Human reproductive system module based on Qur’an and hadith to improve students’ motivation and learning outcomes

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Abstract. This research was carried out on the development of learning modules about the human reproductive system based on the Quran and hadiths in West Labuhanhaji at a junior high school to improve students’ motivation and learning outcomes. The research and development method (R&D) with a Borg and Gall model was used in this study. The research population was students of class IX at in West Labuhanhaji, by a total of 92 students. A sample of 48 people was obtained through a purposive sampling technique. Data collection used test questions and motivation questionnaires. Data analysis was performed by using a t-test, with the acquisition of $t_{\text{count}} > t_{\text{table}}$ at a significance level of 0.05 at $6.414 > 1.71$, which means that there were significant differences in learning outcomes between the experimental and the control class. Learning motivation was assessed by using the self-determination method resulting in an average value of 4.69, meaning it is in a very good category. The results of the correlation between motivation and learning outcomes showed the value of $t_{\text{count}} > t_{\text{table}}$ which was $4.227 > 1.71$ with the value of $r$ approached +1 was 0.667 which means there was a positive correlation between motivation and learning outcomes.

1. Introduction
School and education can create religious and humanist values in students and enable them to realise the formation of religious values in the form of faith, science and religious impacts that are actualised in their environment and daily life [1]. Nowadays, the learning process has separated general knowledge from religion. Religion is delivered by religious subjects, which would guide the dichotomy of science and religion in students’ understanding [2,3].

A learning module is one of the many the teaching materials that facilitate independent learning by students and can be designed to allow students to get to know the creator through science [4,5]. The use of modules can help students develop the motivation to learn, to achieve the best scores and maintain students’ interest in learning [6,7].

Observations and interviews with science teachers at a junior high school in West Labuhanhaji revealed that learning resources for science subjects were minimal, and so were resources that harmonized both general and religious knowledge through the learning process. National Examination
(UN) result in graduation data has shown fluctuation the last three years. The results are about 59.05; 54.37 and 51.41 for the reproductive system material. This study aims to describe the differences between learning outcomes, motivation and the relationship of learning motivation with the learning outcomes in an experimental class and control class students on the subjects of the reproductive system by using modules based on the Qur’an and hadith.

2. Methods
The method used in this research is research and development (R&D). The development type chosen was developed by Borg and Gall, who suggest using to use ten steps in developing a product, namely (1) research and data collection, at this step information about learning done in schools has been collected, problems in schools have been identified for literature from various similar studies have been collected and analyzed (2) planning, meaning modules based on the Qur’an and hadith were designed according to aspects and materials needed in development. The draft content of the module made showed the relationship between the material of the reproductive system with the verses of the Qur’an and hadith. (3) Early product draft development, the step in which modules were developed according to the needs of the students and to support the learning process, with the hope of having an impact on improving student learning outcomes and motivation. Next (4) initial field trial, during which a first trial conducted was a module readability test that was developed. Modules were then submitted to the expert validator team. The validator provided input and advice on the module based on the Qur’an and the hadith that was developed. The following step is (5) a revision of the results of trials, in which the first trial drafts revised to become the main product based on input and suggestions from the validator of the Quran module and hadith developed. Then,(6) main product field tests, during which the trial was conducted on three teachers of Labuhanhaji 1 Public Middle School to see the teacher's response to the Quran based modules and hadith that were developed, as well as asking for advice from the teacher for the developed modules. (7) Product revisions are the next step, for which items unsatisfactory were revised again based on suggestions and input given by three Labuhanhaji 1 Middle School teachers. Then, (8) extensive field trials/feasibility tests were performed on three science teachers in Labuhanhaji junior high school and three science teachers in Labuhanhaji Barat junior high school. The penultimate step (9) final product revisions, had the revising modules to get the final product and can be implemented in the learning process. The revision was based on suggestions and input from six science teachers from SMPN 1 and 2 Labuhanhaji Barat to produce the final product. Finally (10) dissemination and distribution, at this step, the final developed was conducted in three state junior high schools in West Labuhanhaji according to the study population.

3. Results and discussion
The expert validator consists of three lecturers, are one material expert, one linguist, and one evaluation expert.

| No | Validators | Score Average | Interpretation |
|----|------------|---------------|----------------|
| 1  | I          | 3.89          | Worthy         |
| 2  | II         | 4.00          | Highly feasible|
| 3  | III        | 3.85          | Worthy         |
|    | Average    | 3.91          | Highly feasible|

The results of the development of the Quran and hadith-based modules with range values 3.00-5.00 has categorized appropriately for using through learning activities in accordance with previous research [8]. The first trial was conducted on June 30th, 2018, with three science teachers at SMPN 1 West Labuhanhaji.
Based on the class going experimental class orders from science teachers from two schools. The experimental class is class IX obtained, this study by determining results obtained by subject experts, languages divided into 26 positive understanding the material. The motivation questionnaire consists of 36 statements, which were given to class IX students who had been heterogeneously. The module is also equipped with LKPD to help students in the learning process was assessed, and the module revision is based on input and suggestions from 6 teachers in accordance with previous research [9]. The trial two was held on July 18th and 20th, 2018 and involved 6 natural science teachers, from SMPN 1 of West Labuhanhaji and SMPN 2 West Labuhanhaji.

The revision where the modules did not fit in the first criterion was revised based on the science teachers’ suggestion and input. The trial two was held on July 13th and 20th, 2018 and involved 6 natural science teachers, from SMPN 1 of West Labuhanhaji and SMPN 2 West Labuhanhaji.

### Table 2. Module feasibility assessment results by science teachers at SMPN 1 Labuhanhaji.

| No | Validator | Score average | Interpretation    |
|----|-----------|---------------|------------------|
| 1  | I         | 4.53          | Highly feasible  |
| 2  | II        | 4.56          | Highly feasible  |
| 3  | III       | 4.55          | Highly feasible  |
|    | Average   | 4.54          | Highly feasible  |

The feasibility of modules that are in the range of 3.00-5.00 or more than 60% is feasible to use in research in accordance with previous research [9]. The final evaluation step is to improve the results of the second trial, and the module revision is based on input and suggestions from science teachers from two schools who were evaluators. The product distribution was held on July 18th, 2018. Modules were given to class IX students who had been separated into the experimental and control classes based on the initial test of understanding level.

The application of modules in the learning process was made by dividing the experimental class students into six groups heterogeneously. The module is also equipped with LKPD to help students in understanding the material. The motivation questionnaire consists of 36 statements, which were divided into 26 positive comments and ten negative statements. Test questions were validated by subject experts, languages expert and an evaluations expert before the test was conducted. It consists of an instrument. It was consists of 50 multiple choice questions based on the Qur’an and hadith. The reliability results obtained by SMPN 2 West Labuhanhaji are 0.909, which is in the high category. Based on the test questions from the 50 questions that were prepared, obtained 30 questions categorised good and can be used to determine the learning outcomes of students.

The purposive sampling technique was used to determine the experimental and the control class in this study by doing a pretest for all the members of class IX. Based on the class test score average obtained, it can be seen that the average value in both classes is the same value or very close value. The experimental class is class IX-1 which earned an average score of 26.11 while the control class is class IX-3 with an average value of 26.94. The motivation of students can be assessed by using a self-determination test. Self-determination assessment is the ability of students to achieve their academic, social and career in accordance with previous research [10].

### Table 3. The assessment results of West Labuhanhaji teachers at SMPN 1 and SMPN 2.

| No | Validator | School      | Score average | Interpretation    |
|----|-----------|-------------|---------------|------------------|
| 1  | I         | Junior High | 4.72          | Highly feasible  |
| 2  | II        | School 1 West | 4.68      | Highly feasible  |
| 3  | III       | Labuhanhaji | 4.67          | Highly feasible  |
|    | Average   |             | 4.69          | Highly feasible  |
| 4  | IV        | Junior High | 4.76          | Highly feasible  |
| 5  | V         | School 2 West | 4.89      | Highly feasible  |
| 6  | VI        | Labuhanhaji | 4.83          | Highly feasible  |
|    | Average   |             | 4.83          | Highly feasible  |
Table 4. Students’ learning motivation result

| School Name                  | Motivation assessment for each indicator (%) | Average | Criteria      |
|-----------------------------|---------------------------------------------|---------|---------------|
| SMPN 2 West Labuhan haji    |                                             |         |               |
|                             | Attention                                   | 4.663   |               |
|                             | Interest                                    | 4.6     |               |
|                             | Confidence                                  | 4.7     |               |
|                             | Satisfaction                                | 4.8     |               |
|                             |                                             | 4.69    | Highly feasible|

Based on the results in Table 4, students had attention, interest, confidence, and satisfaction in learning by using learning modules based on the Quran and hadith, especially reproductive system material in humans. Teaching materials that are integrated into Islamic values improved students’ responses and motivation in learning, and it gave positive changes for students’ learning outcomes in accordance with previous research [11].

Figure 1. The average score of pretest, posttest, and N-gain of SMPN 2 West Labuhanhaji

A higher score was achieved in the experimental class than the control class. The N-gain value of the experimental class reached medium, while the control class reached the lowest. Islamic values integrated science’s module improved student learning outcomes and the N-gain value of 0.55 [12]. The data analysis was performed to test the hypotheses made by the researchers towards the learning by using module development had been done and compared to those class that did not use the module. Data were analyzed using SPSS version 18 with the following results. The data included the values of the pretest, posttest, and N-gain of the experimental and control classes.

Table 5. The results of normality, homogeneity and t-test pretest, posttest and N-gain of learning outcomes

| School Name                  | Learning outcome | Class      | Normality     | Homogeneity | t-test | Significance     |
|-----------------------------|------------------|------------|---------------|-------------|--------|------------------|
| SMPN 2 West Labuhan haji    | Pretest          | Experiment | 0.451 (Normal)| 0.583       | 0.037  | 1.71 With no difference |
|                             |                  | Control    | 0.310 (Normal)| (homogeneous)|        |                  |
|                             | Posttest         | Experiment | 0.232 (Normal)| 0.657       | 6.414  | 1.71 There were differences |
|                             |                  | Control    | 0.294 (Normal)| (homogeneous)|        |                  |
|                             | N-gain           | Experiment | 0.210 (Normal)| 0.500       | 6.686  | 1.71 There were differences |
|                             |                  | Control    | 0.143 (Normal)| (homogeneous)|        |                  |
Table 5 showed that the normality and homogeneity test of the learning outcomes of students with the N-gain value of the experimental class and the control class value was sig. > 0.05, it concluded that both data are normally distributed and homogeneous. Based on Table 6, the calculation \( t_{\text{count}} \) and \( t_{\text{table}} \) of the pretest were 0.337 < 1.71. The conclusion that \( h_o \) was accepted and \( h_a \) was rejected, there was no significant difference in the learning outcomes of the experimental and control class. N-gain value of student learning outcomes in the experimental class is higher than the control class, and These results indicate there are significant differences. The module is a teaching material that able to stimulate students to carry out the activities independently [13]. The correlation test results can be seen in Table 6.

| School Name | \( \bar{X} \) | \( \bar{Y} \) | \( r_{\text{count}} \) | \( T \) | Significance |
|-------------|----------------|----------------|----------------|---------|--------------|
| SMPN 2 Labuhanhaji West | 72.3 | 91 | 0.667 | 4.227 | 1.71 |

The value of \( r \) showed that the results are close to +1, so the correlation between variables is strong and unidirectional and positively correlated. Learning motivation had a positive correlation with student learning outcomes, and high motivation had an impact on improving learning outcomes in accordance with previous research [14]. Strengthening the material based on the Qur’an and hadith in the module had a positive impact on students’ understanding of the material too. It mainly added to the understanding of the Qur’an that there was a relevance between science and the Quran. The relationship between science and the Qur’an was able to give moral values that had been separate nowadays in the learning process by rising the dichotomy of science in the school education concept [15,16]. The integration of Islamic values knowledge shaped the character of the children through analyzing and relating to the verses of the Qur’an, which are the source of all knowledge in accordance with previous research [17,18]. Developed by integrating the verses of the Qur’an, the science module increased the effectiveness and high attractiveness of students and it had a good effect on learning outcomes. The integration of Islamic values in science learning improved the quality of students’ learning outcomes [19,20]. The learning atmosphere was fun, and students were enthusiastic while learning took place. The application of modules has increased motivation and learning outcomes up to 85% of the total existing students from the previous research [21,22].

4. Conclusion

There was an increase in students’ learning motivation in four aspects: attention, interest, confidence, and satisfaction. There were significant differences in the learning outcomes from experimental and control classes, and there was a positive correlation between motivation and learning outcomes by using the Qur’an and hadith based learning module on reproductive system material.

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