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Development of Teaching Materials Handout to Improve Literacy Skills of Science and Students Decision – Making Skills on Materials Hydrocarbon

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***Abstract*:** *The purpose of this study is to develop teaching materials handout to improve the ability of science literacy and decision –making skills , the type of research with the subjects of test students as much one class in the class XI SMAN I NARMADA west Lombok and students as much one class in class XI daughter pondok pesantren nurul hakim west Lombok, handout validation feasibility test by expert ,expert handout and senior teacher showed that the material of handout developed-developed feasible with 3,24.The feasibility and readability test using uestionnaire , while the effectiveness test using pretest-posttest , attractiveness by the students in two schools showed 3,30 and 3,25 feasible, while the feasibility test of teacher and student"s response in using handout materials 3,33 and 3,24 shows that the development of handout materials is very feasible to be used KBM process of material hydrocarbon*

Key Word : *Hydrocarbons, Taching Materian Handout, Literacy Science, Skill Decision- Making*

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I. Introduction

The success of teaching and learning process can be observed through student learning outcomes. One of the learning problems that affect the low learning outcomes of students is the difficulty of applying the less precise learning model in delivering teaching materials. The process of teaching and learning not only requires students to memorize the concept or involve the ability of memory but also to connect the concept understood with daily life or the so-called aspects of science literacy (Suciati, 2011).

chemistry is one of the core of science, premises n, characteristic of the material is abstract, so the chemistry was difficult by some students in linking concepts with everyday life, so that in the learning process chemistry requires a correct understanding to support the concept that was built student (Purwaningtyas et al., 2012). In addition to linking the concept he was constructing with everyday life that is conceptually relevant is a good way of learning science for solving internal problems life society , and learning science can be applied through a scientific approach by observing, questioning, gathering information, associating and communicating (Sani, 2014).

Learning shouldbe emphasized on the understanding, *skill* , and character education (Kemendikbud, 2013) , implementation of science learning including chemistry still less involving the active role of the students. Based on observations in SM AN I NARMADA and MA PONDOK PESANTREN NURUL HAKIM Kediri West Lombok in July 2017 chemistry lessons conducted mas ih tend to focus on teachers and chemistry books used in the learning process in the form of a student package book from the author Unggul Sudarmo-based curriculum 2013 , the content in the book on the subject matter of hydrocarbons contains concepts solely so that students are more directed to listen to the delivery of teaching materials from the teacher, the impact on students lack the ability to develop the ability of thinking orally, g uru requires students memorize all the learning that has been delivered without honing students' critical thinking skills or reflecting on their thinking skills so that the learning process in the classroom is not maximal, and this is indirectly contrary to the demands of the 2013 curriculum,which prioritizes the skills and focuses on the two competencies of thinkingand communication kompe tension, thinking competence is a competence of human resources who have extensive knowledge, have the ability to think critically and the ability to think creatively with skills in decision-making relating to everyday life , while the competence of communication is the competence of human resources who should have the ability to communicate in order to work together and convey ideas- other creative thinking ideas (Abidin, 2014).

Based on the interview with the teacher of chemistry study at SMAN 1 Narmada, it was found that in chemistry lesson, the teacher only gave the material according to the handbook that held did not relate the material with the phenomenon that exist in the students' daily life, and the absence of handout material

s ehingga the learning resources of the students are still lacking, thus affecting the students' science literacy. Learning only poured the concept alone certainly less experience for students ,as an alternative to the teaching materials handout as a support, there are four aspects of science literacy as a body of knowledge , way of th i n k in g , way of investigating, and int h e r a ction a demand sciences, teknologi, (intercitbetweenscience , technology, andsociety). No doubt the four aspects of science literacy is still Based on the interview with the teacher of chemistry study at SMAN 1 Narmada, it was found that in chemistry lesson, the teacher only gave the material according to the handbook that held did not relate the material with the phenomenon that exist in the students' daily life, and the absence of handout material s ehingga the learning resources of the students are still lacking, thus affecting the students' science literacy. Learning only poured the concept alone certainly less experience for students ,as an alternative to the teaching materials handout as a support, there are four aspects of science literacy as a body of knowledge , way of th i n k in g , way of investigating, and int h e r a ction a demand sciences, teknologi, (intercitbetweenscience , technology, andsociety). No doubt the four aspects of science literacy is still low controlled by Indonesian children . (PISSA , 2015).

Media learning has several forms: printed media, audio-visual technology, computer-based technology and print and computer technology (Arsyad , 2011). Hand out is including print media because text-based or text-based handouts in the sheet, because hand out is a very concise lesson material that comes from several literature relevant to the basic competence is taught to students to facilitate them to understand the material because in instructional handouts have been equipped deng's summary self-instruction materials (MONE, 2008). In addition to the teacher's role in learning by hand out can be minimized, so that learning is more student-centered. The teacher's role in learning using hand out is that as facilitator no longer dominates in learning so that learning using hand out will make students able to measure their own level of mastery over the discussed subjects (Prastowo, 201 5).

II. Research methods

Type of research used in this research is research development. As developed in the early researchers are teaching materials k imi a handout with a scientific approach to improve science literacy and student decision making.

The design used in this research is development . The research developed in this research is teaching materials of chemical handout with scientific approach to increase science literacy and student decision making

Figure 3.1 Development step research chart (Sugyono, 2015).

Sugiyono (2014) defines *Research and Development* as a research method used to produce a particular product and test the feasibility and effectiveness of the product. This type of research and

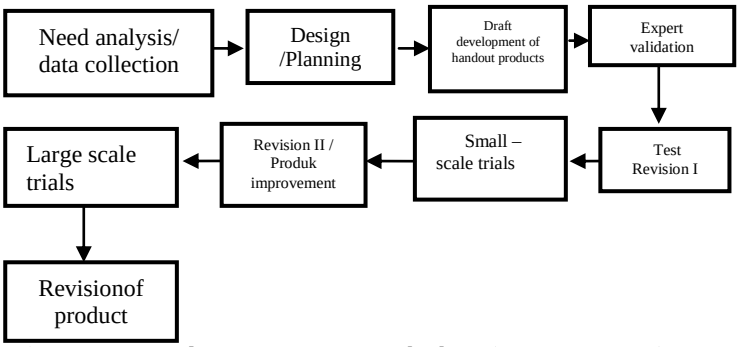

Figure 3.1 Development step research chart (Sugyono, 2015).

development is in research and development level 3 where at this level penelilti do research to develop products, make products and test the effectiveness of these products (Sugiyono, 2015).

study, and do the questions independently. After the students finish studying the handout during the given time, students are then given a questionnaire about the response to a chemical handout with a scientific approach to improve the product before it is tested widely.

Revision II

Handouts that have been tested on a small scale are further improved in accordance with suggestions and assessment results in the previous stage to be tested on a wider scale. The input given by the students from the small scale test results is to correct the typo type on the handout because according to the students there are still many typo handouts. So that the improvement of the product for selajnutnya tested on the scale large.

Large Scale Trial / Main field trial.

The revised handouts are presented in real conditions for a wide scope. Large scale trials were conducted in class XI in two schools with a total of 24 students per school .The treatment carried out in large-scale trials is by using chemical handouts in the learning activities, and observed observations are the results of students. learning and student responses on the handouts used.

In practice, handouts are still assessed for lack of emerging for further improvement. Large-scale testing is done to findout the effectiveness of handouts that I see from the results of student responses about learning with handouts and learning outcomes of students' cognitive aspects. Students' responses are measured using a questionnaire filled by students. Learning outcomes are measured based on *pretest* and *posttest* results after learning is complete. At this *stage a* chemical handout with a scientific approach to the Hydrocarbon material developed has been declared worthy of use as a teaching material.

III. Results and Discussion

Results of Product Development

Development of teaching handout materials with a scientific approach

Description of the findings and analysis of teaching materials needs at the preliminary study stage serve as the basis for the development stage. The teaching materials developed in this development research are handout material by adapting Borg and Gall development theory in sugyono 20I4 . This stage includes the planning phases, initial product development, expert validation and revisions, small-scale field trials and revisions / fixes, then piloted in large-scale trials so as to obtain a more complete end product of handout materials .

1) Research Introduction and Gathering Information

At this preliminary stage, the researcher conducted several activities such as: a) O classroom and interview to analyze the students' learning experience in the learning process in the classroom. Based on the results of interviews to teachers and students of class XI MS2 in SMAN I Narmada and class XI IPA at Pondok Pesantren Nurul Kediri Kediri that most students have difficulties in nature to understand the concept of hydrocarbon material , b) Observation on teaching material.

2) Planning

At this stage the researchers designed the planning for supporting learning tools and the format of teaching materials handout . These stages include:

a) Planning support learning device that consists of a syllabus and lesson plan (RPP), which include standar Competency (SK), basic competence (KD), indicators, learning objectives, materi principal activity learning, assessment, allocation time and learning resources . Syllabus and RPP designed by researchers in research this study refers to the curriculum 2013 and adapted to the methode used is a scientific approach that refers to the curriculum 20I3 . .

b) Planning Format teaching handout materials
Activities undertaken by the researcher at this stage include the preparation of the content of teaching materials consisting of: a) cover, b) Competency Standard (SK),

c) Basic Competence(KD), d) Indicator, e) Learning objectives, f) Materials and g) handout

stages with a scientific approach. This handout is made into 5 (five) parts of the activity , handout, activity I, handout 2, handout 3, handout 4, and handout 5 activities.

The results of research development with the subject of student testing as much as one class in class XI MS2 SMAN I NARMADA West Lombok and students as much as I class in class XI IPA special daughter MA Pondok pesantren nurul judge Kediri west Lombok, validation feasibility test handout by expert expert handout and teacher seniors indicate that the developed handout material is worthy with an average grade of 3 ,24 . the average post test result in two schools showed improvement with, and questionnaire of legality test result and handout attractiveness by students in two schools showed average 3,30 and 3,25 have very feasible and interesting criteria, while the feasibility test questionnaire response of teachers and students in using teaching materials handout 3.30 daan 3.36 shows that the development of handout material is very worthy of use in the process of KBM in the material hydrocarbons.

IV. Discussion

Referring to the analysis of research results that have been described in Chapter IV, it is found that the development of teaching materials handout can be used as an alternative for learning chemistry of basic matter hydrocarbons . Scoring given by 4 validator on teaching materials handout with the scientific approach is very worthy and very valid means of teaching materials that have beendeveloped handout feasible and valid learner's used in the chemical process subject matter of the handout

material. The developed language is based on the Curriculum 2013. So that it meets the quality criteria of developing a product that is the test of validity , the validity of the product of handout material is obtained based on the assessment from several expert experts. Apart from the test of validity and other quality development criteria, it includes practicality and effectiveness test. The practicality test is obtained at the experimental stage of the development of the handout of the student and teacher response, while the effectiveness is derived from the increased science literacy and decision-making skills .

Scoring validity and feasibility obtained after a validation test phase and revisions are intended to reduce the level of susceptibility of the product to produce the final product a viable and valid to be re-examined in a broader field test or pilot experiments. It is also supported by the results of research Restuwati (2014) against the validity of the development of teaching materialsvalidator was developed based on expert and user ratings, obtained kan very valid criteria which means that the product is ready d igunakan for individual trials. In addition Nasir (2014) in the test stages of product validation obtained the results of the validation team of experts on the development of teaching materials handout with scientific approach to increase science literacy and decision-making skills is very feasible to use in the learning process.

The teaching materials are a very part important of a learning process whole. Because this development research aims to produce teaching materials in the form of development of teaching materials handout and know the quality of teaching materials handout of a scientific approach . The teaching materials used in the study is developed such that it is possible students achieve competencies relevant chemical material studied.

Research adapting procedures Borg and Gall development. According to Borg and Gall (1988) in Arlita et al (2013) research and development (R & D) is a research method used to develop or validate the products used in education and learning , thus meeting the criteria of validity, effectiveness and practicality (Sugiyono , 2012) . The steps that have been done by researchers in development research this covers research preliminary and collect information, Planning for, Developing initial product, validation expert and small-scale field trials.

Stage early in development is intended to strengthen the teaching materials developed product, determine the steps that true development, and describe the results of previous studies that serve as a comparison in the product development of teaching materials in the manufacture of teaching materials handout with scientific approach that developed this as one form of learning development of scientific approach mandated by the curriculum 2013. Premises n provide handout materials for improving scientific literacy and decision-making skills will be very helpful in the learning process as well as pro ses practicum in finding and solving the problem that it becomes finding a new concept in chemistry.

V. Conclude And Advice

Based on the research that has been done can be concluded that:
Handout material has been produced with a scientific approach by adapting the development of Borg and Gall in the subject matter of hydrocarbons with load characteristics iatan kegstages of learning, namely observing, questioning, gathering information, associating and communicating . The quality criteria of product development in this study include test of validity, practicality and effectiveness of tifan,

VI. Suggestion

Based on the findings of this study, several suggestions and recommendations are proposed, including:

1. Handout produced materials can be utilized by other schools, which have characteristics similar to the place of study.
2. Handout teaching materials produced can also be tested in other schools that have different characteristics to the place of study.
3. Handout teaching materials with models or with other variations can be tried so that this resource will better and more interesting and can make students more motivated again in learning chemistry.
4. This study has many shortcomings and limitations, so the need for further research.

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