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THE INFLUENCE OF GUIDED INQUIRY LEARNING MODEL TOWARDS STUDENTS' LEARNING ACHIEVEMENT

Siska Mauritha✉

Teuku Umar University, Indonesia

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Abstract

This research is aimed to discover the influence of guided inquiry learning model to improve students' learning achievement of direct current and Archimedes law materials. This research used experimental method with Pretest-Posttest Control Group Design. The population of this research was the students of XI grade MAN Meulaboh 1 consisting of five classes with 36 students in each. The sampling methods were determined using random sampling technique that resulted in two classes as the research samples. The data analysis of the students' learning achievement proved that the N-gain improvement of the students in the experimental class was 79.13%. It is better than the result of the control group which was 61.14%. This thing is because the experimental class gets the guided inquiry learning model.

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✉Corresponding author:
Siska Mauritha
Teuku Umar University, Indonesia
E-mail: msieskha@gmail.com

INTRODUCTION

Physics as a subjects teach the students based on the order or the exercise given by the teachers. It makes the learning process become ineffective. Learning physics should also prioritize the skills and activeness of the students in solving certain problems. Thus, the students can master the concepts of physics material optimally. The attempts to improve the quality of learning process should place teachers as the facilitators and motivators in optimizing the students' learning activity. Therefore, teachers' lesson plan should use several variations which can give the students chance to learn widely and build their own knowledge from the materials.

Simsek & Kabapinar (2010) states that inquiry learning model allows the students to explain an object, ask question, arrange a theory, comparing theories, and sharing their understanding to other people. Supasorn, dkk (2012) explains "Science inquiry has been highly advocated to be implemented in middle and high school science since the last century".

From the observation and interview to the observed school, it seems that physics teachers use traditional learning methods, such as lecturing, discussion, and demonstration. It makes the students difficult in understanding how certain things can float, fly, and sink based on Archimedes law. Students assumed that light materials will float and vice versa. In the subject of direct current, the students are difficult in deciding the power of direct current and electrical resistance and conductance in a closed circuit. The students were also difficult to decide series and parallel circuit in a mathematic and practical circuit, it is because the facilities of the laboratory is not adequate, the minimum usage of learning properties make the students unable to understand the application of physic concept in daily life. In the end the students do not have intense interest to physics. This is the reason why the guided inquiry learning model can be applied to solve the problem Rizal (2014), Dewi (2013), Wahyudi (2013), Wusqo (2014) stated that guided inquiry learning model can improve the learning outcomes of the students.

Based on the explanation above this research will discover how far the guided inquiry learning model to students learning results in physiscs using flood detector tower as the property and applying Archimedes law and direct current circuit.

Based on these background, the problems of this research are: Is guided inquiry learning model can improve students learning results in direct current and Archimedes law materials? The purpose of this research is to discover the students' learning result in the application of guided inquiry learning model to Physics subject specifically in Archimedes law and direct current circuit material.

METHODS

This research was done starting from 15th September until 30th September 2015 in MAN Meulaboh 1. This research was using experimental method with Pretest-Posttest Control Group Design. The instruments of this research were validated by expert lecturers and tested to 36 students of XI IPA_1 class in MAN Meulaboh 1.

The population of this research were included in 5 class with the total of 180 students overall. According to their academic reports, three classes of the five has similar ability. The sample of this research was decided using Random Sampling and the data explain that XI IPA_2 class was determined as the experimental class while XI IPA_3 class as the control class. The improvement of learning wjmn as determined using the statistical test towards students learning results before and after the learning activities with guided inquiry learning model. The statistical test determined after doing normality tests (Lillifors test) and homogenity test (Variance tests) towards students learning results data. The amount of improvement is shown with gain index <g>, and, it is counted with N-gain score from both class. All quantitative data obtained from this research was processed using Microsoft Excel 2007.

RESULTS AND DISCUSSION

The result of guided inquiry learning model to students learning result can be seen in Figure 1. Figure 1 shows the average score of both classes. The students learning result in experimental class and control is relatively improving.

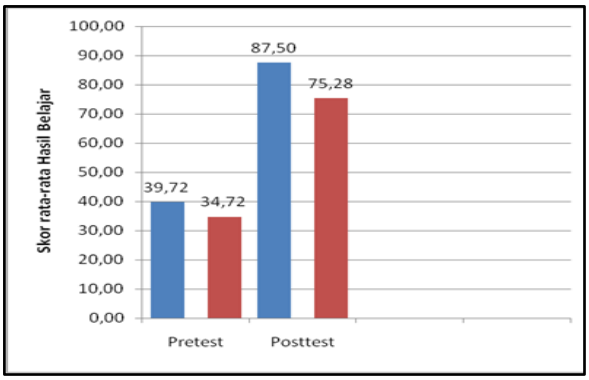

Figure 1. The Average Score of Students Learning Result

Based on the Figure 1 can be seen that there is a difference between students who get inquiry with the traditional as found by (Kurniawati, 2014., Sirait, 2012., Harahap&Sinuraya, 2013).

Botha (2017) stated that It continues in highlighting the rise of inquiry-based learning as a potentially useful and meaningful way to improve learning outcomes and concludes with qualitative evidence that inquiry-based learning can assure more effective schools. As the result of Khan et al (2011). The overall results of the study indicate that inquiry based instruction, as a back up strategy to support traditional teaching methods. Improved students' achievement in the subject of chemistry at secondary level with higher achievement gains for the groups of high achievers.

It is also superted by Sabahiyah & Suastra (2013) there is an effect of the guided inquiry learning model simultaneously on the skill of science process and the mastery of concept science at the fifth grade students of force 03 Wanasaba Lombok timur. Beside that Yuniastuti (2013) stated that learning with guided inquiry strategy can improve learning motivation and process skill of student which consecutively impact on student's learning mastery. As stated by Ambarsari et al (2013) application of guided inquiry learning have a significant influence on basic science process skills of students in grade VIII Junior High School 7 Surakarta.

CONCLUSION

Guided inquiry learning model can improve students learning results significantly. This model can create an active atmosphere with scientific approach though teachers have limited facilities around. So, the learning process will be done well. Therefore, there should be similar research to observe wider learning aspect, so, the learning outcome will be more optimal. It is suggested that the inquiry model as the alternative learning model which can make the students more active and able to construct their understanding based on the learning steps of guided induiry learning for the sake of students learning outcome quality improvement.

REFERENCES

Ambarsari, W., Santosa, S., & Maridi, M. (2013). Penerapan Pembelajaran Inkuiri Terbimbing Terhadap Keterampilan Proses Sains Dasar Pada Pelajaran Biologi Siswa Kelas VIII SMP Negeri 7 Surakarta. *Pendidikan Biologi*, *5*(1):81-95

Botha, R. J. (2016). Inquiry-based Learning: Improving South African Schools. *Journal of Sociology and Social Anthropology*, *7*(2), 76-83.

Dewi, N. L., Dantes, N., & Sadia, I. W. (2013). Pengaruh model pembelajaran inkuiri terbimbing terhadap sikap ilmiah dan hasil belajar IPA. *Jurnal Pendidikan Dasar*, *3*(1).

Harahap, F., & Sinuraya, J. (2013). Pengaruh Model Pembelajaran Inquiry Training Terhadap Hasil Belajar Siswa Pada Materi Pokok Suhu Dan Pengukuran Kelas VII Semester I MTs N 2 Medan TP 2012/2013. *INPAFI (Inovasi Pembelajaran Fisika)*, *1*(1):34-40.

Khan, M. S., Hussain, S., Ali, R., Majoka, M. I., & Ramzan, M. (2011). Effect of inquiry method on achievement of students in chemistry at secondary level. *International Journal of Academic Research*, *3*(1), 955-959.

Kurniawati, I. D., & Diantoro, M. (2014). Pengaruh pembelajaran inkuiri terbimbing integrasi peer instruction terhadap penguasaan konsep dan kemampuan berpikir kritis siswa. *Jurnal Pendidikan Fisika Indonesia*, *10*(1): 34-46

Mergendoller, J. R., Maxwell, N. L., & Bellisimo, Y. (2006). The Effectiveness of Problem-Based Instruction: A Comparative Study of Instructional Methods and SDtudent Characteristics. *Interdisciplinary Journal of Problem-Based Learning,* 1 (2): 49-69.

Sabahiyah, Marhaeni, A. A. I. N., & I. Suastra, W. (2013). Pengaruh Model Pembelajaran Inkuiri Terbimbing Terhadap Keterampilan Proses Sains dan Penguasaan Konsep IPA siswa Kelas V Gugus 03 Wanasaba Lombok Timur. *Journal Program Pascasarjana Universitas Pendidikan Ganesha,* 3 (1): 1-8.

Rizal, M. (2014). Pengaruh Pembelajaran Inkuiri Terbimbing dengan Multi Representasi terhadap Keterampilan Proses Sains dan

Penguasaan Konsep IPA Siswa SMP. *Jurnal Pendidikan Sains*, *2*(3), 159-165.

Simsek, P., & Kabapinar, F. (2010). The effects of inquiry-based learning on elementary students conceptual understanding of matter, scientific process skills and science attitudes. *Procedia Social and Behavioral Sciences.* 2:1190-1194.

Sirait, R. (2012). Pengaruh Model Pembelajaran Inquiry Training Terhadap Hasil Belajar Siswa Pada Materi Pokok Usaha dan Energi Kelas VIII MTs N-3 Medan. *Jurnal Pendidikan Fisika*, *1*(1), 21-26.

Supasorn, S., Lati, W., & Promarak, V. (2012). Enhancement of learning achievement and integrated science process skills using science inquiry learning activities of chemical reaction rates. *Procedia Social and Behavioral Sciences.* 46 :4471-4475.

Wahyudi, L. E., & Supardi, Z. I. (2013). Penerapan model pembelajaran inkuiri terbimbing pada pokok bahasan kalor untuk melatihkan keterampilan proses sains terhadap hasil belajar di SMAN 1 Sumenep. *Jurnal Inovasi Pendidikan Fisika*, *2*(02):62-65.

Wusqo, I.U. (2014). Penerapan Pembelajaran Biochemistry Project Inquiry sebagai Upaya Meningkatkan Pemahaman materi Biokimia dan Mengembangkan Scientific Skill Mahasiswa Calon Guru IPA. *Prosiding Seminar Nasional IPA V: 405-417.*

Yuniastuti, E. (2016). Peningkatan Keterampilan Proses, Motivasi, dan Hasil Belajar Biologi dengan Strategi Pembelajaran Inkuiri Terbimbing pada Siswa Kelas VII SMP Kartika V-1 Balikpapan. *Jurnal Penelitian Pendidikan*, *13*(1): 80-88.