforehand that this research aims to describe the effectiveness of pressure material module process picture based for improving integrated science learning. Based on the analysis of pre-test and post-test data scores obtained the result as displayed in Table 2 as follows:

**Table 2: The Result of pre-test and post-test analysis**

Classes	Pre-test Average	Post-test Average	N-Gain	Category
Class A	33,39	76,07	0,64	Medium
Class B	34,11	78,21	0,67	Medium
Class C	35,18	81,07	0,71	High

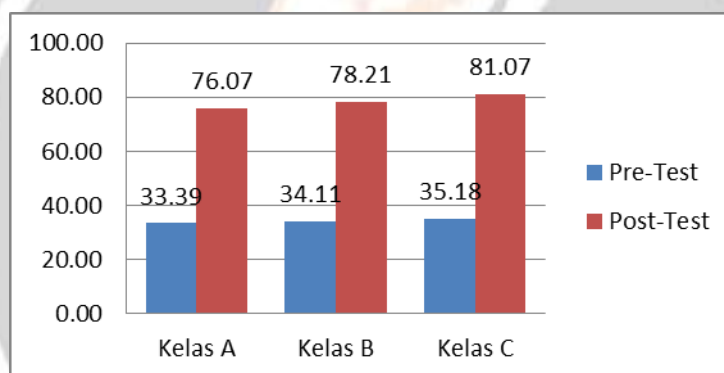
**Chart 1: Pre-test and post-test result**

Table 2 shows that Class A and Class B get medium criteria for the effectiveness which means pressure material module process picture based is quite effective to be used in integrated science learning. Class C obtains the higher score until it gets high category which means the learning module is extremely effective for pressure material learning.

The research results for the implementation of integrated science learning for pressure material is quite effective. This result is supported by the research results by Ruffi (2015) that students' learning result increase after using the module. This shows that pressure material module process picture based is effective to be used in integrated science learning. In addition, this result is also supported by Rosadi (2018) who states that the module with effective process is used in the learning.

Learning with module process picture based is effective because in this module there is material explanation displayed in the form of process picture. This makes the students required to analyze the process of certain event to be learned. This activity will trigger students' motivation in learning because the picture media is interested to be observed. If the students are motivated to learn then psychologically they are ready to study. In the process picture; color, size, and difference of each picture are really prioritized until this is in line with the statement of Deco (2007) that using picture components such as diagram, writing, and different color can train the brain to analyze and think critically. Students' critical thinking skill will make the kids understand more about the materials to achieve the learning purpose and able to solve the problem given in the test.

One of indicators of learning quality is the teacher's quality. The teacher's accuracy in choosing the learning material is in line with the students' characteristics and the selection of learning media is in line with the material's characteristics determine the effectiveness of learning and the achievement of learning purposes.

According to Mutrofin (2003), learning effectiveness can be measured by looking at the students' achievement level towards the learning purposes. The pressure material module process picture based with the questions' instruments are arranged in accordance with the indicators listed in the syllabus.

#### 4. CONCLUSIONS

Based the results of data analysis, then it can be concluded that the usage of integrated science module process picture based is effective for the learning of pressure materials at Junior High Schools. Therefore, there are some suggestions to be considered as follows; for the teacher of science and the future researchers; process picture based learning media needs to be developed for other materials beside pressure.

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