

The Validity of The Student Worksheets Based on Scientific Approach for Student at Senior High School /MA CLASS XI

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Abstract - during the learning process, teachers use textbooks students as the main materials. Learning by simply using the book students less enable students, students are less terfasilitasi in learning independent study or in a group. The students stated that the hard core of learning, attracting students with a description of the material that is long, making it difficult for students to build concept knowledge students that ultimately affect the results of the study participants students. Addressing these issues then developed spreadsheet-based students scientific approach as one of the solutions of the problem. Learning by using the scientific approach is able to improve the learning results of students. The development of student-based worksheet approach sainifik expected to build critical thinking abilities of students and improve learning results and student activity. The purpose of this research is to generate a worksheet students and find out the validity of the students about worksheets Chikungunya scientific-based approach to student class XI/MA. HIGH SCHOOL Valid category given by experts based on didactic aspects, technical and invalid constructs. The results of this study demonstrate that didactic aspects of the obtained at 86.67% with very valid criteria, aspects of construction gained 83.00% with very valid criteria, technical aspects get 79.00%. The overall validity of the incoming student worksheets on a very valid category value 82.89%. Therefore, student worksheets developed feasibility because it meets the criteria of validity.

Keywords - Student Worksheets, Scientific Approach, Validity.

I. INTRODUCTIONS

Learning us media one of the components of the learning system must be observed. Use of the media in the process of learning should be based a philosophy or theoretical reasons. The correct learning media use also affects the formation of concepts against the material. For that teachers need to prepare media learning where their use is integrated into the purpose and content of the learning that help improve the quality of activities and the achievement of the learning competence.

Based on the fact that learning is not a biological concept but rote learning approach to skills through the process, so that students can find facts, developing concepts, theories and scientific attitudes that can end up the positive effect of the quality of the educational process or product education.

Associated with it is surely demands the ability of teachers to facilitate the students learning with media that contains the activity in the form of worksheets as well as activity sheet which is capable of menstimulus students to engage actively. In accordance with the curriculum current curriculum, i.e. 2013 where all subjects would have to contribute to the formation of attitudes, skills and knowledge. So that students are required to play an active role in the learning process.

The results of the interviews with the biology teacher in high school N 13 Note that learning in the need for a worksheet that can guide students in learning, both independent study, discussion, and in practical work. Therefore, the existence of a worksheet didikberdasarkan 2013 curriculum participants desperately needed, while the teacher is still a difficulty in developing a worksheet didikyang participants in accordance with the curriculum of 2013.

Based on respondents from 30 students, 70% of students have argued that it is difficult for them to understand the subject matter they read from the book students with very long explanation, they feel saturated read participants the students because the material elaborated overcrowded so the difficulty attracting core learning material. Then from the results of the interview against the students is also known that the material that was considered difficult by students is the material of the circulatory system, followed by the material coordinating system, and reproductive system.

The difficulties students in understanding the learning material will have an impact on the results of learning to students. Therefore, the required learning materials containing a summary of the material that is practical, easy to understand and contains the steps work that can guide them in learning activities so that it can engage in the learning process. Thus, in addition to the use of a book student, still required other learning materials such as Worksheets students which contains the crucial concepts and activities that come with the instructions work, making it easier for students to work on it.

According to Majid (2014), student worksheets are sheets containing the task to do students are made according the competence that would be achieved. Use the worksheet didikdapat participants save time learning and train the students independent study. In addition, participant worksheets didikakan increase interest in learning the students if arranged in an interesting, besides the worksheet students makes it easy for teachers to explain the learning material.

Student worksheets developed a particular approach requires. Based on the results of observation and interviews in the field gained 13 SMAN information that in the process of learning the students has not been actively involved in the learning of the 30 respondents only 40% are able to find the problem formulated in the form of a question, then from 40% were not all able to find data or searching for information which is then able to associate and convey such information, while the curriculum implementation in 2013 takes an active role participants students to be able to find its own concept of learning. So the researchers chose a scientific approach (scientific) in the development of student worksheets. This is in accordance with the scientific approach to the integration of (scientific) curriculum in 2013.

In order for the student worksheets developed viable is used, then the first worksheet, students should be divalidisi. According to Jennifer Goulden (1993) the validity of mean

something acceptable or accusations which were in accordance with the expected truth so that it can be accepted within a certain criteria. While according to Arikunto (2012) a data resulting from a product is said to be valid, then it can be said that the product has provided an overview of the development goals correctly and in accordance with reality and circumstances indeed.

Validity of the test is done to find out the validity of the instruments used Instrument that is valid when the measure what's needed and revealing data from variables to accurately. Based on the foregoing, the necessary validation againsts the sheet educates of participants work material for biology students of the class XI SMA.

II. EXAMINATION THEORY

2.1 Validity

The validity of derived from the English "validity" which means truth. According to Jennifer Goulden (1993) the validity of a word means something acceptable or valid. These terms contain the notion that something be declared valid or valid consent in accordance with the expected truth so that it can be accepted within a certain criteria.

ARIFIN (2012) said that before the product is used, of course, seen first in terms of validitasnya based on certain criteria. Validity is the most important in terms of a product and a product has high validity if the product can measure what is actually to be measured (Purwanto, 2012).

According to Kaligis Darmojo and in Widjajanti (2008), the indicators used to determine that the resulting product is valid, the following indicators may be used.

a. the terms governing the use of didactic worksheet students is universal. Worksheet students put more emphasis on process to find the concept, and the existence of stimulus variations through a variety of media and the activities of the students. The worksheet is expected to give priority to the development of the ability of social communication, emotional, moral, and aesthetic.

b. these terms invalid constructs, namely the terms relating to the use of language, the order of the sentences, vocabulary, difficulty level, and clarity of the existing substance should be appropriate so that it can be understood to students.

c. Technical Terms, deals on presentation of these worksheets, namely regarding the aspects of writing, image and display.

a. 2.2 Student Worksheets

Majid (2014) stated that the worksheet students (student work sheet) in a sheet that contains tasks to do students. didikdibuat participant worksheets should match the competencies that will be achieved. Prastowo (2011) stated that the worksheet students is one of the materials that contain a summary of the material, as well as instructions work tasks referring to the competencies to be achieved by students. Advantage of the activity sheet is for teachers, makes it easy for teachers in implementing the learning for students will learn independently and learn to understand and execute a written assignment (Daparteman national education, 2008).

2.3. Scientific Approach

Scientific approach to learning approach is centered on students which is a learning process that has real activities that affect students in a situation enables it to happen the interaction between students and teachers, students with students and students with their learning environment. Scientific approach should be guided by the rules of scientific approach is characterized by the presence of the observation, reasoning, discovery, pengabsahan and a description of a truth, so that in the process the lesson that this approach is guided by values, principles and criteria of scientific (Fauziah, 2013).

It is also reinforced by the Common (2014) designed so that the students are actively mengkonstruk concept, law or principle through the stages of observing, formulating the problem, formulate hypotheses, collect data using various techniques, analyzing data, draw conclusions and communicate concepts, laws, and principles that are found. The approach is also intended to provide scientific understanding to the students to get to know, understand various materials using a scientific approach so expect students driven to find out from various sources through the observation and not just informed.

Based on research conducted by Rahmi (2018) concerning the inkuiri model-based worksheets, where this model include a model-based approach is also a scientific, analytical study with scientific measures, note that the influential good on competence and critical thinking skills of students. Other research by Zhasda (2018) menyatakan that the ability of the use of science, asking, mengasosiasi, draw conclusions will enhance the ability of students in critical thinking about science.

Hosnan (2014) explains there are six learning objectives with scientific approach, that is, 1) Increased intellectual

ability students, 2) shaping and developing the ability of students in resolving problems systematically. 3) Created an atmosphere of learning that make students feel that learning is a requirement. Learning Outcome 4). 5) train the students to develop and communicate ideas in particular in writing scientific articles. 6) developed the character of students.

III. RESEARCH METHODS

This type of research is the research and development or Research and Development (R&D). Development of didikberbasis participants worksheet this scientific approach using model Plomp. This development model Plomp consists of three stages, namely the initial investigation phase (preliminary research), stage of development or manufacture of prototype (prototype or development phase) and the assessment phase (just my assesment phase) (Plomp, 2013).

Data-collecting instrument used is sheet validation to measure the feasibility/validity of products developed Validation worksheet students based approach to santifik is done by 3 (three) persons expert in accordance with field and his studies of each. The test results are then used to revision worksheet so that the students actually meets the user needs.

Analysis of the validity of using data validity of the participant worksheets didikyang obtained from the analysis of the data collection instrument based on a questionnaire filled out by some experts. Data analysis begins by determining the score for each item. determination of score Likert scale based on validation, as shown in table 1 below.

Table 1. Determination of Score Answers the criteria based on Likert Scale

Score	Category
4	Strongly Agree (SS)
3	Agree (S)
2	Less Agree (TS)
1	Disagree (STS)

Source: Yusuf (2007)

After that, the results ditabulasikan and calculated the percentage using the following formula.

$$\text{Value} = \frac{\text{Validity Score Obtained}}{\text{Max Score}} \times 100 \%$$

Based on the current validity of the obtained, then the set criteria for assessment of the validity of a student worksheets based scientific approach including provisions on table 2.

Table 2. The validity of the category worksheet students

The Range %	Category
0-20	It Is Not Valid
21-40	Invalid
41-60	Quite Valid
61-80	Valid
81-100	Very Valid

Source: Riduwan (2009)

Table 3. The results of the Validation LKPD developed

No	Aspek yang Divalidasi	Nilai Rata-rata	Kategori
1.	Didaktik	86,67	Sangat Valid
2.	Konstruk	83,00	Sangat Valid
3.	Teknis	79,00	Valid
	Rata-rata	83,0	Sangat Valid

IV. RESULTS AND DISCUSSION

4.1 Results

Results of the validity of a student worksheets based on scientific approach to biological material can be seen as follows:

4.1.1 Didactic Aspect

LKPD development refers to 2013 curriculum tailored to KI and KD. Furthermore, the indicator will be reduced and the learning objectives based on the KD, design and development of any activity in LKPD adapted to the learning objectives.

4.1.2 Aspects Of Invalid Constructs

Student worksheets have been developed in accordance with the rules of English that is properly so that it is easily understood by the students. student worksheets are also provided with instructions to work with, so that the students are able to follow the learning with directional. In addition to this students worksheets in it there is a worksheet that contains steps pembelajaran berbasis scientific approach recommended by 2013 curriculum.

4.1.3 Cover Technical Aspects On The Worksheet Comes Identity

Such as title, the curriculum used, base development, image. The author's identity, the identity of the student as well as the appropriate users to the worksheet. The color on the cover that is a mix of blue and pink. The typeface used is Comis Tempus San with a size of 14-28, For images that are contained in the worksheets created proportional, clearly visible, complete with description and source of the image. Dugunakan margin-left is 3, top 3, right, and bottom 3. Results validation LKPD from experts/experts is contained in table 3 below. description and source of the image. For margin-left is 3, top 3, right, and bottom 3. Results validation LKPD from experts/experts is contained in table 3 below.

4.2 Discussion

The validity of a student Worksheets developed assessed by experts/experts. Validator involved on this validation process is the father of Dr. Darmansyah, ST, d. Pd as a technology expert, father of Dr. Abdurrahman, m. Pd as a linguist, Dr. Dwi Mother Hilda, daughter of m. Biomed as a material. The validity of the assessment carried out by the experts of the overall gain value with very valid category.

Validation assessment seen from three aspects, namely, the didactic aspect of invalid constructs, and technical aspects. The results of the validation in the didactic aspects of the obtained average rating 86.67% with very valid category. This value indicates that the student worksheets developed has met the terms of the preparation of learning materials and were in accordance with the demands of the core competencies (KI) and Basic Competence (KD) in 2013 curriculum used at this time.

Validation on the invalid constructs obtained an average score of 83% with very valid category. This value indicates that the worksheets have been developed didikyang participants in accordance with the rules of English that is properly so that it is easily understood by the students. student worksheets are also provided with instructions to work with, so that the students are able to follow the learning with directional. In addition to this students worksheets in it there is a worksheet that contains steps of learning-based scientific approach, as well as the integration of scientific approaches in the curriculum 2013 in use today.

Student worksheets based scientific approach helps students in order to engage actively in the learning process so that it can help improve study skills students, both cognitive abilities, psychomotor or affective. As a result research trinanda (2018), namely worksheets equipped learning problem based learning models, where the model tersebut salah one model pembelajaran that uses a scientific approach. Based on such research it is known that the ability of students can be increased when the following learning using worksheets students of Problem Based learning Based on without using the worksheets. Research Purnamasari

(2018) on LBC worksheet known can improve learning outcomes significantly both in the realm of cognitive, psychomotor or affective.

Trianto (2011) stated learning materials can help students in finding and developing the concept as well as train the students find the concept, thus leading to the liveliness of the students in the learning and motivate participants students in the learning process. Therefore, the activity of students is very necessary to help students understand biology in a comprehensive manner. Support also with material on the worksheet the students are developed with the right concept. terms used at LKPD were in accordance with the concept of the material.

The results of validation on the technical aspects of obtaining an average score of 79% with a valid category. According to widjayanti (2013) technical aspects related to the presentation materials, namely in the form of text, images, and appearances in the learning materials. The appearance of these materials can be viewed from the color of the background, the cover, and content. Values with valid category is caused due to the use of the type and size of the letters on the worksheet the students is just right. student worksheets have the layout of the content. In addition worksheets students equipped with the image that supports the material presented. The use of color and design on a worksheet students fascinating. This is in accordance with the opinion expressed by the Princess and Mitarlis (2015) stating the worksheet students can attract and excite the motivation of students has become semi-hereditary because writing, colors and images that match the material presented so as to help students understand the material and are interested to open it

Later research Aufa (2018) about the worksheets come pictures and concept maps note that learning using worksheets helps students develop the tersebutdapat ability to think dimaksimalkanmelalui existing activities in the worksheet students. Students Use learning worksheet also helps teachers raise student's interest in learning. The assessment of the three aforementioned aspects demonstrates an average score of 82.89% with very valid category. These results indicate that worksheets developed already meets the criteria kevalidan the development of a learning materials so it can be used to help students understand the learning material especially on the material circulation system, the system reproduction in humans. According to Kimberlin and Winterstein (2008:2278) Validity is defined as the degree to which an instrument measures what it is intended to be measured. The validity of

the instrument requires reliable. Arikunto (2013) stated, if a data resulting from a product is valid, then it can be said to be a product that dikembangkan already give you an idea about the purpose of developing correctly and according to the fact or circumstance.

V. CONCLUSION

Worksheet developed by the valid validator with an average of 82.89% with very valid category. Valid category given by experts based on the didactic aspect, invalid constructs, and technical. Based on the assessment of student worksheets can be used during the process of learning as learning materials that help teachers and students understand the material, help in achieving learning objectives so as to increase the the results of the learning students

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