Study Result of Straight Motion Through Worksheet Based on Guided Note Taking (GNT) by Setting Guided Inquiry Learning to Students X Class in Senior High School of Jember

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ABSTRACT

This research aims to influence result of student learning about straight motion and describe the science process skills of student learning with setting by guided inquiry model with worksheet based Guided Note Taking (GNT). The kind of research was experiment randomized post-test only control group design. Population of research is a class X IPA SMA Negeri Mumbulsari. Based on the result of the analysis science process skills of students on class experiment be described as very good with reaching an average value of 81.1. Next up is an analysis of knowledge students competence obtained average value of knowledge students competence on class experiment 75.70 and grade control of 70.00. So it can be concluded that the guided inquiry model with worksheet based on GNT influence on the result the cognitive learning of physics in learning about the motion straight SMA Negeri Mumbulsari.

INTRODUCTION

Physics is a science that studies symptoms natural through a series of a process known by the process scScientific composed of three components of most important of the concept, the principle, and the theory shall universal jointly (Trianto, 2010:137-138). Learn physics the same as learn the nature of science namely the process and
products. Thus, required understanding and emphasis than memorization in learning physics, namely understanding the concept that only focused on the process of the establishment of the knowledge through the, presentation of data mathematically, and based on certain rules.

But in reality, among students intermediate over has evolved the impression that subjects physics is the subject difficult to be understood. These facts strengthened from the results of interviews restricted to some people the senior high school in Jember. At the time of learning physics held the students are often bored and saturated to learning that tends to monotonous.

According to the interviews limited got that learning physics in some the school in a speech, the assignment, and discussion. So that we can conclude that the average physics teachers in some high schools using cooperative kind of classroom. This model describe students who divided in some groups then was given the job. Consequently students become have been left alone and because inexperienced, students become confused and had no idea how to cooperate finish the job sparking disorder and noise. It is in general has not been able to maximize the capability of students in investigating his discovery own. Many the material that was delivered the teacher use a method of learning talk and discussion, so teachers difficult grow skill the process of science in the soul of students. The concept of material physics that poorly conceived resulting in a response learned to physics students decline.

So that results in learning physics good, hence should be designed a learning that provided opportunities for students to active in learning activities. One of the models in learning that may involve students by actively through the process of discovery with teacher guidance that is kind of guided inquiry learning models.

According to Rofiqoh (2012) the inquiry can be defined as the process of inquiring and find out the answer to a question her asking that question. Scientific question is the question of who directs the work of the investigation towards an object question. In other words, guided inquiry model is one type of learning inquiry model where problems raised by teacher or funded by text then students employed to discover response to the issue under teacher guidance intensively. But this kind of classroom have weaknesses with time. When teachers and students are not used implement this learning model, so there is a possibility that big time cannot in management well. Part of the time lost because help students find the theories or find spelling of the form of words certain. To overcome of this weakness, and learning inquiry model combined with worksheet based on guided note taking.

Worksheet student it is an ingredient teaching a print of sheets of paper contains material, a summary, and guidance the execution of a task learning to do students either spatially theoretical and practices referring to competence the base that must be achieved students (Prastowo, 2014: 269). Advantage of the student activity sheet for teachers is to facilitate teachers in implementing the learning, for students can motivate students to learn by themselves/independent and learn to understand as well as working on a written assignment (Mahardika, 2012:26). Guided Note Taking (GNT) is a summary or the points of points important empty deliberately emptied by teachers to filled by school tuition for weighting (Supriyono, 2010).
The statement is agree with the research conducted by Mandaenlis (2014) said that learning guided inquiry can improve learning outcomes students good in the domain of cognitive, affective, and psychomotor. In addition, in research Amir (2015: 24) states that guided note taking (GNT) improve their performance study results.

The purpose of this research is: (1) described the science process skill of student for use the guided inquiry’s model learning accompanied by worksheet based on guided note taking by to their students class X in senior high school of Jember. (2) studying the influence of guided inquiry’s model learning accompanied by worksheet based on guided note taking by to competence knowledge students X in senior high school of Jember.

**METHODOLOGY**

The kind of research was research experiment. Design research used is post-test-only control design. A determination of the place research, researchers used a method of purposive sampling area, research is held in SMAN Mumbulsari. Time research carried out in the odd academic year 2016 / 2017.

The population of the research was the whole grade X IPA. The population is determined by reason of material straight motion, based on the syllabus is in class X. Determination of samples is carried out by cluster random sampling method, which had previously carried out a test of its homogeneity by using SPSS assistance 22. The research sample is a class X IPA 3 as experiment class and class X IPA 1 as control class. Experiments class were given preferential treatment by using a guided inquiry’s model learning through worksheet based on guided note taking while control class using model classes used physics teacher at the school, but with the same material that is straight motion.

Method of collecting data in this study are observation, interview, documentation and tests. The technique of data collection this consist of observation, portfolio, and tests. Observation techniques and portfolio used to measure science process skill of students for learning activities using guided inquiry’s models learning through based on guided note taking in experiment class. Observation skills are used to view the process of science student for an experiment progress. And portfolio used to know science process skills of students that cannot be observed at the time of learning table 2.

As for aspects of science process skills in observation techniques and portfolio contained in Table 1 and

| The       | Aspect | Indicator                                                                 |
|-----------|--------|---------------------------------------------------------------------------|
| Basic     | Observing | Observe something/noun that is used at the time of the experiment.       |
|           | Communicating | Do the interactions between teachers with students or students at the time of learning activities. |
| Integrated| Experiment | Experiment in accordance with steps of work.                             |
### Table 2. Science Process Skills through Portfolio Techniques

| Keterampilan | Aspek             | Indikator                                                                 |
|--------------|-------------------|---------------------------------------------------------------------------|
| Basic        | Concluded         | Relate the results of an experiment with experience or knowledge has       |
| Integrated   | Compose hypothesis| Devising ways to test the hypothesis.                                     |
|              | Create a graph    | create a chart based on the results of the experiment.                    |

Test in this research used to measure student knowledge competence ability after learning activities in the classroom experiments as well as the class of the control. The types of tests that are used in the form of the question of the post test. The post test reserved 10 question multiple choice and 5 essay of data analysis techniques used to process skills science students as follows.

\[
\hat{p} = \frac{n}{N} \times 100\%
\]

Description:
- \( n \): Percentage of science process skills of students
- \( n \): The amount of the score obtained by students of each indicator
- \( N \): The amount of the maximum score

With science process skills containen in Table 3.

### Table 3. The Science Process Skills’s Criteria

| Percentage (%) | Criteria       |
|----------------|----------------|
| 75% < score ≤ 100% | Very Good     |
| 55% < score ≤ 75%  | Good          |
| 40% < score ≤ 55%  | Good Enough    |
| Score ≤ 40%        | Not Good       |

(Source: Widayanto, 2009)
The influence of the existence of the treatment guided inquiry’s model of learning through of worksheet based on guided note taking on the competence of the knowledge of physics students analyzed with normality test and independent sample t-test. If the score results of the competence knowledge of physics experimental class students better than control class, then the treatment given influential significantly to cognitive learning results of physics students.

RESULT AND DISCUSSION

The science process skills of student in the experiment class during the learning process using guided inquiry model with LKS based guided note taking were measured by observation sheet and portfolio. A summary of the data in every aspect of the science process skills during the learning can be seen in Table 4. Known that the highest aspect is observed with the average score is 87.75 while the aspects that gets lowest score is the aspects of making graph with the score 77.70. It was because on the aspects of observing, the student so enthusiastically perform the activities of lab work directly. Given that all this time in the school were rarely done lab work or experiments when learning physics. However, when the students are asked to draw a graph about result of the experiment that has been done, average of the students are still many less able to illustrate graph properly. This is because students rarely trained to make a table result of the experiment. Appears that the students is less clear drawing the location of the x and y axes on the graph. The students also rarely give the details clearly on a graph that has been depicted.

| The Skill | Aspect      | The Average Value of Science | Averg | Criteria |
|-----------|-------------|-----------------------------|-------|----------|
| Basic     | Observing   | 88,5 88,5 86,1               | 87,75 | V        |
|           | Communicating | 82,8 85,7 83,3            | 83,97 | V        |
|           | Concluded   | 78,0 79,0 86,1               | 81,08 | V        |
| Integrated| Compose Hypotesis | 68,5 83,8 82,4          | 78,26 | V        |
|           | Collect and Process | 76,1 81,4 82,4       | 80,01 | V        |
|           | Create a Graph | 76,1 81,9 7               | 77,70 | V        |
|           | Experiment  | 78,0 77,8 82,4               | 79,45 | V        |
|           | The Average | 81,17                        |       |          |

The overall mean of the students' science process skills with guided inquiry learning model along with LKS guided note taking based is 81.17. If it calculated on the students’ science process skill criteria in table 3 it can be said that the students’ science process skill using guided inquiry learning model along with LKS guided note taking is in the very good category because it is in the range 75 to 100. According to Juhji (2016) there has been increasing the average the percentage science process skills accompanied guided inquiry approach of 10,55 % of 62,89 % to 73,44 %.
The second data that obtained in this research is the students knowledge competence. The average score for the students knowledge competence is obtained in the form of post-test results after learning process is completed both in the experiment class and control class.

The average post-test value in the experiment class is 75.70 while the control class is 70.00. Based on the result of t-test with sig (2-tailed) = 0.024 then sig (1-tailed) = 0.012, obtained a significance value of 0.012 ≤ 0.05. So in accordance with the guidelines of decision-making it can be concluded that the null hypothesis (H0) rejected and alternative hypothesis (Ha) accepted or in other words the result of student knowledge competence in experiment class is better than control class.

The value processing of competence knowledge students shows that student who receive learning by using guided inquiry model with LKS based guided note taking have better average value of knowledge competence than using learning commonly used in school. Statistically, students’ knowledge competence between experiment class and control class shows significant difference. This difference is caused by students’ competence in experiment class is the result of the learning process using guided inquiry learning model with LKS based guided note taking, different to the control class that use the model of learning commonly used in school. According to Amir (2015), guided note taking improves achievement of learning outcomes.

These results are in line with research conducted by Putri (2016) states that the guided inquiry learning model has a significant effect on student physics learning outcomes in high school. In addition, Abadiyah (2015) also stated that the learning model with guided note taking resulted in better student learning outcomes than in the control class who did not use guided note taking.

CONCLUSION

Based on the results and discussions that have been described, so can be concluded as follows: (1) students' science process skills while using guided inquiry learning model with LKS based guided note taking are included in the excellent category of class X physics learning at SMAN Mumbulsari, and (2) guided inquiry learning model with LKS based guided note taking have significant influence to the competence of students' knowledge on the learning of class X physics at SMAN Mumbulsari. Based on the conclusions obtained, it is proposed for the teacher who will apply the guided inquiry learning model with LKS based guided note taking, planning the learning process so that students are not easy to get bored, the students are more motivated to follow the lesson and time is used more efficiently.

REFERENCES

Abadiyah, L. Yushardi dan Sudarti. 2015. Pengaruh Model Pembelajaran Problem Based Instruction (PBI) disertai Strategi Guided Note Taking terhadap Sikap Ilmiah dan Hasil Belajar Fisika Siswa Kelas X di SMA Negeri Arjasa. JurnalPendidikanFisika. Vol. 4 (1): 9–14.

Ambarsari, Wiwin., Santosa, Maridi. 2013. Penerapan Pembelajaran Inkuiri Terbimbing Terhadap Keterampilan Proses Sains Dasar Pada Pelajaran
Biologi Siswa Kelas VIII SMP Negeri 7 Surakarta. *Pendidikan Biologi* Vol. 5, No. 1, 81-95

Amir, A. 2015. Pengaruh Metode Guided Note Taking terhadap Prestasi Belajar Matematika. *Jurnal Ilmu-ilmu Kependidikan dan Sains*. Vol. III (2): 12-25.

Azizah, Nurul, Indrawati, Alex Harijanto. 2014. Penerapan Model Inkuiri Terbimbing Untuk Meningkatkan Keterampilan Proses Sains dan Hasil Belajar Fisika Siswa Kelas X.C Di MAN 2 Jember Tahun Ajaran 2013/2014. *Jurnal Pendidikan Fisika*, Vol. 3 No.3, Desember 2014, hal 235-241

Hasanah, H. Mahardika, I.K dan Supriadi, B. 2016. Penerapan Model Pembelajaran Inkuiri Disertai LKS Berbasis Multirepresentasi Terhadap Keterampilan Proses Sains dan Hasil Belajar Siswa dalam Pembelajaran Fisika di SMAN Kabupaten Jember. *Jurnal Pendidikan Fisika*. Vol 5.(2): 135-140.

Juhji. 2016. Peningkatan Keterampilan Proses Sains Siswa Melalui Pendekatan Inkuiri Terbimbing. *Jurnal Penelitian dan Pembelajaran IPA*. JPPI, Vol. 2, No. 1, Juni 2016: 58-70

Mahardika, I.K. 2012. *RepresentasiMekanika dalam Pembahasan.* Jember : UPT Penerbitan UNEJ.

Mandealis, Susmi, Djasmi, Sultan. Dan Abdurrahman.2014. Penerapan Model Pembelajaran Inkuiri Terbimbing untuk Meningkatkan Hasil Belajar dan Kemampuan Berpikir Kritis Siswa pada Materi Suhu dan Kalor di Kelas X SMA Negeri X Kedondong. *Jurnal FKIP UNILA*. Vol. 2 (4) : 321-326

Prastowo, A. 2014. *Pengembangan Media Bahan Ajar Tematik*. Jakarta : Kencana Prenadamedia Group

Putri, H. Indrawati dan Mahardika, I.K. 2016. Model Pembelajaran Inkuiri Terbimbing disertai Teknik Peta Konsep dalam Pembelajaran Fisika di SMA. *Jurnal Pembelajaran Fisika*. Vol. 4 (4) : 321-326

Rofiqoh, Affifatur. Mahardika, I.K dan Supeno. 2012. Model Inkuiri Untuk Meningkatkan Kemampuan Representasi Verbal dan Matematis Pada Pembelajaran Fisika di SMA. *Jurnal Pembelajaran Fisika*, Vol.1(2): 165-171. Suprijono, A. 2010. *Cooperative Learning Teori & Aplikasi Paikem*. Yogyakarta: Pustaka Pelajar.

Trianto. 2010. *Model Pembelajaran Terpadu*. Jakarta : Bumi Aksara.

Widayanto. 2009. Pengembangan Keterampilan Proses dan Pemahaman Siswa Kelas X Melalui Kit Optik. *Jurnal Pendidikan Fisika Indonesia*. Vol. 5 (1)
