

A Needs Analysis of the Development of Problem Based Learning-Based Student Worksheet on Human Reproductive System Material to Improve Students' Critical Thinking Skills of Grade XI SMA Negeri 1 Kubung Solok Regency

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Abstract – Problems with adolescent reproductive health can be reduced through communication, information and education. One of the biology learning materials for high school students is the human reproductive system. The material of the human reproductive system is closely related to the real life so that problems in life can be raised. One scientific approach that is in line with the 2013 Curriculum is a Problem Based Learning model (PBL). PBL model is based on problems in daily life. A tool that can be used to analyze students' problems is the Student Worksheet. In the 21st century students must be able to develop their critical thinking skills. Therefore, it is necessary to develop PBL-based Student Worksheet. The data from interviews with teachers and students showed that so far in the learning process LKPD was not used that was recommended according to the model in the 2013 Curriculum; the students' results were still below the KKM; the learning was theoretical without presenting the problems related to the students' daily life about the system human reproduction. In the 21st Century students must be able to develop Higher Order Thinking Skills (HOTS). Students' critical thinking skills must be developed to analyze, evaluate and draw conclusions in solving a problem. The results of the PISA (The Program for International Student Assessment) analysis from year to year showed that the critical thinking skills of Indonesian students do not have a significant improvement. The results of the PISA analysis were also in line with the students' learning outcomes at school. The results of the questionnaire analysis of the students' needs for LKPD showed that 23.33% of the students want the cover of the LKPD with the dominant color which is orange, and 66.66 % of them want the contents of the LKPD to be white. Furthermore, it was known that 63.33% students like the Maiandra GD letters with A4 LKPD size.

Keywords – Problem Based Learning, Student Worksheet, Critical thinking.

I. INTRODUCTION

Problems with adolescent reproductive health can be reduced through Communication, Information and Education (IEC) efforts (Widyastuti, 2009). The

implementation of IEC can be applied in schools (Mubarak, 2007). The school is one of the providers of formal education that has an important role in providing relevant knowledge problems related to adolescent reproductive

health. One of the biology learning materials for high school students is the human reproductive system.

Based on *Permendikbud* number 24 of 2016 concerning Core Competencies and Basic Competencies of Biology Subject in Grade XI, human reproductive system material is elaborated into two Basic Competencies in the 2013 revised 2016 Curriculum: KD 3.12 formulation, namely: "Analyzing the relationship of the structure of the tissues making up the reproductive organs with their functions in the human reproductive system" and KD 3.13 namely: "Analyzing the application of the principle of reproduction to humans and the exclusive breastfeeding (ASI) in family planning programs as an effort to improve the quality of Human Resources (HR) ". Furthermore, the Skills Competency is elaborated into two basic competencies: KD 4.12 and KD 4.13. KD 4.12 is formulated: "Presenting the results of an analysis of the effects of promiscuity, disease and abnormalities on the structure and function of organs causing disruption in the human reproductive system and reproductive system technology" KD 4.13: "Presenting the papers on the importance of preparing planned generations to improve the quality of Resources Human (HR) ".

The material of the human reproductive system is closely related to real life so that problems in life can be raised. One scientific approach that is in line with the 2013 Curriculum is a Problem Based Learning model (PBL). According to Gorghiu (2014), PBL which uses problems in the real world affects the students' critical thinking. According to Strobel (2009), PBL is a student-centered learning where students get solutions to the problems they face and build their own knowledge.

In addition, the main objective of PBL is to develop students' critical thinking skills, problem solving abilities and build their own knowledge (Hosnan, 2014). Students are directed to real-world problems, so they can relate the problems presented with the material being studied. According to Sishigu (2018), PBL promises to overcome real-world challenges. One tool that can be used to analyze the problems occurring in the students' environment is the Student Worksheet (LKPD). LKPD is one form of teaching material. According to Trianto (2011), teaching materials have an important role to determine the success or failure of a learning process.

According to the Ministry of Education and Culture (2016), in the 21st century students must be able to develop Higher Order Thinking Skills (HOTS). Students' critical thinking skills must be developed to analyze, evaluate and

draw conclusions in solving a problem. The results of the PISA (The Program for International Student Assessment) analysis from year to year showed that the critical thinking skills of Indonesian students do not have a significant improvement. The results of the PISA analysis were also in line with the students' learning outcomes at school.

II. RESEARCH METHODOLOGY

This research was a descriptive study. The purpose of this study was to analyze the needs of students for the development of PBL-based LKPD on the material of the human reproductive system class XI of SMA Negeri 1 Kubung. The subjects of this research were 30 students. In this research, the investigation phase was carried out to collect and analyze information, and analyze the LKPD used in the learning process.

Student Problem Analysis

Student problem analysis aims to find out the problems encountered during the learning process. Analysis of the students' problems was done by conducting the interviews and giving the questionnaires about the students' needs for LKPD. The results were used to design and develop PBL-based LKPD on human reproduction system material.

Student Worksheet Analysis

Student worksheet analysis aims to find out the contents of LKPD used in the learning process. The results were used as a guide in developing the LKPD in the learning process.

Curriculum Analysis

Curriculum analysis aims to determine the learning material of human reproductive system as a standard in developing PBL-based LKPD.

III. RESULTS AND DISCUSSION

The results of this research were obtained from the interviews and questionnaires related to the students' needs analysis towards LKPD.

Student Problem Analysis

Based on an interview conducted on July 16th, 2019 to a teacher of Biology subject at SMAN 1 Kubung Solok Regency, Mrs. Rini Silvia, S.Si, it was known that the students have used the LKPD which was compiled by the teacher each time learning. In the learning the teacher also used the LKPD that was already available in the student package book. LKPD that were made only contain task sheets. The LKPD has not been prepared by using the learning model in the 2013 Curriculum that directs students

to think critically about a phenomenon that is developing. The teacher provided the theoretical learning without ever being confronted with many problems that develop in the environment.

The researcher also interviewed the students who did not also say the same thing, namely students were not accustomed to solving problems in daily life related to the human reproductive system material. The students also said that the teaching materials that are usually used in the form of LKPD provided by teachers and LKPD that are already in the textbooks that do not facilitate the students to discuss. Based on the data of the students' learning outcomes, it was known that the mean of the students' results was still below the KKM, 75. The percentage of completeness of daily tests of the students in Grade XI MIPA SMAN 1 Kubung Solok Regency on the human reproduction system material in 2018/2019 Academic Year showed that 75.14% of the students' learning outcomes on their cognitive competence was still below the KKM.

In addition, the results of the analysis of the questionnaire about the students' needs for LKPD showed that 23.33% of the students want the cover of the LKPD with the dominant colors which were orange and 66.66 % of them want the content of the LKPD to be white. Furthermore, it was known that 63.33% of the students like the Maiandra GD letters with A4 LKPD size.

Student Worksheet Analysis

In the learning process the teacher used two LKPD: the LKPD made by the teacher and the LKPD contained in the textbook. Based on the results of the analysis of these LKPDs it was known that these LKPDs have not been prepared according to the model recommended in the 2013 Curriculum. These LKPDs were prepared directly to make students to conduct activities or investigations without presenting a problem to students to think critically.

Curriculum Analysis

Curriculum analysis aims to look at Core Competencies, Basic Competencies, Competency Achievement Indicators and Learning Objectives on the human reproductive system material.

Teaching materials have an important role to determine the success and failure of a learning process. A teacher must be able to develop a teaching material to help students in the learning process. Based on LKPD analysis, it was found that there were no problems presented, but students were led directly to conduct activities or investigations.

IV. CONCLUSION

From the analysis of the problems above, the problems in this research were: *first*, in the learning process on the human reproductive system material there were still many students who have not yet reached the KKM. *Second*, the LKPD has not been prepared according to the model recommended in the 2013 curriculum. *Third*, the learning was still theoretical without presenting the existing problems in the students' environment related to the human reproductive system. *Fourth*, the LKPD used did not use the PBL model. In addition, the results of a questionnaire analysis about the student needs for LKPD showed that 23.33% of the students want the cover of the LKPD with the dominant colors which are orange, and 66.66 % of them want the contents of the LKPD to be white. Furthermore, it was known that 63.33% of the students like the Maiandra GD letters with A4 LKPD size.

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