

# *Analysis of Practice Types on Biology Learning Materials Based on Biology Syllabus in XI Grade SMA Semester II Academic Year 2018/2019*

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**Abstract** - Biology instruction is an instruction which can develop students' learning competence. Learning Biology is not optimal if it does not involve students in real learning experiences. To get optimal result, one way that can be done is by doing practice. Practice is very important to do in Natural Science learning, especially in Biology because it can improve students' understanding about learning materials. Based on Biology syllabus in XI grade SMA semester II, there are some materials which are learned. Therefore, it needs to know types of practice that can be done to learning materials in XI grade SMA semester II. Purpose of the research was to analyze the types of practice that can be done to learning materials in XI grade SMA semester II academic year 2018/2019. Data were collected by analyzing curriculum, understanding syllabus and analyzing practice activities through reviewing some biology practice guidelines. From data analysis, it reveals that from seven materials learned in XI grade SMA, there are three materials which do not need practice activity. They are excretion system, psychotropic, and breast milk learning materials. Meanwhile, there are four materials which able to do some types of practice. They are seven types of practice done in respiration system material; three types of practice done in coordination system material; one type of practice done in reproduction system material and one type of practice done in immune system material.

**Keywords** - Biology Learning Materials, Practice, Syllabus.

## I. INTRODUCTION

Curriculum in Indonesia have been replaced and developed from The School-Based Curriculum (KTSP) to The 2013 Curriculum. The aim of the curriculum development is to improve learning process quality. One product of the curriculum development is syllabus. The syllabus is an outline, summary or basic of learning materials [1].

Instruction is a learning process which has role in

determining students' learning achievement [2]. Biology instruction is a learning which can develop students' learning competence. Learning Biology is not optimal if it does not involve students in real learning experiences. To get optimal result, one way that can be done is by doing practice. Based on the syllabus of Biology in XI grade SMA semester II, there are some learning materials that need practice activities.

Practice is a learning experience in which students interact to learning materials to observe and understand

nature directly [5]. In terms, practice is a series of activities which enables students to implement and practice their skills [6].

In addition, practice is very important to do in Natural Science learning, especially in Biology, because of some reasons. First, it can trigger students' motivation in learning. Second, it can develop basic experimental skills. Third, it can improve students' understanding in learning materials [4]. Although it is demanded in Basic Competence, it can be done as a part of learning process.

The purpose of the research was to analyze the types of practice which can be done in Biology learning materials based on Biology syllabus in XI grade SMA semester II in

academic year 2018/2019.

## II. METHOD

It was a descriptive research. The stages in the research were done by analyzing the curriculum, understanding syllabus and analyzing practice activities based on some Biology practice guidelines.

## III. FINDINGS AND DISCUSSION FINDINGS

Data of types of practice in Biology learning materials which can be done in XI grade SMA semester II are obtained from reviewing some literatures. It can be seen in Table 1 below.

Table 1. Data of Types of Practice in Biology Learning Materials in XI Grade SMA Semester II Academic Year 2018/2019.

| No | Basic Competence                                                                                                                                                                                                                                                                                                                             | Types of Practice                                                                                                                                                                                                                                                                                                                 | Source/Description                                                                                   |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 1  | 3.8 Analyzing relationship among tissue forming structure in respiratory system organs and relate it to its bioprocess so that students can explain respiratory process and disfunction in human respiratory system through literature studies, observation, experiments, and simulation.                                                    | a. Doing practice to test CO <sub>2</sub> composition<br>b. Observing water vapor in exhaled breath<br>c. Observing water vapor in exhaled breath<br>d. Observing lung frequency<br>e. Doing practice to observe lung capacity<br>f. Doing practice seeing how lung work<br>g. Observing location and lung tissue characteristics | Biology practice guidelines in internet, Biology experiment guideline book for XI grade semester 1&2 |
| 2  | 3.9 Analyzing relationship among tissue forming structure in excretion system organs and relate it to excretion process so that students can explain mechanism and disfunction in human excretion system through literature studies, observation, experiments, and simulation.                                                               | No practice activity                                                                                                                                                                                                                                                                                                              | Biology practice guidelines in internet, Biology experiment guideline book XI grade semester 1&2     |
| 3  | 3.10 Analyzing relationship among tissue forming structure of coordination organs and relate it to coordination process so that students can explain roles of nerves and hormones in coordination mechanism, regulation and disfunction in human coordination system through literature studies, , observation, experiments, and simulation. | a. Observing nerve cells structures<br>b. Doing practice about reflex in human-being<br>c. Doing practice observing how skin, tongue, nose and eyes to show functions of nerve                                                                                                                                                    | Biology practice guidelines in internet, Biology experiment guideline book for XI grade semester 1&2 |

|   |                                                                                                                                                                                                      |                                                                 |                                                                                                      |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 4 | <b>3.11</b> Evaluating self-understanding about the dangers of psychotropic uses and its effect on personal health, environment and society.                                                         | No practice activity                                            | Biology practice guidelines in internet, Biology experiment guideline book for XI grade semester 1&2 |
| 5 | <b>3.12</b> Analyzing relationship between tissue forming structure of reproduction organ and their function in human reproduction process through literature studies, experiments and observations. | Observing spermatogenesis stages                                | Biology experiment guideline book for XI grade semester 1&2                                          |
| 6 | <b>3.13</b> Analyzing reproduction principle implementation on human and exclusive breastfeeding in family planning as efforts to cope with population growth and improve human resources quality.   | No practice activity                                            | Biology practice guidelines in internet, Biology experiment guideline book for XI grade semester 1&2 |
| 7 | 3.14 Analyzing roles of immune system and immunization on physiology process in human's body.                                                                                                        | Doing practice to testify that skin is as body's defense system | Biology practice guidelines in internet, Biology experiment guideline book for XI grade semester 1&2 |

## Discussion

Based on data in Table 1 above, it is known that there are seven Biology materials learned in XI grade SMA semester II. From the seven learning materials, there are three materials which do not need practice activities in learning process. They are BC 3.9 (excretion system material), BC 3.11 (psychotropic material), and BC 3.13 (breast milk material). Meanwhile, the other four materials need practice in learning. It can be done in some types of practice. They are there are seven types of practice done in BC 3.8 (respiration system material); three types of practice done in BC 3.10 (coordination system material); one type of practice done in BC 3.12 (reproduction system material); and one type of practice done in BC 3.14 (immune system material).

Practice is a structured-learning which gives an opportunity for students to get real experiences to improve their understanding about theories and skills related to cognitive competence. It is done to test what is gotten in theory so that learning objective can be achieved [3].

Implementation of practice activities can improve students' understanding to learning process because several concepts or principles in Biology learning can be formulated through practice process. Beside that, it can also illustrate them. In learning process which is supported

by practice activity, students can get more opportunity to experience or do by themselves, started from following a process, observing an object, analyzing, verifying and drawing conclusion so that they can prove the learned materials [7].

## IV. CONCLUSION

From data analysis above, it can be concluded that the findings of the preliminary research are: First, there are seven biology materials learned in XI grade SMA semester II. Second, from the learning materials, there are three materials (excretion system, psychotropic and breast milk) which do not need practice activities. Third, there are four materials which can be done various types of practice. They are there are seven types of practice done in respiration system material; three types of practice done in coordination system material; one type of practice done in reproduction system material and one type of practice done in immune system material.

## REFERENCES

- [1] Hasmianti, Jalilah, & Mustami, M. K. (2017). *Aktivitas dan Hasil Belajar Siswa pada Pembelajaran Pertumbuhan dan Perkembangan dengan Metode Praktikum*. Jurnal Biotek, Vol 5 No (1), 5.

- [2] Hofstein, & Lunetta (2008). *The Laboratory in Science Educaion: Foundations for the Twenty-First Century*. Wiley Periodicals., 5.
- [3] Lufri. 2007. *Strategi Pembelajaran Biologi Teori, Praktik dan Penelitian*. Padang: Jurusan Biologi FMIPA UNP, 11.
- [4] Salim, Peter (1987). *The Contemporary English – Indonesia Dictionary*. Jakarta: Modern English Press, 98
- [5] Subiantoro, A. W. 2010. *Pentingnya Praktikum dalam Pembelajaran IPA*. Yogyakarta: Universitas Negeri Yogyakarta., 7.
- [6] Suryaningsih, Y. (2017). *Pembelajaran Berbasis Praktikum Sebagai Sarana Bagi Siswa Untuk Berlatih Menerapkan Keterampilan Proses Sains dalam Materi Biologi*. *Jurnal Bioeducation*. Vol 2. No (1), 53.
- [7] Woolnough, B Allsop T. 1989. *Practical Work in Science*, Cambridge: Cambridge University Press.