Developing The Physics Module Containing Quranic Verses To Train The Local Wisdom Character

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Abstract. This research was aimed to produce physics modules, containing Quranic verses, that were valid, practical and effective to train the character of local wisdom. This research was a research and development by using ADDIE (Analyze, Design, Develop, Implement, and Evaluate) model. Data was collected by observation, questionnaire and test. The Instruments used were the module validation sheet, questionnaire, test of learning result, and questionnaire of student character achievement. The module developed was validated by three experts. The module has been tested on 30 students of class IX state junior high school 11 Banjarmasin. The results of the study include: (1) The results of validation of learning experts and material experts had valid categories; (2) the practicality of modules developed based on student responses had high practicality categories; (3) Module effectiveness had medium category; and (4) the attainment of local wisdom in the form of baiman, bauntung, and batuah, were in good value. The conclusion is that the solar system module containing Quranic verses to train the character of local wisdom is worthy of use in high school learning.

1. Introduction
Various efforts have been made by the government in order to improve the quality and educational quality in Indonesia [1]. In this case, one of the ways is through improvements in teaching materials such as modules that aim to facilitate students to learn independently well [2]. A good module planning affects the teaching and learning success [3].

In relation to the implementation of learning activities, the attachment of the Minister of Education and Culture Regulation No. 65 of 2013 on Process Standards, affirms that the learning process in the educational unit is held interactively, inspiring, fun, challenging, motivating learners to participate actively, providing enough space for initiative, creativity, and independence in accordance with the talents, interests, and physical as well as psychological development of learners [4]. In order to support it, the required learning modules can be applied to all subjects one of them is the subject of Natural Science in which there is the material of physics.

Physics applications are often encountered and useful in everyday life [5]. Therefore, Physics as a science that grows and develops in society, in its teaching must focus on the values contained in the daily life of local people, particularly in the school learning [6]. Physics learning will be more meaningful if learners can develop experience to understand better the real world through physics learning [7]. This can be obtained through the association of the application of physic materials with local potentials of the area which is often referred to as local wisdom.
Local wisdom-based education is education that uses the socio-cultural wealth of the community as a capital for the development of educational activities [8]. Many traditional values that live in society can be used as a charge for character education. These traditional values have become local wisdom [9].

Therefore, the development of the character of local wisdom in learning required the existence of learning devices that support the integration of the character's values [13]. Instilling local cultural values in the learning process is very important in balancing moral and intellectual needs [14]. The values of the wisdom of local culture are actually introduced and instilled in the awareness of students, so that the noble values still exist and are cultured in their behaviour.

Efforts to improve the character of students in schools through science learning on physics materials required a module based on value local wisdom, especially students in a region whose society still upholds an expression of local wisdom in living social life such as the community in the city of Banjarmasin, South Kalimantan. The local wisdom that is still being held by the people of Banjarmasin are the watchwords Baiman, Bauntung, Batuah which have various meanings, but an outline motto Baiman, Bauntung, Batuah on the base itself contains characters that are necessary for education. Especially in the learning process in the school that is in training spiritual characters and social characters that are never far from the lives of students’ daily [14]. Integrating the character values of local wisdom into learning can be done through the integration of the verses of the Qur'an with learning material.

Based on the results of interviews with a science teacher who teaches ninth grade at state junior high school 11 Banjarmasin, it was known that in implementing science lessons, especially physics, the science material has never been conveyed by linking to the local wisdom Banjarmasin community or associating the science material with the verses Al-Qur'an as its reference. In addition, the learning process has not maximized the process of character formation of students. Responding to this problem, it can be stated that in the learning process a module that links the verses of the Quranic to trace the character of local wisdom has never been used. This resulted in general science and religious knowledge taught in schools are on their own paths and not in accordance with the vision of schools based on faith and piety.

Based on the problems above, the solution of the problem is there is a need for a natural science module on the physics material of the solar system containing the Quranic verses to train the local wisdom character. In order for students to study science on physic materials, they prioritize the study of basic concepts in local wisdom as part of not separating the two domains and strengthening character education as a mental revolution [15]. Related to the physics material that contains Quranic verses, physics learning materials can prove the truth of Quran so that it can improve the sense of faith and piety of students [16]. This is in line with the vision of the mission of state junior high school 11 Banjarmasin for the improvement of faith and piety.

Previous research only examines the implementation of Baiman, Bauntung, Batuah in the lesson plan [14]. Therefore, this research is conducted to develop the solar system module containing the Al-Qur'an verses to train the local wisdom character. The purpose of this study is to describe the feasibility of the solar system module containing the Quranic verses to train the local wisdom character in terms of validity, practicality, effectiveness, and attainment of local wisdom.
2. Method

2.1. Research Design

This research was a development research by using the ADDIE model which consists of Analyze, Design, Develop, Implement, and Evaluate. The steps of development can be seen in Table 1. The subjects of the try out in this research were 30 students of class IX-E state junior high school 11 Banjarmasin. The instruments used in this research were module validity sheet, student response questionnaire, learning result test, and questionnaire of student character achievement. The data obtained in the research instrument were processed descriptively and qualitatively.

| Step        | Sample Task                                             | Sample Output                                           |
|-------------|---------------------------------------------------------|---------------------------------------------------------|
| Analysis    | Needs analysis, task analysis and instructional analysis | Learner profile and problem statement, description instructional content and establish what must be learned. |
| Design      | Identification of objectives, Plan instruction and Identify resources | Measurable objectives, instructional strategy and specification. |
| Development | Developing learning materials, expert validation and small group testing | Module prototype and validator comments |
| Implementation | Tryout in real condition                                   | Student comments and data |
| Evaluation  | Formative and summative evaluation                       | Revised module prototype and the package report         |

2.2. Data Analysis Technique

The module validity that was developed can be measured from the module validity sheet including content validity and module appearance. This study average score is the results of the academician’s assessment and practitioners, and adapted to the criteria [17]. The valid category of the module specified percentage matches validation results using the equation [18]. Then, compare it to the validity criterion based on [18].

The module practicality can be measured by the student response questionnaire [19]. The result obtained by using student response that has been obtained then adjusted to the criteria that have been determined to determine the classification of practicality judgments based on [20].

The effectiveness of the module is seen through the completeness of student learning outcomes [21] using student learning outcomes test [22]. The data obtained can be analyzed using the gain test [23]. The effectiveness criteria of student learning outcomes based on [24].

The achievement of the students' local wisdom character was obtained from a questionnaire of character achievement [25]. The questionnaire includes the student's achievement character of Baiman, Bauntung, and Batuah characters. The scores that have been obtained from the questionnaire then were averaged and adjusted to the criteria of character achievement are based on [20].

3. Results and Discussion

3.1. Product of the Research and Development

The developed products are in the form of learning physics module in the solar system material containing the Quranic verses to train the local wisdom Baiman, Bauntung, and Batuah characters. Baiman, Bauntung and Batuah term is a picture of the expected human conception by Banjar community and about how educational practice should be done based on the local wisdom [26]. The term Baiman, bauntung, Batuah imply that someone who has a religious personality (baiman) is always helpful for a lot of people (bauntung) and the human being’s dignity is high (Batuah) [27]. In this study, Baiman character aims to measure students' faith and devotion to God Almighty, Bauntung to measure cooperation on students during the learning, as well as Batuah to measure honesty in students during the learning process. Character Baiman had 6 indicators in unity faith, character Bauntung had
indicators: soul social cooperation in building a joint purpose, consider others and motivate others and character Batuah had indicators rectitude in every work and every word. This module had above module existed because this module loads Quranic verses and train the local wisdom character Banjarmasin. In Quranic verses, there are kinds of the solar system. This Quranic verses can be connected when processing learning the solar system so that it could be make learning meaningful [7].

**Figure 1.** Integration of the value of the local wisdom and Al Quran verses on solar system material in the physics module developed

### 3.2. Module Validation

The module eligibility in this research can be seen from the validity of the module that includes content and display validation. The following is the result of module validity developed presented in Table 2.

| Aspects          | Score | Validity Category |
|------------------|-------|-------------------|
| Consistency      | 3.78  | Highly valid      |
| Format           | 3.17  | Valid             |
| Attractiveness   | 3.75  | Highly Valid      |
| Language         | 3.00  | Valid             |
| The quality of contents | 3.70  | Highly Valid      |
| Evaluation       | 3.67  | Highly valid      |
Based on Table 2, it can be seen that the module validation consists of content validation and module display developed at the valid category. This is because the modules developed in content and display can be said to support effective learning. This is consistent with the theory that in order to produce a learning module capable of acting out its role and role in effective learning, the module needs to be designed and developed by taking into account several elements that require for it: format, organization, attractiveness, letter size, blank spacing, and consistency [28]. Later modules developed are also relevant to the development of the student's needs and current conditions.

### 3.3. The Practicality Module

The results of module practicality can be seen in Table 3.

| Indicator                     | Score | Category     |
|-------------------------------|-------|--------------|
| Ease of Use                   | 3.59  | Very practical |
| Benefits                      | 3.66  | Very practical |
| The efficiency of learning time | 3.40  | Very practical |

Based on Table 3, the overall results of the practicality analysis as measured by a student response questionnaire consisting of ease of use, benefits, and time efficiency [29] are on very practical categories. This is in line with the purpose of module compilation that is to motivate self-learning students to be able to learn independently [30] so as to achieve the learning objectives that have been set out [3] so that this provides benefits for students. In addition, the module function can make the time efficient for students in the learning process [30]. This module will be meaningful if students can easily use them [31].

### 3.4. The Effectiveness of Module

The effectiveness of developed modules can be seen in the table below.

| Aspect          | Score  |
|-----------------|--------|
| Average of pre-test | 11.42  |
| Average of post-test | 71.22  |
| N-gain          | 0.67   |

Based on Table 4 through the gain test, it was obtained a value of 0.67 which is included in the medium category. The cause of the effectiveness that in moderate category is because in the current learning activities using the module developed in progress, the students were active following learning that makes students understood and grasped the material described in the module. Therefore, the material can be delivered completely and ultimately, and the learning objectives in the module can be achieved well. The integrated IPA module of Quranic verses makes learning more interesting [32], since students get things that have not previously been obtained [33]. As a result, students can more easily understand the material contained in the module [34]. There is a research which states that effective learning because students learn the concepts and principles of physics in a real and able to apply it in everyday life [35].

This is in accordance with the opinion [28] that the module is effective for achieving the purpose of teaching and learning activities [36]. Learning oriented local wisdom can improve student learning outcomes, because it gives a more contextual impression in learning so that students can easily understand the material that is studied [37].
3.5. The Achievement of Students Character

The module developed aims to train the local wisdom of baiman, bauntung, Batuah character. Student character achievement is measured by questionnaire [38]. The following table results of student character achievement.

| Character | Average | Category  |
|-----------|---------|-----------|
| Baiman    | 4.35    | Very good |
| Bauntung  | 4.09    | Good      |
| Batuah    | 4.07    | Good      |

Through Table 5, the overall character achievement is in good category. Thus, this good character achievement stated that the science module in the solar system containing Al-Qur’an verses can train the local wisdom character. The existence of Quranic verses as a supporting material explanation is expected to increase the faith, piety and gratitude of students [20]. This is supported by [15] stating that "In order for students when studying science, still prioritizing the study of its basic concepts, local wisdom is revealed as part of not separating the two domains and strengthening character education as a mental revolution." Besides, the local culture based learning quite effectively used to develop local moral values [6] such as the character of local wisdom. Besides that, the physics-based local knowledge learning can optimize students’ character [39]. Therefore, it can be concluded that the achievement of Baiman, Bauntung, and Batuah characters in this study are in accordance with the purpose of the research. Then, if it is summarized into a single unit, the students have Baiman, Bauntung, and Batuah characters means that the student is a figure of the religious man, exemplary, useful for other human beings as well as a noble man in the eyes of Allah SWT. Such this human figure is the goal of the presence of character-based local wisdom in Banjar tribe communities in Banjarmasin.

4. Conclusion

Based on the results of the development and testing, it is concluded that the solar system module containing the Al-Qur'an verses to train the local wisdom character that is tested in ninth grade E Public Senior High School 11 Banjarmasin is eligible to use in learning. This is supported by the validity of the module developed based on the validators’ comments is valid and fit for use, the practicality module is measured through student questionnaire responses revealed very practical category and the effective module developed which is on moderate category seen through the level of achievement of the learning outcomes of students' mastery of learning objectives that have been set. The achievement of Baiman, Bauntung, and Batuah character on student achievement can be measured through questionnaires in which the overall character of students is on good category.

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