

The Development of Qur'ani Students Worksheet (LKPD) on the Atom Structure Materials in MAN 1 Cirebon City and MAN 1 Plered Cirebon Regency for the Student's Science-Religious Character Building

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Abstract— Chemical Write Students Worksheet (LKPD Chemical) has been applied in MAN 1 Cirebon City and MAN 1 Plered Cirebon Regency. It still not contribute to the student's science-religious character. The LKPD Chemical On the Material Structure of the Atom developed based on the values of the Quran are expected to contribute to the science-religious character of the MAN students. These study aims are to determine: (a) The percentage of the feasibility of the Qurani Students Worksheet, (b) The effectiveness of using that, and (c) The science-religious character building of students at MAN 1 Cirebon City and MAN 1 Plered Cirebon Regency. The type of research used is research and development using the ADDIE model, which consists of analysis, design, development, and evaluation. The phase of analysis is done by analyzing the methods, users, and teaching materials. The LKPD is designed by designing the map of the material, the outline of LKPD, display, and application. The development is done starting from pre-production content, the chemistry with Al-Quran, production, post-production, and validation. The evaluation is performed by the application on a small and large scale. The result of the feasibility is 82,45%; the percentage of the value indicates of LKPD is appropriate to use. The effectiveness of using Qur'ani student's worksheet is in the category of large and medium scale. The category shows that LKPD Qur'ani is effectively used in learning Al-Qur'an based chemistry. The characters of the science-religious formed are honesty, discipline, cooperation, and hard work. The formation of these characters is expected to give birth to an intelligent generation, have worked, and have good character.

Keywords: *chemical students worksheet, atom structure, science-religious character*

I. INTRODUCTION

The LKPD (Write Student Worksheet) is a student guide used to conduct investigations and problem-solving activities [1]. The use of LKPD in the learning process is expected to activate students to develop scientific content independently

based on the 2013 curriculum. Based on the observations conducted on January 9 to February 15, 2017, The Islamic-based learning system are applied in the learning process of class X IPA 4 (grade 10 of science 4) MAN 1 Plered in Cirebon Regency and class X IPA 2 (grade 10 of science 2) MAN 1 Cirebon City in the even semester on the academic year 2016/2017. The fact is found in the LKPD (students worksheet) used by the teacher, that there were still many components were not in accordance with the 2013 curriculum, where the teacher did not explain the relation of chemistry to Islamic values, so that in the learning process the following data were obtained: (1) The learning process is still applying teacher-centered, (2) The students are shy and afraid to ask and answer questions or present it in front of the class, and (3) The students are not able to explain the relationship of chemistry with natural phenomena occurs through the values of Al - Qur'an [2].

Based on these observational data, it can be concluded that the behavioral characteristics of the science-religion possessed by these students have not yet been formed, and the efforts of the teacher to overcome these problems are still lacking because learning is still classical [2]. The scientific characteristics of chemistry according to [3] where chemistry is the study of the material and processes experienced by the change, thus, the students should be trained to do scientific work through understanding concepts and solving problems related to natural phenomena, so that they are motivated and realize the majesty of Allah SWT regarding the creation of Allah SWT.

A scientific approach is appropriate to solve this problem. The scientific approach aims to provide comfort for the students in the mastering of the subject. A positive learning environment is needed to encourage the students to be active in finding the information and cases from various sources through discussion, observation, and practicum activities [4]. The use of

a scientific approach in learning chemistry is expected to build the science-religious characters.

The science-religious characters are the positive characters that can be realized from the teacher who gives full attention and guidance to his students through natural phenomena based on the values contained in the Qur'an. Wagner L. et al., [5] shows that positive behavior can directly be realized from full guidance on the students with diligence and caution, while the indirect effect provides additional social intelligence and self-regulation. Operationalizing and measuring positive characters can be done by constructing and using "positive orientation" so that it can encourage individuals to see the source and experience of life positively then used as latent factors in general, such as self-esteem, life satisfaction, and optimistic nature Smithikrai [6]. A positive orientation will produce a positive relationship between teacher and student. The positive relationship that exists between teachers and students will encourage them to be enthusiastic about being in school [7].

Sari E. et al., [8] developed the Student Worksheet (LKPD) in High School for the Chemistry Subjects, from the data obtained some of the characteristics of students' scientific attitudes, namely: curiosity, accuracy, responsibility,

carefulness, cooperation, honest, care about the environment. The researcher Eka Sari, et al. encourage the researchers to conduct further studies on the implementation of Islamic values by using a scientific approach to learning electrolyte and non-electrolyte solutions in the form of LKPD (Student Worksheet), and obtained data that the implementation of Islamic values with a scientific approach affects the positive character building for students, namely; curiosity, never give up, love to read, independent, disciplined, objective, conscientious, open, caring socially, valuing achievements and environmental conservation [9]. These positive characters are part of the science-religious characters.

II. METHODOLOGY

A. Model Of Research

The type of research used is research and development using the ADDIE model. In this research, what is observed or measured is the quality of LKPD that has been made, whether it is in accordance with the 2013 curriculum guidelines and the achievement of the building of students science-religious characters after using LKPD.

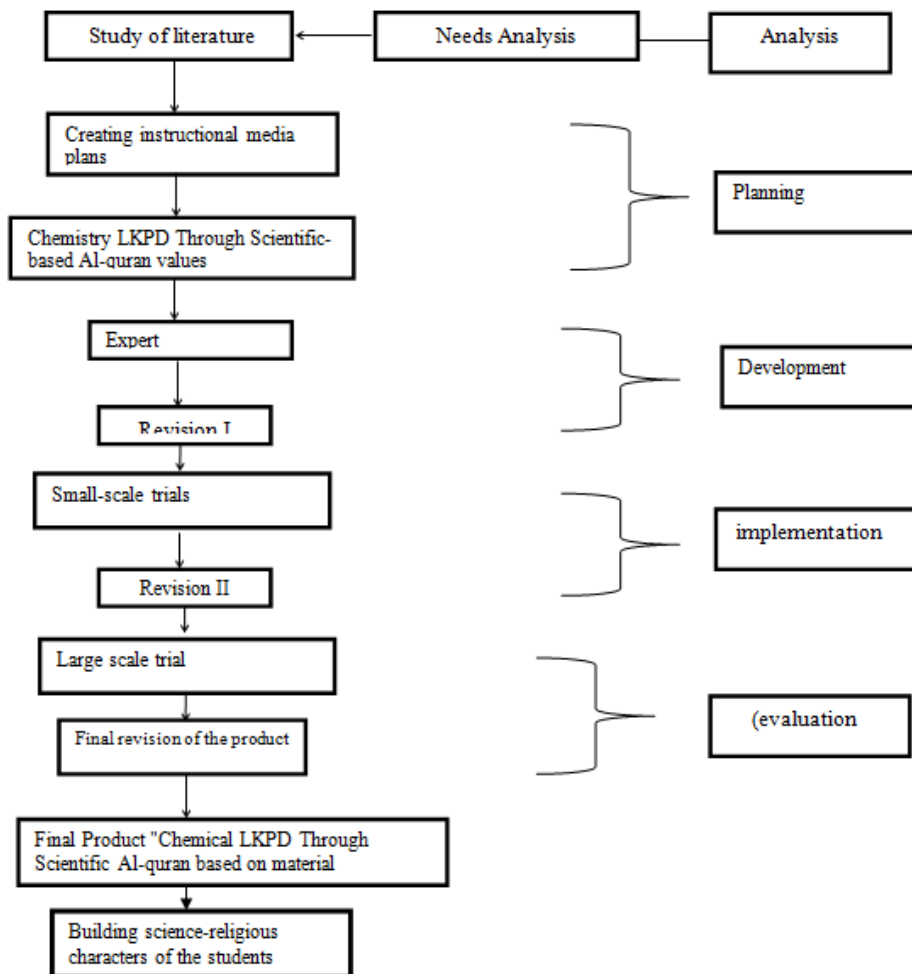


Fig. 1. Stages of Chemical Research and Development LKPD

B. Development of Teaching Materials

The developed LKPD in this study refers to the ADDIE model, which consists of five stages, namely analysis, design, development, implementation, and evaluation. The developed LKPD is the chemical LKPD on the atomic structure material through Al-Qur'an Values.

1) Development analysis

This analysis phase is carried out by observing and interviewing directly before conducting the research. The development analysis process is divided into four, namely: (a) analysis of the learning method, (b) user analysis, (c) material analysis, and (d) analysis of teaching materials.

2) Design

Making LKPD is based on the results of preliminary observations in research activities, namely needs analysis, includes preparation of material maps, preparation of LKPD content line, appearance design, and application design.

3) Development

Before the implementation stages in learning, using the LKPD Chemistry is firstly sorted and validated. The process of sorting or making a chemical LKPD involves four stages, namely: (a) pre-production, (b) production, (c) post-production, and (d) validation.

Chemical module validation has two stages. Phase one includes the assessment in terms of appearance, by colleagues of the Faculty of Education and teacher training University of Muhammadiyah Cirebon lecturers and the educational institutions for the chemistry teacher. The second stage of assessment covers aspects of the feasibility of the content, the feasibility of the presentation, and the feasibility of the language. There are three expert lecturers (Dewi Nurdiyanti, M.Pd, Lukman Hadi, M.Pd, Muhammad Luthfi Abdullah) and Toto Santiaji, M.Pd as validators in the aspect of content and linguistic feasibility, while in the feasibility aspects of the presentation by the chemistry teachers of MAN 1 Cirebon City and MAN 1 Cirebon Regency namely Mr. Daam, S.Pd, and Mrs. Hj. Evi Fidawati.

4) Implementation

a) Product Testing

Researchers tested this product on 10 students of Class X Science 1 to test the feasibility of the module by reading, studying, and working on problems independently, and they were given a questionnaire.

b) Implementation in Learning

At this stage, the teaching material in the form of LKPD is applied in the learning process. A total of 120 students in class X IPA MAN 1 Cirebon City and MAN 1 Cirebon Regency using chemical LKPD through Al Qur'an values that have been developed. The learning process is carried out two times. The pretest is conducted before treatment. After that, the posttest is conducted.

5) Evaluation

The technique to determine the use of LKPD chemistry can be used as a learning medium carried out by the feasibility test

by experts/validators. This method is done by giving an assessment instrument that contains items of assessment of the content, language, and presentation components. The results of the data analysis obtained the feasibility of the Al-Qur'an Integrated Chemical LKPD is 82,45%, which means that the Compiled LKPD has a good enough feasibility to be used by students in MAN 1 Plered Cirebon Regency and MAN 1 Cirebon City.

III. RESULTS AND DISCUSSION

A. Results

1) Result

a) Effectiveness Test

- *Gain Test*

TABLE I. THE RESULT OF GAIN TEST MAN 1 PLERED CIREBON REGENCY

Class	Average Pretest	Average Posttest	Value of N-Gain	Gain Index	Criteria
X MIA 4	15,06	78,12	0,74	0,70-1,00	High
X MIA 5	15,51	68,51	0,62	0,30-0,69	Medium

TABLE II. THE RESULT OF GAIN TEST MAN 1 CIREBON CITY

Class	Average Pretest	Average Posttest	Value of N-Gain	Gain Index	Criteria
X IPA 2	31,90	80,46	0,71	0,70-1,00	High
X IPA 3	32,79	75,59	0,60	0,30-0,69	Medium

Based on the results of the Gain test, it is known that the results of the Gain score in both MAN 1 Plered Cirebon regency and MAN 1 Cirebon City can be categorized into the medium and high category. The gain test category categorized as high and medium shows that the use of the Qur'ani LKPD in both schools effectively used in the Qur'an-based chemistry learning process because it provides a good average post-test score.

- *Students' Responses in the Large Scale Test*

At the end of the learning activity, students are given a questionnaire and an observation sheet to assess the effectiveness of the LKPD used in learning towards the character building of science-religious.

TABLE III. THE SCORES OF SCIENCE-RELIGIOUS CHARACTERS MAN 1 PLERED CIREBON REGENCY

Class	Honest	Discipline	Cooperation	Hard work
MIA 4	75%	78%	79%	78%
MIA 5	72%	77%	78%	76%

TABLE IV. THE SCORES OF SCIENCE-RELIGIOUS CHARACTERS MAN 1 CIREBON CITY

Class	Honest	Discipline	Cooperation	Hard work
X IPA 2	72%	75%	78%	76%
X IPA 3	67%	74%	77%	75%

Based on the results of the self-observation sheet to measure the character-building observed by peers, the ones assessed are: (a) Obedience to God, (b) Gratitude, (c) Sincerity, (d) Fateful, (e) Care for the Surrounding Environment and (f) Patience. The average religious characters score of MAN 1 Plered Cirebon Regency is 70,715 for MIA 5 class and 74,12 for MIA class 4. The average religious characters score for MAN 1 Cirebon City is 74,79 for class X IPA 2 and 71,41 for X IPA 3 class. The average value of science character in the two schools gives a value above 70% and religious character value above 70, this shows that the value has fulfilled the prerequisites that learning by using the LKPD Qur'ani can build the students science-religious characters.

B. Discussion

1) Implementation of Qur'ani LKPD on the building of students science-religious characters in MAN 1 Plered Cirebon Regency.

The use of Qur'ani LKPD in MAN 1, Cirebon Regency, has a positive impact on the building of student's science-religious characters in class X Science 4 and 5. The X Science 4 class shows higher results compared to class Science 5. It happens because during the learning process, the X Science 4 students more enthusiastic about participating in the learning process. The learning is carried out using a scientific approach and dividing it into groups. When the learning process takes place, cooperation and hard work between each group look so strong, even when looking for references, the students are so enthusiastic to cooperate with each other either via the internet or reviewing material based on existing books in the library. The final result is very visible when the students are presenting the activity and sharing the material by adding and improving the material presented so that the material is really found by themselves and completed each other. Besides collaboration and hard work, the other scientific characters are honesty, has a higher value compared to the X Science 5 class. This happens because after they have studied and worked on the LKPD there is one surah, namely Qs. Sa'ba verse 3 which states that:

(he is) the knower of the unseen. Not an atom's weight, or less than that or greater, escapeth Him in the heavens or in the earth, but it is in a clear record (lauhul mahfuzh) "(Qs. Saba':3).

In verse is explained that Allah knows everything in the heavens and the earth, both visible and hidden, both large and small, all of which are written in the book "lauhul mahfuzh". So they are afraid to commit fraud - cheating, and they try to be honest. They answer the chemical LKPD based on the results of cooperation but explored again by them for individual work through their discussion. Beside the honesty, they are also disciplined in following the rules provided by the researchers, for example, they always include sources in every question and they also follow the rhythm of time given by the researchers in every work on 5M activities, which starts from observing, asking, collecting data, associate, communicate and conclude in accordance with the time set by the researchers. While for the class X science 5 during the learning process, students look less active when compared to class X science 4. The students look more silent, only listen to the researchers but ask fewer questions or answer fewer questions while teaching, and less

meet the rules time and lack of honesty in obeying the orders of the researchers when compared with the class X science 4.

The students' religious characters are: (a) Obedience to God, (b) Gratitude, (c) Be sincere, (d) Fateful, (e) Care for the Surrounding Environment, and (f) Patience. The researchers observed that class X science 4 showed better religious attitudes when compared to X science 5. This is based on the results of questionnaires and peer observations, one example that can be proven is from their activities while learning in class, and their activities outside the class that always maintain cleanliness, and apply more Islamic values such as prayer in congregation, habituation of dhuha prayer, chanting and saying politely. This can be measured by the cleanliness of the room both inside and outside the X science classroom while the assessment of gratitude, sincerity, trustworthiness, and patience are the results of students' personal assessments, which are also observed by peers, whether the answers are appropriate or not.

2) Assessment of LKPD Qur'ani on the building of students science-religious characters in MAN 1 Cirebon City.

The learning in class X science 2 shows a higher score of science-religious characters when compared to class X science 3. This happens because in the learning process of class X science 2 the students are more enthusiastic and active in participating in the learning activities using LKPD Qur'ani. The assessment of the student's science-religious characters in class X science 2 is higher than X science 3. This can be proved during the learning process. The learning activities are divided into groups to fill in the LKPD, LKPD is divided into 5 groups.

The researcher can learn from the observation process that good cooperation and hard work carried out both within the group itself, and between groups. It can be seen in the student's discussion. When the group representative presents the results of the group LKPD discussion, the other groups, give input to each other in the questions and discussion sessions, so the students can understand the material of the atomic structure deeply based on the results of their own studies and analyzes. Besides, the students are honest in the process. It can be seen when they include excerpts, both the results of googling and reading chemistry books. The X science 2 class is more disciplined and obeying the rules, such as obeying the deadline of doing an assignment and collecting LKPD.

The X science 3 class also has good scientific and religious character scores. Still, it is smaller when compared to the X Science 2 grades because, in the learning process, they look more passive both in asking and answering questions given by the researchers. In addition, the lack of discipline in completing and collecting LKPD, where they sometimes exceed the targeted time, and some do not meet the rules of solving questions in the LKPD. For its religious characters, it is good, but the score is smaller because some students are still lacking in maintaining cleanliness, not being polite in behaving, and not being diligent in carrying out worship, such as rarely doing Dhuha prayer and reciting. This data is obtained based on the students' self-filling questionnaire, and the truth of the assessment is observed by their peers. Syaifei's research results show that the purpose of character education is to form individuals who are honest, kind, and responsible, respecting

and respecting others, fair, non-discriminatory, egalitarian, hard worker, and other superior characters [10].

3) *The Students Character Progress after being implemented LKPD Qur'ani in MAN 1 Plered Cirebon Regency and MAN 1 Cirebon City.*

The students' characters of MAN 1 Plered Cirebon Regency and MAN 1 Cirebon City after using LKPD Qur'ani showed a better change, based on the study of the Qur'an was found that God always sees and knows what is done, all of that is recorded in the book lauhul mahfuz It can build some characters such as an honest attitude, discipline, work hard and work together.

The religious values obtained after observing are: (a) thankfulness, (b) being obedient because they are aware of the perfection of the universe written in the Qur'an and proven through the material of the John Dalton atom, Bohr and quantum mechanics, (c) sincere, (d) patience and (e) trust by imitating the story of the prophet Muhammad SAW and the prophet Ayub AS, and (f) protecting the environment with concrete steps to separate waste before removing and disposing of trash in its place. The element applications of educational character can be made through (a) strengthening academic ability logically and honesty, (b) instilling the values of nationalism, (c) preserving the values of tolerance and mutual respect among others, (d) fostering democratic values and (e) enforce the law. If the five values become the focus of education in Indonesia, then the vision of Indonesia in 2045 to become a strong and developed country will be realized [11].

4) *The influence of LKPD Qur'ani on the Building of Students science-religious characters in MAN 1 Plered Cirebon Regency and MAN 1 Cirebon City.*

Based the linear regression test obtained data that the sig value of 0,036 is smaller than the critical sig of 0,05, then the hypothesis proposed is accepted so that it can be concluded: "There is an Effect of LKPD Qur'ani on Atomic Structure Material Against the Building of Students Science-Religious Characters." The LKPD Qur'ani had a positive influence on the Building of Students Science-Religious Characters both in MAN 1 Plered Cirebon Regency and MAN 1 Cirebon City, respectively, by 27,2% and 19,6%.

IV. CONCLUSIONS

Based on data analysis of the research instrument test can be concluded as follows:

- The learning in MAN 1 Plered Cirebon Regency and MAN 1 Cirebon City using LKPD Qur'ani has a positive effect of 27,2% and 19,6%, respectively.
- b. Chemical LKPD on Atomic Structure Material has excellent feasibility of 82,45% for use in MAN 1 Plered Cirebon Regency and MAN 1 Cirebon City.
- c. The scientific characters from the use of LKPD are honesty, discipline, cooperation, and hard work. While the religious characteristics formed are: (a) Obedience to God, (b) thankful, (c) Sincere, (d) Fateful, (e) Environmental Care, and (f) Patience.

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