

Analysis of Students' Learning Difficulties in Fungi Subject Matter Grade X Science of Senior High School Medan Academic Year 2013/2014

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Abstract

This research aimed to detect the learning difficulties of students on Fungi subject matter and the factors that influence it. This research belongs to quantitative descriptive. The population in this research is 40% of total students Grade X Senior High School Medan. The number of population is 115 students. The samples taken by purposive sampling technique which chosen the students did not complete Fungi subject matter as much as 89 students of the population. Data collection technique used diagnostic test about Fungi subject matter and questionnaire. The result of this research after data analysis showed: (1) The percentage of students learning difficulty in cognitive aspect from knowledge aspect (C1) is 60,99% belongs to very high category of difficulty, comprehension (C2) is 40,45% belongs to high category of difficulty, application (C3) is 40,24% belongs to high category of difficulty, analysis (C4) is 53,18% belongs to high category of difficulty, synthesis or evaluation (C5) is 65,45 belongs to very high category of difficulty and creation (C6) is 56,55% belongs to high category of difficulty, (2) The percentage of students learning difficulty in learning indicator aspect from the first indicator is 64,89% belongs to very high category of difficulty, the second indicator is 56,63% belong to very high category of difficulty, the third indicator is 55,54% belongs to very high category of difficulty, the fourth indicator is 56,55% belongs to very high category of difficulty, the fifth indicator is 54,87% belongs to very high category of difficulty, the sixth indicator is 32,59% belongs to high category of difficulty, and the seventh indicator is 40,07% belongs to high category of difficulty, (3) The factor that very influencing students learning difficulty is parent factor followed by home atmosphere, teacher, school environment, subject matter, media and environmental factor, interest, health factor, psychiatric, intelligence and motivation.

Keywords: *cognitive aspect, learning indicator, students' learning difficulties*

Introduction

Learning is not just the transferring of knowledge from the teacher to the learner. It is an understanding process where relatively permanent changes are caused by information and experience. These changes do not solely refer to outcomes of the learner's behavior that are manifestly observable, but also to attitudes, feelings and intellectual processes that may not be so obvious (Atkinson *et al.* in Chu, 2008).

These days a lot of thought said that the progress of modern society due to the learning outcomes and better quality of education as a pillar in creating the next generation of quality. Without good quality of education will never create good quality human resources, especially the students in achieving success in learning. That's because the quality of human resources, which is still very low, the quality of education has not been achieved for example a low learning achievement, especially for science subjects. Conceptual problems which might possibly cause alternative conceptions were determined biology topics of science and technology and some recommendations were made concerning about way of correcting (Dikmenli, 2009).

Biology as a subject is receiving a great deal of attention from educators and administrators. Because the world is simmering with biological problems and concerns ranging from the environment to an aging population, biology is important in the General Education curriculum (Ghosh, 2000). Biology is a unique discipline where experiments with living organisms can take place both in the laboratory and in the field (Prokop, 2007). But, biological materials that exist today is loaded with biological terms, mostly taken from the Latin so that the loss of important concepts that are simply not understood by the students. Added with the lack of teaching learning strategies that is used so that students unable to complete the study. The success of students in learning activities is highly desirable, but not infrequently lead to a variety of constraints that occur disadvantaged students achieve results as expected. Affective perceptions are the most important factors for quality of learning due to their effects on choice of activities and assessment and on planning (Koksal, 2008).

The research done by Cimer (2012) obtained the conclusion that from 207 participants, 177 students have difficulties learning in biology. According to the data analysis, five main reasons emerged: the nature of the topic, teachers' style of teaching biology, students' learning and studying habits, students' negative feelings and attitudes towards the topic, and a lack of resources.

According to Gibson and Chase in Prokop (2007) showed students lost interest in science when they moved from middle to high school.

Moreover, there was the research done by Tekkaya (2001) obtained data that approximately 14,4% the students have learning difficulty in topic of classification which containing fungi subject matter. Most of the participants thought that biology is a course that presents very many content, most of which depend on memorization.

Methods

The research location was held in Senior High School in Medan, North Sumatera. It started from January until May 2014. The populations of this study as much as 288 students Grade X Academic Year 2013/2014. By using the formula, the number of sample is 89 students taken from the population number.

To obtain the required data then the data collection tool used in this research is a multiple choice diagnostic test and questionnaire. Test are arranged by level of difficulty C-1 (knowledge), C-2 (Understanding), C-3 (Application), C-4 (Analysis), C-5 (Evaluation), C-6 (Creation). Before it tested to the students, the quality tests are arranged tested first with testing: validity test, reliability test, difficulty level test and different power test. Questionnaire data processing is done by calculating the percentage of students answer questionnaires for each aspect of each indicator.

Results and Discussion

The result of instrument try out showed that out of 50 questions of tested obtained 35 questions are valid and 15 questions are invalid. The result of calculation of reliability test obtained the value of $r_{\text{count}} = 0,889$ means that the level of reliability of instrument is very high category. Based on result of difficulty level analysis showed that 21 questions were categorized difficult, 27 questions were categorized medium, and 2 questions were considered easy category. Based on the result of discriminant power analysis it was found that 6 questions were categorized very good, 15 questions were categorized good, 16 questions were categorized enough, and 13 questions were categorized bad.

Analysis of Test Result in Cognitive Aspect Category

The percentage of student learning difficulty in knowledge level (C1) is 60,99% that include in very high category, percentage of learning difficulty in understanding level (C2) is 40,45% that include in high category, in application level (C3) is 40,24% that include in high category, in analysis level (C4) is 53,18% that include in very high category, in synthesis level (C5) is 65,45% that include in very high category and in creation level (C6) is 56,55% that include in very high category.

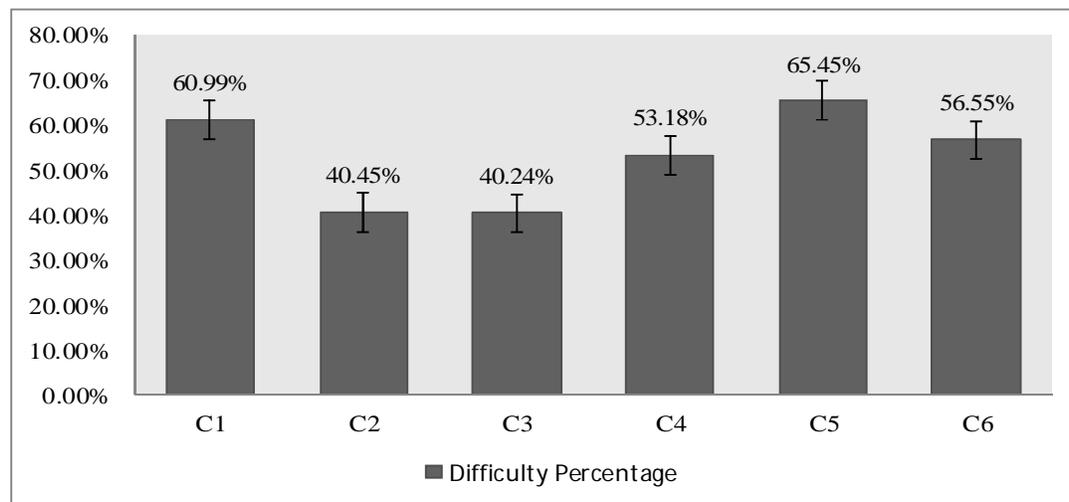


Figure 1. The percentage of students' learning difficulty in cognitive aspect among students from grade X in Medan

Analysis of Test Result in Each Learning Indicator Aspect Category

The percentage of student learning difficulty is in very high and high category. For the level of difficulty in very high category is the 1st indicator (identifying general characteristics of fungi), 2nd indicator (describing the differences of each fungi), 3rd indicator (grouping fungi based on their characteristics), 4th indicator (identifying characteristics of Basidiomycota and Deuteromycota) and 5th indicator (describing of fungi reproduction). While for the high difficulty level is the 6th indicator (identifying the poisonous and edible fungi) and 7th indicator (concluding the role of fungi in daily life).

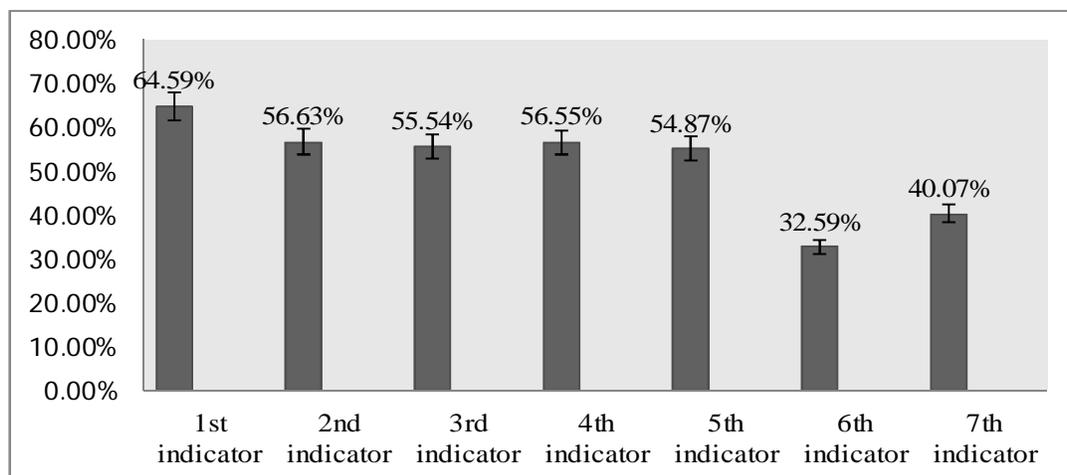


Figure 2. The percentage of students' learning difficulty in learning indicator aspect among students from grade X in Medan

Result of Questionnaire

Questionnaire involves internal factor and external factor of students' learning difficulties. Internal factors influential enough to the students learning difficulty. It can be seen from the average span of factors involved that are in the category of influential enough and influential For influential enough category presents in health indicator, psychiatric, intelligence and motivation with percentage as much as 51,22%, 49,44%, 53,38%, and 55,90%. Influential category presents in interest indicator with the percentage as much as 60,59%.

Beside internal factors, the external factors also give the influence of students learning difficulty with the average span of factors involved in the category of influential and very influential. For influential category presents in home atmosphere indicator, teacher, school environment, subject matter, media and house environment with percentage as much as 65,17%, 64,33%, 73,03%, 67,98%, 67,01%, and 68,97%. For very influential category presents in parent indicator with percentage as much as 86,67%.

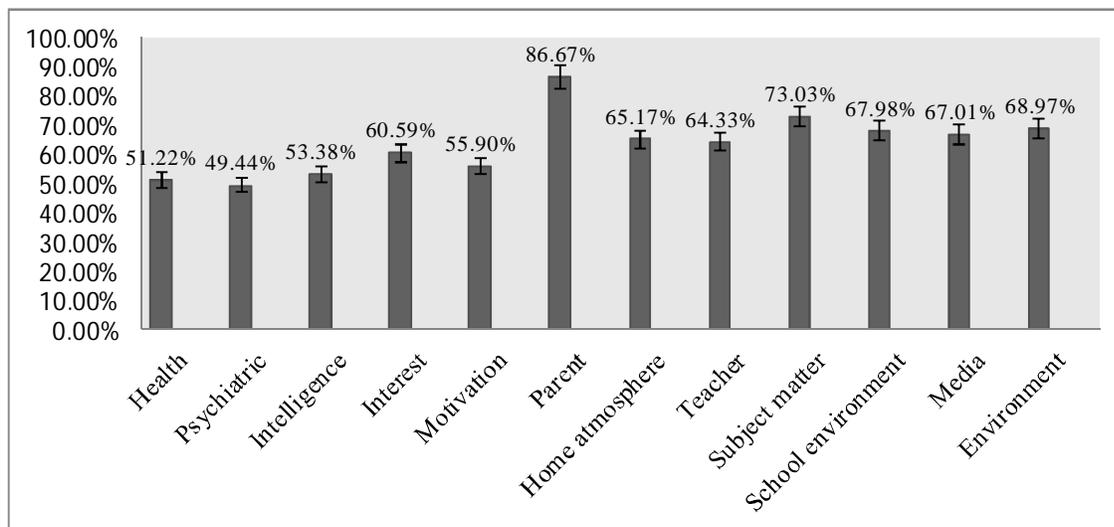


Figure 3. Questionnaire result of students' learning difficulties among students from grade X in Medan

Conclusion

Learning difficulties on Fungi subject matter in cognitive aspect of knowledge (C1), analysis (C4), synthesis (C5) and creation (C6) were categorized very high, while comprehension (C2), and application (C3) were categorized high. Beside that, learning difficulties on Fungi subject matter in sixth learning indicator aspect is identifying the poisonous fungi and edible fungi, and the seventh indicator is concluding the role of fungi in daily life were categorized high difficulty and for the first indicator is identifying of general characteristics of fungi, the second indicator is describing the differences of each fungi, the third indicator is grouping fungi based on their characteristics, the fourth indicator is identifying the characteristic of Bacidiomycota and Deuteromycota and the fifth indicator is describing the way of fungi reproduction were categorized very high difficulty. Factors influencing students' learning difficulties on Fungi subject matter from external factors that very influential is parent factor, while factor of home atmosphere, teacher, school environment, subject matter, media and environmental factor were categorized influential. While from internal factor that has influential category only interest factor, and other factors such as health factor, psychiatric, intelligence and motivation were categorized quite influential.

Educational Implication

Several educational implications from the present study arise:

- For parents, in order to guide their children in learning at home and not overload the child with work because it can lead to fatigue in child so that can cause learning difficulties.
- For school, in order to provide appropriate learning medium for instructional material of Fungi so that students could find it easier to understand and are interested in learning the material of Fungi.
- For biology teacher Grade X in Senior High School Medan in order to further improve the quality of learning in a way that make use of varied teaching methods and the use of props when explaining the material of Fungi.
- For students Grade X in Senior High School Medan to be more active in understanding the terms contained in the material of Fungi and frequent practice in working on the problems that can reduce the students' learning difficulties.

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