# Application of Inkuiri Guided Learning Models Using Handout on Study Biology Learning Outcome

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## ABSTRACT

In the learning process required models and media to achieve a good learning outcome. So in this study researching the outcomes of biology students learning grade VII-1 SMPN 25 Pekanbaru Lesson Year 2012/2013 with the implementation of Inquiry learning Guided by Handout conducted in class VII-1 SMP N25 Pekanbaru which amounted to 37 students with 20 male students and 17 female students. Parameters measured are the outcomes of student learning in the form of absorption and mastery of student learning obtained from the quiz each time the meeting and the test block at each end of the cycle. Data analysis is descriptive. The outcome of data analysis obtained from the implementation of Inkuiri learning Guided by Handout is the absorption of students increased by 0.35% from before PTK (73.37%) after PTK cycle I (73.72%) and increased by (11, 36%) after cycle II (85.08%). The classical mastery of student learning before the PTK (59.45%) increased to 72.97% after PTK cycle I and in cycle II increased (21.62%) to (94.59%). The value of KI before PTK 65.94% increased by 10.06% after PTK cycle 1 (76%) and increased by 7.36% after cycle 2 (83.36%). The classical mastery of KI before PTK (62.16%) increased to 83.78% after PTK cycle I and in cycle II increased (13.52%) to (97.30%). It can be concluded that the implementation of Guided Inquiry learning using Handout can improve students' learning outcomes of grade VII-1 SMP N25 Pekanbaru Lesson Year 2012/2013.

*Keywords: Guided Inquiry Learning, Learning Outcomes, Handout, PTK.*

## Introduction

Science is a concept of natural learning and has a broad relationship related to human life. Science is concerned with a systematic way of finding out about nature, so science is not only the mastery of a collection of knowledge in the form of facts, concepts or principles, but also a process of discovery. Comparing with other subjects, the outcome of Science learning is better since it is related to the environment. The subject matter presented is mostly related to daily life, such as the grouping of animals based on their diet, the relationships of fellow creatures and between living creatures with their environment, style, heat and alternative energy, and so on. However, the mastery of learning on students of grade VII-1 SMP N 25 Pekanbaru are not so. Mastery of learning achieved on science subjects material Understanding the interdependence in the ecosystem is only 59.45%. This shows that almost half of students do not complete their study or declared under the Minimum Mastery Criteria that was 70. Based on teacher analysis, the low mastery achieved by the students caused by teachers tend to use the lecture method only when giving explanations and examples. This activity makes students bored and not concentrated with the material being studied. Therefore, teachers intend to

make improvements through Classroom Action Research (CAR) to improve science learning outcomes through quided inquiry method.

Observations and interviews conducted by researchers at SMPN 25 Pekanbaru, obtained some problems in the biology teaching process are: (a) less varied method of teaching by teachers (almost lecture method) (b) less used of learning media (c) Less Active Students, because of the teacher-centered teaching method, and lack of student's flashback (d) Incomplete text book as the source of student's learning (only usie Student's Worksheet) (e) very difficult to gain the Minimum MasteryCriteria (70) as the 37 Students only earn 59.45 %.

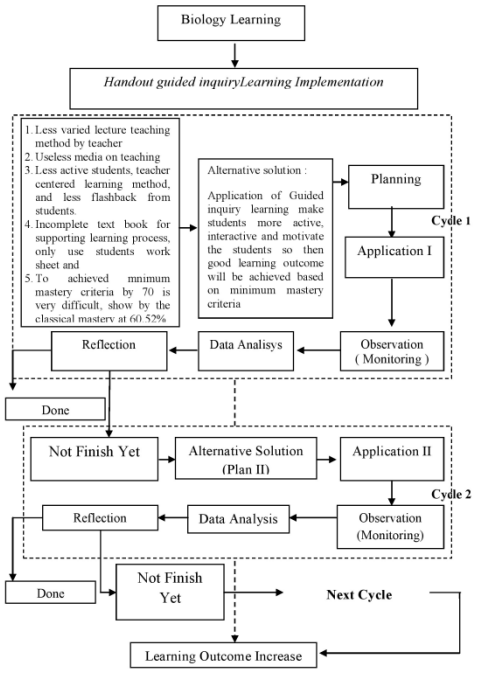
Based on the problems above, it is necessary to make improvements in the learning process. One of them is by applying the teaching model and choosing the right teaching materials. Researchers assume that guided inquiry learning could improve the biology learning outcome. Guided inquiry is an inquiry learning model in which teachers provide sufficient guidance or instruction to the students and most of the planning is made by the teacher including the problem formulation activities (Roestiyah in Kaniawati, 2010: 17). The advantages of inquiry model are learning that emphasizes the development of cognitive, affective, and psychomotor aspects in a balanced way, so that this learning strategy is considered more meaningful, giving space for students to learn according to their learning style, considered according to the development of modern learning psychology Consider that learning is a process of behavior change thanks to the experience and learning that can serve the needs of students who have above average ability. That is, students who have good learning ability will not be hampered by students who are weak in learning (Sanjaya, 2013: 208).

Based on the background above, researcher eager to do a research by the tittle application of Guided Inquiry Learning Method by using handout toward students biology learning outcomes. The aim of this research is to know the SMPN 25 Pekanbaru student's learning outcome in lesson year of 2012-2013 by applying Guided Inquiry method by using handout.

## Methodology

This research is an Class room Action Research (CAR), that is a research that conduct by a teacher on a object to change the teaching process.

Class room Action Research toward biology learning outcome by using guided inquiry by handout (modify based on Elfis,2010). Research design could be figure out as follows:




Picture 1: Class room Application research design for Biology Learning outcome Progress using handout guided Inquiry learning (modified based on Elfis, 2010b).

Research was conduct on May 2013. The subjects are SMPN 25 Pekanbaru Students

grade VII-1 scool years of 2012-2013 as many as 37 students, consist of 17 female students and 20 male students.

**Research Procedure :**

a. Preparing Phase
b. Application phase
c. Evaluation
d. Reflection
e. Follow-up planning

**Data Collecting Technique**

Data collecting technique consist of two parts, teacher's learning media and data collecting instrument. Teacher's learning media consist of : 1. Standard content (Junior High Lesson curriculum), 2. Syllabus, 3. Teaching Application Plan 4. Student's worksheets 5. Exam questions and answers 6. Block of exam questions and answers 7. Home work and it's answer 8. Handout.

**Data Collecting Instrument.**

The instruments of data collection are assessment of written test and performance appraisal. Assessment of written tests used is a test sheet of learning outcome, drawn from Homework, written test, and block exams and learning outcome as the source of Conceptual Understanding Knowledge.

Scientific performance was taken based on Performance appraisal. Scientific performance was taken from Worksheet and scrapbook also performance appraisal (observation, discussion and presentation).

**Data Analisys Technique.**

Descriptive method was used to analysing data. Learning outcome data is written test (Conceptual Understanding Knowledge) and portfolio assessment and performance appraisal (Main Competencies).

**Learning outcome data processing technique.**

The grade for Conceptual Understanding Knowledge (CUK) was taken from Home Work (HW), Written Test (WT), Block Test (BT) by using the formula as follow:

**CUK = 40% WT + 20% HW + 40% BT**

The grade for Scientific performance was taken Portfolio (worksheet and scrapbook) and also performance appraisal (observation,discussion and presentation). By using these formula :

**Scientific Performance = 40% x (average of portfolio) + 60% x (average of performance appraisal).**

**Descriptive Data Analisys Technique**

Descriptive Analisys Technique aim to describe the outcome learning of students for biology subject after handout guided inquiry application. According to Elfis(2010d), data analisys for biology learning outcome was conduct by considering:

1. Students Arbsorption ability
2. Indivisual Mastery
3. Classical Mastery

## Discussion

Students Learning outcome before application of CAR can be seen from student's absorption ability, the mastery that consist of individual mastery and classical mastery. Student's grade of conceptual understanding before CAR Application was taken from each subject teacher. the grade was used to see student's ability before CAR application. Student's ability before CAR application can be seen on the table below:

Table 2.Classical and Individual Mastery of students before CAR Application

| Category | Number of students | Percentage |
|---|---|---|
| Complete | 22 | 59,45 |
| Incomplete | 15 | 40,54 |
| Total | 37 | 100 |
| Classical mastery | 59,45% (Incomplete) | |

Based on the table above, can be explain that before CAR Application, 22 of 37 students (59,45%) are declared complete and 15 of 37 students (40,54%) are declared incomplete since they don't reach the minimum mastery criteria that is 70. Classical Mastery of 37 students are 59,45%. Classically, that was incomplete. Students can be declare complete if at least 85% of students reach the minimum mastery criteria.

**Cycle I Analisis Daya Serap Nilai PPK Siklus I**

Students Conceptual Understanding Knowledge grade is the combination of Written Test (WT), Block Test (BT), and Home Work (HW). Next will be explain about written test grade individual mastery, Block Test and Home work on cycle I Conceptual Understanding Knowledge based on minimum mastery criteria which set by lesson at biology subject that is 70. Students absorption ability on Conceptual Understanding Knowledge grade can be seen as follow:

Table 3.Students Learning Outcome on Cycle I Conceptual Understanding Knowledge

| No | Criteria | Category | Absorption Ability | |
|---|---|---|---|---|
| | | | Number of students | Percentage |
| 1 | 90 – 100 | Very Good | - | - |
| 2 | 80 – 89 | Good | 11 | 29,73 |
| 3 | 70 – 79 | Average | 16 | 43,24 |
| 4 | 60 – 69 | Less | 6 | 16,22 |
| 5 | 0 – 59 | Less Once | 4 | 10,81 |
| Number of Students | | | 37 Students | |
| Class Average | | | 73,72 | |
| Category | | | Average | |
| Individual Mastery<br>Classical Mastery | | | 27 Students<br>72,97 % | |

Based on the table above, can be explain that Students Absorption Ability of Conceptual Understanding Knowledge on cycle I most of students (16 students / 43,24%) has average absorbtion ability, while 4 students (10,81%) has less once absorption ability. The average of students absorption ability is 73,72 as declared as category "Average". On cycle I Conceptual Understanding Knowledge, 27 students declared complete individually, and 10 students declare incomplete.

Cycle I Conceptual Understanding Knowledge Classical Mastery of grade VII-1 SMP N 25 Pekanbaru students lesson year of 2012/2013is 72,97% (declare as incomplete). So that, clasically, the students grade VII-1 for Conceptual Understanding Knowledge on cycle 1 was incomplete since that still not reach the minimum criteria that is 85%. So then student's classical mastery on cycle 1 still not achieved.

| Mastery Criteria | Before CAR Application | Cycle I | Cycle II |
|---|---|---|---|
| DayaSerap (KI) | 65,94% | 76% | 83,36% |
| Ketuntasan Individual | 23 students | 31Students | 36 students |
| KetuntasanKlasikal | 62,16% | 83,78% | 97,30% |

**Scientific Performance Absorption Ability Analisis before CAR Application, Cycle I and Cycle II**

Table 4.Comparison of scientific performance, Individual mastery, classical mastery before CAR Application, Cycle I and Cycle II.

Based on the table above, shows that before CAR Application, Scientific Performance learning outcome is 65,94% increase about 10,06% on cycle I to 76% and again increase on cycle II about 7,36% to 83,36%. Before CAR application, students individual mastery is 23 students, there was an increase on cycle I about 8 students to 31 students, and again increase on cycle II about 5 students to 36 students.

Scientific performance of classical mastery before CAR Application is 62,16% (incomplete). On Cycle I, there was an increase 21,62% to 83,78% (incomplete), then increase 13,52% from cycle I to 97,30% (complete).

## Conclusion

Guided inquiry learning by using handout, could increase the biology subject learning outcome of the SMPN 25 Pekanbaru students grade VII-1lesson year of 2012/2013 for subject matter of Ecosystems and Diversity of Sentient Beings.

### Suggestion

Handout and guided inquiry learning could be an alternative teaching method for the teacher, especially science teacher to increase the student's learning outcome.

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