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The Effect of Expository Teaching Model on Learning Outcomes of Junior High School Students in Sabang, Aceh

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***Abstract*—The aim of this study is to determine the level of understanding of optic concept and the changes in student learning behaviour through the application of expository models for students in SMP Negeri 6 Paya Seunara Sabang, Aceh. This study uses an experimental approach involving 62 students from 5 class asses chosen randomly. The intended experiment was the way researchers directly taught all classes. Collecting data to know students' understanding of the optics matter by using a test. Changes in student learning behaviour were assessed by the observation sheet. The results showed that the application of expository methods cannot improve students' understanding of SMP Negeri 6 Paya Seunara Sabang on the concept of optics matter. The change of student learning behaviour is 74.6%. The combination of learning methods is needed to get better student performance.**

Keywords—expository model; performance; interest; motivation

I. INTRODUCTION

The learning model adopted by physical science teachers is generally based on the assumption that knowledge can be transferred completely from the teacher's mind to students' minds so as to cause changes in cognitive structure in students [1]. This condition is one of the causes of the low absorption of students in science subjects. According to constructive views, knowledge is built by students based on the cognitive structure that is present in students in the form of prior knowledge. So, in the learning process, the students themselves are mentally active in building knowledge, while the teacher functions more as a creative facilitator or mediator [2]. In carrying out its function as a facilitator in the learning process, the teacher must know and understand the cognitive structure or scheme that exists in the student. The cognitive structure exists in the form of students 'conceptions (student's conception), also called the students' initial knowledge (Prior knowledge). If the teacher knows the prior prioritization of students than they can be expected to be able to become effective and efficient facilitators or moderators of learning. In connection with this, the prior knowledge of students needs to be explored and identified before the subject is taught.

Students are known to have ideas about physics which are generally developed from everyday experience [1,3,4]. Nevertheless, these ideas are still misconceptions which contradict scientific explanations [5]. Misconception is one of the factors causing student failure in learning physics [6]. Traditional teaching does not consider students' misconceptions so they are less effective and not meaningful [7]. If students' ideas differ from the definitions accepted by scientists, students will not be able to form a link between new knowledge and initial knowledge [1]. The level of student understanding in learning physics is strongly influenced by the teacher's teaching method. Differences in student interest and motivation in learning physics also have an important role in determining student learning outcomes.

The expository method is one of the learning methods that are expected to improve students' understanding of physics learning. The learning process using the expository method is carried out through several stages, namely the introduction stage, apperception, presentation, recitation, and task development [4]. Expository methods emphasize the process of delivering the material verbally from a teacher to a group of students with the intention that students can master the subject matter optimally [8]. Expository methods allow teachers to control the order and breadth of learning material. This method is effective if the material that must be mastered by students is quite extensive, while the time is limited [9]. Various studies have shown that the use of expository methods in learning can improve student learning outcomes [10]. Even so, the study of student interest and motivation with the expository method that emphasizes teacher centre learning has not been widely reported. The aim of this study is to determine the level of understanding of optic concept and the changes in student learning behaviour through the application of expository models for students in SMP Negeri 6 Paya Seunara Sabang, Aceh.

II. METHODS

The study was conducted at SMPN 6 Paya Seunara Sabang. The study involved 62 students in class VII were selected randomly from 5 classes. The intended experiment was the way researchers directly taught all classes (from grades VII_1 to class VII_5, about the concept of optics in SMP Negeri 6 Seunara Sabang. The instrument used for data collection mastery of

student concepts is a test of understanding optical concepts. The test in this study was divided into two, namely pre-test and post-test. This test is in the form of a multiple choice consisting of 20 items. This test has a reliability index (r) = 0.68. Changes in student learning behaviour (interests and motivation) were assessed by the observation sheet.

A. Data Analysis

To know the effect of students' understanding of the optics matter, the analysis conducted on result of the written test assessment following formula:

$$t = \frac{\delta}{SD\delta/\sqrt{n}}$$

Where:

δ = Average deviation

SDδ = Standard deviation of δ

n = Number of samples

To know how much the change of student learning behaviour, interest, and motivation of students for learning physics optics matter, following formula:

$$Percentage\ (\%) = \frac{n}{N}\ x\ 100\%$$

Where:

n = Total score of all respondents

N = Maximum scores

% = Percentage level achieved

Criteria interpretation of this research variable is determined: 81–100 = very good; 61–80 = good; 41–60 = fair; 21–40 = less; 0–20 = not good.

III. Results and Discussion

The results of the optical concept test with the application of the expository model for students of the fourth semester of SMP Negeri 6 Paya Seunara Sabang, Aceh showed varied (Table 1).

TABLE I. Test Results of Optical Concepts with Expository Models

Value	Pre-test	Post-test
40-45	9	6
46-51	2	3
52-57	10	7
58-63	8	12
64-69	16	10
70-75	14	18
76-81	3	6

The t test results show that the value of $t_{test} < t_{tab}$ (0.2742 < 2.4469) at a significant level of 5% (α = 0.05). This shows that the null hypothesis (H_0) is accepted which indicates that there is no effect on the use of expository methods to increase students' understanding of optical concept material. In the class, teachers tend to use control of the learning process actively, while students are relatively passive to accept and follow what is presented by the teacher. This expository learning method is a teacher-cantered learning process, the teacher becomes the main source and an informant. Implementation of teaching and learning with the expository method, the teacher gives the material in a coherent way which then continues by working on the questions and discussed together, students are not actively involved, students only receive material from the teacher without being given the opportunity to share with other friends according to the knowledge they have. In the application of learning with the expository method, researchers encountered several obstacles, including in learning, researchers must prepare and master the material that will be taught to students and teachers have difficulty measuring the level of students' understanding because sometimes students who do not understand the material are ashamed or lazy to ask. The results of this study are different from research studies at SMP Negeri 3 Tampaksiring which indicate an increase in student learning outcomes using the Expository Teaching Model [11].

Students' interest and motivation influence the level of students' understanding of the subject physics of optics matter. Student motivation and student learning interests are shown in Table 2.

TABLE II. Motivation and Student Learning Interests

Aspect	Average percentage	Category
Motivation	76.45	Good
Student learning interests	72.75	Good

According to Table 2, it can be seen that the motivation and interest of students of SMP Negeri 6 Paya Seunara Sabang are included in the good category. Motivation and interest in learning have an important role in improving student learning outcomes. Motivation has a great role in the success of a person in learning [12]. Motivation to learn physics grows because of the desire to be able to know and understand something, and encourage and direct students' interest in learning so earnest to learn and motivated for achievement [13]. The results of the research have shown that expository methods can trigger students to be motivated to learn. The condition of the student learning environment will both strong interest and motivation to learn [14]. While the change of student learning behaviour still under the criteria of at least 80%.

IV. Conclusions

A total of 38 people (61.3%) who scored less than 70 and only 24 people (38.7%) who got score more than 70 which indicates that there is no effect on the use of expository methods to increase students' understanding of optical concept material. The change of student learning behaviour is 74.6% and still under criteria at least 75%. The combination of learning methods is needed to get better student performance.

REFERENCES

[1] K. Suma, Penerapan Buku Tekas dan demonstrasi sebagai strategi conceptual change dalam pembelajaran optika geometri. STKIP Negeri Singaraja, 1998.

[2] C.T. Fornos, Inquiring teacher equiring learner: A constructivis approach for teaching. New York. Teacher Collage Press, 1989.

[3] R.J. Osborne and M.C. Wittrock, "Learning Science: A generative process," Science Education, vol. 67, pp. 489-508, 1983.

[4] S.B. Djamarah and A. Zain, Strategi Belajar dan Pembelajaran. Jakarta: Rineka Cipta, 2002.

[5] S.H. Brougton, G.M. Sinatra and R.E. Reynolds, The Nature of the Refutation Text Effect: An Investigation of Attention Allocation. Education and Leadership, School of at DigitalCommons@USU Utah State University, 2010.

[6] G. Ozkan, "The use of conceptual change texts as class material in the teaching of "sound" in physics," Asia-Pacific Forum on Science Learning and Teaching, vol. 14, no. 1, pp. 1-22, 2013.

[7] I. Onder and O. Geban, "The effect of conceptual change text oriented instruction on students' understanding of solubility equilibrium concept," H.U. Journal of Education, vol. 30, pp. 166-173, 2006.

[8] W. Sanjaya, Strategi Pembelajaran. Jakarta: Kencana, 2006.

[9] T.K. Rachmawati, "Pengaruh Metode Ekspositori Pada Pembelajaran Matematika Dasar Mahasiswa Manajemen Pendidikan Islam," Jurnal Pendidikan Edutama, vol. 5, no. 1, pp. 51-55, 2018.

[10] K. Suma, "Pengaruh teks sangkalan terhadap pencapaian konsep siswa tentang hukum pertama dan ketiga Newton," Jurnal Pendidikan Indonesia, vol. 5, no. 1, pp. 735-748, 2016.

[11] N.M. Suniti, "Model Ekspositoridapat Meningkatkan Prestasi Belajar Matematika Dalam Kompetensi Dasar "Memfaktorkan Bentuk Aljabar"," Jurnal Santiaji Pendidikan," vol. 5, no. 2, pp. 96-102, 2015.

[12] H.B. Uno, Profesi Kependidikan. Jakarta: PT Bumi Aksara, 2008.

[13] I. Iskandar, Psikologi Pendidikan. Jakarta: Gaung Persada (GP) Press, 2009.

[14] Dimyati and Mudjiono, Belajar dan Pembelajaran. Jakarta: Rineka Cipta, 2009.